

**ABSTRACTS OF PAPERS TO BE PRESENTED AT THE 70TH NATIONAL
CONFERENCE ON TUBERCULOSIS AND CHEST DISEASES TO BE HELD AT
LUCKNOW ON 20TH & 21ST FEBRUARY, 2016**

**EVALUATION OF PROVINCIAL CAPACITY TO PLAN & CONDUCT ADVOCACY
COMMUNICATION AND SOCIAL MOBILIZATION FOR TB CONTROL IN INDIA**

Anukampa Sangwan, Shikha Dhawan, Niraj Kulshreshtha

Objective: Effective Advocacy Communication and Social Mobilization (ACSM) can generate demand for earlier diagnosis and correct treatment. Under Revised National TB Control Program, monitoring & evaluation indicators were developed for ACSM. We undertook a study to evaluate the implementation of ACSM activities in all states.

Design/Methods: Compilation of key ACSM Monitoring & Evaluation indicators from all States for 2013-14 was undertaken.

Results: 22 State teams (STO, Consultant & IEC Officer) were sensitized in ACSM, 25 IEC Officer were trained, 30 states had IEC material available & displayed, 26 states undertook patient provider & community meetings & 28 states had undertaken supportive supervision. States with sensitized & trained personnel were able to propose annual targeted IEC action plan, could secure funds for ACSM activities, and could implement quality IEC activities & new innovations. There was statistically significant correlation ($r = 0.4$, $p < 0.05$) between training of IEC Officers & number of district visited. Also significant correlation was found between patient provider meeting & community meetings ($r = 0.944$, $p < 0.001$). Details will be provided during the conference.

Conclusion: Sensitization & trainings aimed at implementing IEC activities are pivotal for creating awareness & demand generation of RNTCP services. In the event of underperformance for any of the indicators, an analysis of constraints could lead to identification of the problems & possible solutions.

**KNOWLEDGE, ATTITUDE AND PRACTICE OF TUBERCULOSIS AFFECTED
COMMUNITY OBSERVED DURING CENTRAL INTERNAL EVALUATIONS (CIE)**

Anukampa Sangwan, Shikha Dhawan, Niraj Kulshreshtha, Sunil Khaparde

Objective: Revised National TB Control Programme (RNTCP) has structured mechanism for Monitoring & Evaluation of program implementation including Information, Education and Communication activities. We interviewed people affected by TB during Central Internal Evaluations (CIE) to assess their Knowledge, Attitude and Practices (KAP).

Design/Methods: 27 CIEs were conducted from 2012-2014 during which 27 states & 54 districts were evaluated. We interviewed randomly selected people affected by TB- 321(2012),

432(2013), 608(2014) and assessed their knowledge, awareness and practices with regards to TB... Responses were compiled over time to analyze KAP.

Results: Analyses of KAP response for last three years showed 4% (46%-50%) increase in awareness about TB disease prior to acquiring it, awareness on TB treatment showed drop of 12% (96%-84%), awareness of correct treatment was stagnant (86%-85%), awareness on cough etiquettes increased by 14% (68%-82%) while awareness of HIV status improved by 9% (56%-65%). Attendance in patient provider meetings marked a gain of 4% (19%-23%). Status of current & past smokers increased to 20% (29%-49%). Consulting private providers at onset of symptoms showed drop of 21% (55%-34%). Details will be provided during the conference.

Conclusions: There is a trivial increase in KAP among interviewed people affected by TB. This calls for a robust multipronged 360 degree mass media approach and qualitative patient provider meetings to sensitize and counsel people affected by TB.

EFFICACY AND SAFETY OF LEVAMISOLE AS AN IMMUNOMODULATOR IN THE TREATMENT OF DRUG RESISTANT TUBERCULOSIS

K.C. Mohanty, Agam Vora, Salil Bendre, Nikhil Sarangdhar

INTRODUCTION AND SCOPE OF THE STUDY:

In the emerging scenario of drug resistant, MDR (multi drug resistant) & XDR (extensively drug resistant) tuberculosis, immune-modulators have been suggested by WHO as adjuvants to anti-TB drugs. This study aims to study the efficacy of levamisole, an inexpensive oral immune-modulator in patients of drug resistant tuberculosis along with recommended appropriate regimens of anti-TB drugs in terms of early sputum conversion which would ultimately reduce infectivity of the index cases, thereby cutting down the chain of transmission, which is one of the primary goals of tuberculosis control.

OBJECTIVES:

1). To assess sputum conversion along with clinical improvement in patients of sputum positive pulmonary tuberculosis (Drug resistant, multi-drug resistant and extensively drug-resistant patients of pulmonary tuberculosis) receiving levamisole as an adjunct to therapy as well as improvement in patients of Extra-pulmonary Tuberculosis receiving levamisole as an adjunct to therapy.

2). Observe drug toxicity of Levamisole.

METHODOLOGY: PATIENTS AND INTERVENTIONS :

A total of two hundred patients diagnosed with Drug resistant / Multi-Drug resistant (MDR) and extensively drug resistant (XDR) Tuberculosis were stratified into 3 groups, viz.

1.) Pulmonary TB 2.) Extra – Pulmonary TB 3.) Pulmonary with Extra-pulmonary TB.

In each group, the patients were randomised into two arms, the study arm (receiving Levamisole 150 mg oral tablet on alternate days in addition to recommended regimen of anti-TB drugs) and the comparison arm (receiving only anti-TB drugs). Treatment was partially supervised to ensure compliance. Sputum conversion in pulmonary cases and other relevant investigations in extra-pulmonary cases were assessed at baseline, and thereafter at intervals of 30 days for a period of 3 months in addition to clinical assessment. The results were analysed at the end of 90 days.

RESULTS & ANALYSIS:

Sixty out of seventy-one patients (84.5%) who were receiving Levamisole along with AKT showed significantly better ($p = 0.0011$) sputum conversion as compared to fifty-four out of eighty-six patients (62.8%) receiving AKT only. Eighty-two out of eighty-nine patients (92.1%) who were receiving Levamisole along with AKT showed significantly better ($p = 0.0001$) improvement as adjudged by clinical and other parameters as compared to sixty-two out of one hundred and eleven patients (55.8%) receiving AKT only. Twenty-seven out of eighty-nine (30.3 %) patients receiving levamisole developed mild Gastritis as compared to nineteen out of one hundred and eleven patients (17.2%) ($p = 0.013$). Apart from that, no significant adverse drug reactions were observed.

CONCLUSION :

Early sputum conversion along with better clinical improvement was achieved in patients of Drug resistant, MDR & XDR TB with the use of Levamisole. It is an inexpensive oral immune-modulator with acceptable limits of toxicity and hypersensitivity, hence it can be used in the treatment of tuberculosis along with anti-Tuberculosis drugs for improving treatment response.

PARTIALLY SUPERVISED TB TREATMENT AT A PRIVATE MEDICAL COLLEGE AND HOSPITAL: 15 YEARS EXPERIENCE

K.C. Mohanty, Agam Vora, Salil Bendre, Nikhil Sarangdhar

DESIGN : Retrospective analytical report of 15 years data at K. J. Somaiya medical college DOTS and DOTS Plus centre established under public-private partnership by the Revised National TB control programme (RNTCP) .This is the first initial study conducted on the efficacy of Modified (Partially observed) Tuberculosis treatment as an example of public-private partnership.

SETTING : K. J. Somaiya Medical college & Hospital, Mumbai was the first private medical college globally to demonstrate efficacy of partially observed TB treatment, the first in Maharashtra to start DOT centre under RNTCP since June 1999, the first to admit TB patients with HIV and the first to start OPD based anti-TB treatment for Multi-Drug resistant and Extensively drug resistant TB (DOTS Plus) under RNTCP.

PATIENTS & INTERVENTIONS: A retrospective analysis was carried out at K. J. Somaiya medical college & hospital, Mumbai taking into consideration the performance of the DOTS centre from June 1999 up to December 2014. Patients were enrolled as per RNTCP norms into treatment categories. “Partially observed treatment” was implemented where patients were administered the first dose under supervision and were given medicine packets for the next 2 weeks. Follow-up was done every 2 weeks when the patient returned with empty sachets. Sputum for AFB smear, culture, Chest X-Ray and other investigations were performed as per programmatic norms.

CONCLUSION: Sputum conversion was observed in 774 out of 869 patients on CAT I (89.06%), 192 out of 258 patients in CAT II (74.8%). 97 patients have been enrolled so far on DOTS Plus and 18 out of 21 patients (85.2%) whose treatment has been completed have been declared cured. The report of partially supervised TB treatment is better than directly observed (supervised) treatment reveals that cure rates are better than the national average (88% in CAT I, 71 % in CAT II and 56% in DOTS Plus), showing that for the success of public health TB control programmes it is the counselling, faith in patients and the human touch of the implementors is important and not the methodology. Also, with partially supervised treatment, one TB health visitor (TBHV) can manage about 120 patients per year as compared to only 35 per year with directly supervised treatment. The same staff are also able to look after the DOTS Plus centre with no additional burden.

**ADHERENCE MODELING FOR TREATMENT ADHERENCE AND RISK
ASSESSMENT OF
TB PATIENTS BEING TREATED IN THE PRIVATE SECTOR PATNA, INDIA**

**Nita Jha, Sirisha Papineni, Pranati, Puneet Dewan, Kiran Kumar Rade, SreenivasA,
Neeraj Kulshresthra**

Background

Incomplete adherence to treatment is a significant challenge to TB control due to several structural, social, economic and behavioral factors affecting patient treatment compliance. Achieving successful completion rates requires a predictive, targeted and dynamic adherence model that can identify patient risk and the intensity of monitoring required for an increasingly growing number of patients with highly varied and complex compliance patterns.

Methods

The adherence algorithm developed identifies, weighs and interacts with the patient and provider-related variables to rank-order patients across 3 priority categories:

- Electronic Prescription Refill Data
- Patient Reported Adherence
- Patient Type (Previously Treated/ MDR/ HIV positive)
- Historic Adherence Data
- Complexity of Regimen
- Patient Migration
- Movement across Treating Providers
- Occupation/Religion

“High” priority category receives active patient monitoring with a household visit done by health volunteer for counselling and reporting adherence, at varied frequencies. Additionally, weekly outgoing calls from a call centre contacts patients for adherence information. “Medium” and “low” priority categories receive calls on a weekly and fortnightly basis, respectively. Categorization of patients is dynamic.

Results & Conclusion

The adherence algorithm has identified, risk-categorized and effectively monitored 8791 patients out of 13833 patients initiated on TB drugs in the private sector over a period of one year. 32% of patients have been categorized as “High priority”, 47% as “Medium priority” and 21% as “low priority”.

The applied monitoring methods have improved reaction-times to patient complications and return to compliance. The algorithm is currently being used to develop a probability model in order to predict non-adherence, enabling early and preventive interventions while testing its impact on treatment outcomes of patients.

APPLICATION OF INFORMATION & COMMUNICATION TECHNOLOGY IN THE DELIVERY OF FREE DRUG TO TB PATIENTS TREATED IN THE PRIVATE SECTOR IN PATNA, INDIA

Nita Jha, Pranati, Sirisha Papineni, Puneet Dewan, Kiran Kumar Rade, Sreenivas A, Neeraj Kulshresthra

Background

Implementation of information and communication technology (ICT) is a key strategy to address the challenges of increasing demands, escalating costs, limited resources and workforce scarcities faced by the healthcare system. Universal Access to TB Care (UATBC) project, based at Patna, in the state of Bihar, India, demonstrates integration of an innovative ICT based model within the existing private healthcare system to enable free anti-TB drug distribution to patients.

Intervention

The ICT model involves generation of e-voucher for a prescription of anti-TB drugs by the doctor or paramedical staff. Voucher generation is conditional upon notification of patients.

Deploying a voucher mechanism helps the program track TB drug delivery against notified patients. The pharmacy validates e-voucher via ICT application and dispenses the prescribed drugs free to patients. Voucher generation and validation are linked to unique case IDs for each patient. Voucher validation calls act as trigger for payment to pharmacies in lieu of the free drugs offered. A central contact centre manages case registration, voucher generation and validation through a database that uniquely tracks patients, providers and the dates of interaction.

Results

Till August 2015, 615 physicians and 663 pharmacies in Patna are participating in this ICT model. Over 44000 e-vouchers have been generated and validated offering free anti-TB drugs to more than 12,400 patients, which accounts for over 87% of all notified TB patients. 88% of the patients receiving e-vouchers redeemed it within 3 days.

Conclusions

The model offers an easy, user-friendly and cost effective mechanism to manage drug delivery to patients. It offers simple and localized solution to free drug delivery in the private healthcare sector.

PREVALENCE OF DIABETES IN IDENTIFIED TB CASES IN MUMMIDIVARAM TU AREA IN EAST GODAVARI DISTRICT OF ANDHRA PRADESH

P.S. Sarma

1. Objectives of the study:

The objective of this study is to know the Prevalence of Diabetes in identified TB cases in Mummidivaram TU area in East Godavari District of Andhra Pradesh.

2. Methodology of investigation:

Data of Identified TB patients from Mummidivaram TU and also those attending the OPD of KIMS Medical college Hospital, Department of Pulmonology at Amalapuram is taken and were contacted and their blood sugar values were tested using Glucometer (RBS).

All the patients were counselled and Nutritional support and Vitamin Tabs were given to them at the time Blood sugar testing.

3. Main findings:

A) 352 patients were screened during a period of 18 months from July 2013 and Dec 2014.

B) Out of this group 227 were males ; 113 females and 12 children.

C) Age group-wise: below 12 yrs: 10M + 2 F; 13-25 yrs: 24 M + 6 F; 26-50 yrs : 90 M + 60 F; Above 50 yrs: 130 m + 98 F: Total: 352

D) 11 Males and 2 Females had Blood sugar values of more than 140 mgs /dl. Total: 13

E) 24 are Sputum Positive for AFB .Males: 12 Females 12; F) 316 are PTB and 36 are EPTB;

G) HIV positive are : 12 all males

Analysis of 13 patients having blood sugar value of more than 140mgs /dl:

AGE GROUP	BELOW 12 YRs	13-25 yrs	26 -50 yrs	Above 50 YRS	TOTAL	
TOTAL	0	0	6	7	13	
Gender	SPUTUM +	SPUTUM -	PTB	EPTB	HIV+	HIV-
MALES	2	3	5	3	0	8
FEMALES	1	2	3	2	0	5
TOTAL	3	5	8	5	0	13

4. Conclusion: 3.69% of TB patients had high Blood sugar value. Only one visit to each patient. No further follow-up was done. Only 4 were known diabetics in this group. No significant impact of Diabetes was noticed in this study.

SELF REPORTED RESPIRATORY MORBIDITIES AMONG MINERS IN RURAL RAJASTHAN

Absar Ahmad, Manoj Alagarajan

Background: Rajasthan is producing about 90% of sandstone and about 2.5 Million people are engaged in this unorganized mining. Sandstone contains 60-70 % of silica that causes respiratory disease like Silicosis, Pneumoconiosis and TB. However, reliable data are unavailable for these occupational groups. Hence the current study is small step to find out respiratory morbidity pattern among sandstone miners.

Methods: A cross-sectional study was carried out in May to September 2014 in Karauli district of Rajasthan under the Ph.D. program after obtaining permission from institutional ethics committee. Karauli block is selected for field work keeping in view 80 percent mines are in this block and from it, 10 villages of population more than 200 were selected with probability proportional to population size (PPS) sampling. Data was collected using a questionnaire containing items to assess socio-demographic profile and current health problems.

Results: Out of total 356 mine workers, 221 were currently miner and 135 were currently non-miner (not working or shifted to another work). The mean age and Body Mass Index of workers was 45 (95% CI: 43.77, 46.41) and 19 (95%CI: 18.80, 19.38) respectively. The prevalence of chronic cough, chronic wheeze, chest pain and shortness of breath were 69, 28, 67 and 62 percent respectively. Twenty nine percent of respondents ever had DOTS.

Conclusion: This study concluded that respiratory morbidity was common among miners.

PHARMACOKINETICS OF RIFAMPICIN, ISONIAZID AND PYRAZINAMIDE IN A COHORT OF TUBERCULOSIS PATIENTS

Geetha Ramachandran, A.K. Hemanth Kumar, T. Kannan, V. Sudha, K. Ramesh, J. Lavanya, Soumya Swaminathan

Objective

To study the pharmacokinetics of rifampicin (RMP), isoniazid (INH) and pyrazinamide (PZA) in adult tuberculosis (TB) patients and examine factors that influenced drug pharmacokinetics.

Methodology

Adult TB patients with pulmonary/extrapulmonary TB, receiving thrice-weekly anti-TB treatment in the RNTCP in Chennai were studied. At steady state, the pharmacokinetic study was performed by collecting serial blood samples after directly observed drug administration. RMP, INH and PZA concentrations were estimated by high performance liquid chromatography. Certain pharmacokinetic variables were calculated using WinNonLin software. *NAT2* genotyping was performed by real time polymerase chain reaction. Multivariate regression analysis by stepwise method was used to determine factors that influenced peak concentration (C_{max}) and exposure (AUC_{0-8}) of drugs.

Results

The study population consisted of 101 patients (median age 34 years; males 65%; median body weight 47kg). 88% of patients had sub-therapeutic RMP C_{max} (sub-therapeutic cut-off: $< 8\mu\text{g/ml}$). Females had higher C_{max} and AUC_{0-8} of RMP, INH and PZA. The C_{max} and AUC_{0-8} of INH and PZA was lower in those with blood glucose $> 200\text{mg/dl}$. Significant associations were observed between C_{max} and AUC_{0-8} of RMP, INH and PZA with respect to mg/kg drug doses, RMP with category of treatment and type of disease, INH with body mass index, *NAT2* genotype, INH and PZA with sex and smoking.

Conclusions

The majority of patients on thrice-weekly anti-TB therapy had sub-therapeutic RMP C_{max} . Patients with diabetes had lower INH and PZA concentrations. This study has important clinical implications as suboptimal blood levels could lead to failure and acquired drug resistance.

ADVOCACY COMMUNICATION AND SOCIAL MOBILISATION (ACSM) STRATEGY

– A SCIENCE OF DELIVERY ON THE GROUND

Sripriya Pandurangan, Sarabjit Chadha, Subrat Mohanty, Anand Das, E R Babu, B M Prasad

Background: TB remains one of India's greatest public health challenges despite the availability of effective therapies and a largely successful national TB control programme. It has the highest burden of TB globally, with over 1.5 million new cases and 300,000 TB related deaths reported every year, and more than 73,000 patients estimated to suffer from drug resistant (DR) TB. Often, they live in difficult-to-reach areas, unable to access available diagnostic, treatment, and social support services, suffering and dying alone.

Intervention: Project Axshya is a civil society initiative and is being implemented by The Union in 300 districts across 21 states of India. The objective of the project is to support India's Revised National TB Control Programme (RNTCP) to expand its reach, visibility and effectiveness by engaging community based providers

Results and lessons learnt: The Project has created a network of 1200 NGOs and 20,000 community volunteers and has trained 24167 unqualified healthcare providers who identify and refer TB symptomatics. The TB patients and community is being empowered through 300 District TB Forums and working as a bridge between health system and community.

Every month Axshya reaches out to 300,000 households creating awareness on TB and identifying and referring TB symptomatics. Active involvement of the community has resulted in identification and sputum examination of 631,904 TB symptomatics primarily from the marginalised and vulnerable populations during the period April 2013 – September 2015. Of these nearly 495,068 (78%) symptomatics had their sputum collected and transported to the diagnostic centres saving cost and time delay. **52,896** TB patients have been diagnosed, treated and cured through DOTS.

Conclusions and key recommendations: The success of the community driven project led by Civil Society Organization has really shown a way to increase the access to quality TB care and services to the hard to reach areas; thereby minimizing delay in diagnosis and cutting the chain of transmission and to achieve the global targets. This model can be adopted by other countries as well.

ENGAGING RURAL HEALTH CARE PROVIDERS AND AYUSH FOR TB CARE AND CONTROL

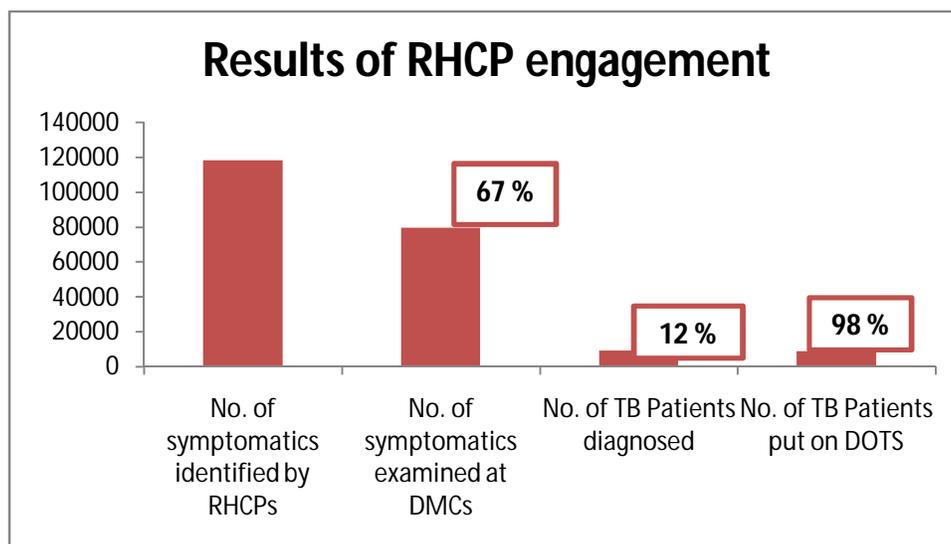
Sripriya Pandurangan, Sarabjit Chadha, Subrat Mohanty, Anand Das, B M Prasad, E R Babu

Background: People living in rural areas of India depend mostly on unqualified Rural Health Care providers (RHCPs) and AYUSH providers for health care services including TB. They are most often the first point for health care services in many villages, especially in tribal and remote geographic areas with limited availability of public health services. Project Axshya supported by Global Fund initiated interventions to engage them by sensitizing them on TB symptoms and

encouraged them to refer such TB symptomatics to the nearest sputum examination facility (DMC) for early diagnosis and treatment.

Project: Project Axshya under The Union supported by Global Fund, is a unique initiative working towards improving access to quality TB care through partnership between government and the civil society especially for women and children, marginalized, vulnerable and TB-HIV co-infected populations. Project Axshya is reaching out to nearly 570 million people including 170 million women, 150 million children, 250 million poor, 50 million tribal and 40 million slum dwelling persons.

Outcomes: Project Axshya is bringing Rural Health Care Providers (RHCPs) and AYUSH providers closer to the national TB control programme by training them to identify and refer TB symptomatics for sputum examination, facilitate sputum collection and transportation and serve as DOT providers. During the period April 2013-Sep 2015, the project has trained 24,167 such providers of which nearly 4,665 are engaged in referring TB symptomatics, sputum collection and transportation and as DOT providers.



Conclusions: Trained RHCP/AYUSH have become good linkages between national TB control programme and community with early gains in programme outcomes. The project has proved that sensitisation of RHCP/AYUSH and engaging them in TB care and control will help in enhancing the TB Case detection in rural areas and they can be used as an extended hand of public health system.

ACTIVE CASE FINDING – AN INNOVATIVE STRATEGY FOR TB CASE DETECTION AMONG VULNERABLE AND MARGINALIZED POPULATIONS

Sripriya Pandurangan, Sarabjit Chadha, Subrat Mohanty, Anand Das, B M Prasad, E R Babu

Background and Challenges: Early case-detection and ensuring complete treatment of sputum-positive TB patients has always been a major public health challenge for TB control

programmes. The current programme strategies have been able to cater to only those patients who visit public health institutions or those who were identified by community-based healthcare workers.

Project: Project Axshya, is being implemented by The Union in 300 districts of the country in partnership with 9 Sub-Recipients and a network of more than 1200 community based organisations. The primary aim of Project Axshya is to enhance the visibility and reach of RNTCP services among vulnerable and marginalized populations through advocacy, communication and social mobilisation activities.

Intervention: Under the Project, Active case finding a strategy being implemented to identify the ‘missing’ three million TB cases with a focus on enhancing accessibility to TB services among the households. Trained community volunteers visits nearly 1000 households per month per district to sensitize about TB followed by identification of TB symptomatics (having cough of 2 weeks) in these households. Identified symptomatics are either referred to the nearest designated microscopy centres or if required sputum collection and transportation is being done. If the symptomatics are found to be positive, they are linked to treatment services.

Outcomes: A total of 7.1 million households were visited by the community volunteers during the period April 2013 – Sep 2015. About 489,375 TB symptomatics were identified. Of these 203,928 persons sputa were collected and transported and the remaining were referred to the nearest microscopy centres. A total of 258,371 (53%) cases were examined at DMCs and 19,457 (8%) were found to be positive and 97% of those diagnosed were put on DOTS.

Conclusion: The active case finding is proved to be an effective strategy to reach the community in hard to reach areas and contribute to early diagnosis and treatment services.

ISOLATION AND IDENTIFICATION OF MULTIDRUG RESISTANT MYCOBACTERIUM TUBERCULOSIS IN LYMPH NODE ASPIRATE SPECIMEN

Ajoy K Verma, Gavishkumar, Jyoti Arora, Vithal P Myneedu, Rohit Sarin

Introduction: The occurrence of multidrug resistant strains in lymph node tuberculosis is an emerging problem. The laboratory data was retrospectively analysed to determine the frequency of drug resistant *M. tuberculosis* isolates among TB lymphadenitis patients from a tertiary care centre.

Methodology: January 2013- December 2014 data were included for the analysis. For identification of lymph node tuberculosis, samples were collected by fine needle aspiration cytology (FNAC). Samples were processed by NALC – NaOH method for concentrated smear examination by Ziehl Neelsen(ZN) staining and culture. Culture was done in MGIT 960 system. DST was done at following critical concentration streptomycin (1µg/mL), isoniazid (0.1µg/mL), rifampicin (1 µg/mL), ethambutol (5.0 µg/mL).

Results: A total 392 extra-pulmonary samples were received and processed for culture and susceptibility testing during the study period of which 154/392(39.28%)were lymph node

aspirate.64.93% cases were female and 35.06% were male (male: female ratio of 1:1.8). These patients were categorised as failure (38.96%), new (31.81%), relapse (24.02%), defaulter (2.59%), chronic (1.94%) and unknown (0.64%). 17% cultures were positive for AFB of which 92% were identified as *M. tuberculosis complex*.62% strains were multidrug resistant mycobacterium tuberculosis out of which 40% were from new cases. Only 29.16% strains were sensitive to all 1st line ATT drugs. Altogether 6 different susceptibility patterns were observed.

Discussion: Multidrug resistant tuberculous lymphadenitis is an emerging health problem in India. Findings highlight the importance of doing susceptibility testing and identifying a MDR strain in a patient of lymph node tuberculosis.

DETECTION OF RPOB GENE FROM CULTURE ISOLATES OF MTB BY REAL TIME PCR: A PRELIMINARY STUDY OF NORTH EAST STATE, TRIPURA

Banti Das, Sibabrata Bhattacharya, Niladri Sekhar Das and Tapan Majumdar

Introduction: Tuberculosis (TB) is a global health problem and early detection of TB particularly MDR TB is a challenge and rpoB gene mutation considered to be a surrogate marker of MDR TB. Strain of MDR TB found to be most common cause of death worldwide.

Aim and Objectives: Aim of the study is to detect rpoB gene from culture isolates of *M tuberculosis* by molecular methods with an objectives 1) To isolate and identify the species of mycobacteria by solid culture 2) To detect presence of rpoB gene from all the culture isolates.

Methodology: Sputum samples were collected from symptomatic patients. Z-N stain, culture on LJ after decontamination and identification of MTB or NTM by Biochemical tests was done. rpoB gene was detected by Real time PCR among all culture isolates.

Results: Out of 363 samples 62.80% (228/363) were smear positive and 64.73% (235/363) were culture positive. Among all culture positive cases (64.73%) 95.31% (224/235) of isolates showed presence of rpoB gene by Real time PCR.

Discussion and Conclusion: The detection rate of rpoB gene found to be 95% among the culture isolates. This will further help in looking for the presence of mutations in rpoB gene in order to determine the MDR TB strains in our cases. Moreover standardization of the test will help further in evaluating the presence of rpoB gene as well as mutations from the direct sputum samples as a marker of rapid diagnostic tool.

CONTRIBUTION OF CHEMISTS/MEDICINE SHOP OWNERS IN TB CONTROL PROGRAM IN SEMI URBAN AREAS OF WEST BENGAL, INDIA

Bandita Sen Gupta

Introduction: Involvement of chemists in TB Control programme in West Bengal is a pilot initiative by CARE India and supported by Lilly MDR TB partnership and implemented in 10 Tuberculosis Units (TUs) of two districts namely Bardhaman and Howrah in West Bengal.

Process: The selection of the operational TUs was done in consultation with RNTCP District Tuberculosis Officers. Bengal Chemist and Druggist Association (BCDA) are supporting the program.

Objective: To understand the contribution of the chemists in referral of TB suspects and diagnosis of TB cases in comparison to TU of similar socio economic status where there has been no chemist involvement.

Methodology: Secondary data collection from control and intervention TU. Primary data was collected from individual chemists by using semi structured questionnaire.

Results:

- Number of suspects examined increased from 742 (Q1 2014) to 783 in Q1 2015 in the intervention area (5% increase). This is in comparison with the control area where the number of suspects examined dropped from 1011 to 991(2% decrease)
- Number of sputum positive cases diagnosed increased from 60 to 94 (5.6%) whereas in the control area it decreased from 128 to 112 (12.5%)
- Number of repeat sputum being examined increased in the intervention area from 18 to 30 (6.6%) The figure has gone down in the control TU (11%) from 62 to 55.
- 13% sputum positivity rate for sputum being examined.

BAND PATTERN ANALYSIS OF MUTATIONS OBSERVED IN RIFAMPICIN RESISTANCE STRAIN OF *M. TUBERCULOSIS* COMPLEX BY LINE PROBE ASSAY

Himanshu Vashistha, S. Saini, K.K Dwivedi, Srashty Sharma, Z. Sidiq, V. Ahmad, M. Dubey, M. Hanif and K.K Chopra

Background: The GenoType MTBDRplus, a commercial line probe assay (LPA) kit from Hain Lifescience, Germany, is endorsed by India's RNTCP for diagnosis of DRTB cases among smear-positive sputum samples. Although the Line Probe assay has been studied in several laboratories, there is a wide variation in existing *M. tuberculosis* strains across the globe, and false results can occur due to the presence of unique genetic mutations in different settings.

Objective: An attempt was made to carry out band pattern analysis in Line Probe assay strips associated with rifampicin and isoniazid resistance.

Methodology: Sputum samples along with Annexure A were submitted by MDR suspects to Intermediate reference laboratory (IRL) at New Delhi Tuberculosis Centre in Delhi. Sputum

decontamination, DNA extraction, Amplification, Hybridization and band pattern interpretation & analysis of Line Probe assay strips was performed as per manufacturer's instructions.

Results: Among the 1200 patients, samples with interpretable Line Probe strips, Rifampicin drug resistance was observed in 190 cases. 169 (14.1%) were MDR-TB, 21 (1.73%) had Rif mono-resistance. Out of 190 Rif-resistant cases, most commonly observed band pattern was WT 8 Absent & MUT 3 present (N=116, 61.4%) followed by WT7 Absent (N=18, 9.5%) and WT3 & WT4 absent (N=16, 9.1%).

Conclusion: High frequency of uncommon mutations in *rpoB* gene by LPA were observed, highlighting possibility of those in-silico detected mutations that may not impart phenotypic resistance further.

DRUG RESISTANCE PATTERN AMONG *M. TUBERCULOSIS* ISOLATES RECOVERED FROM POOR QUALITY SPUTUM SPECIMENS

Kaushal K Dwivedi, S. Saini, Z. Sidiq, H. Vashistha, V. Ahmad, S. Sharma, M. Dubey, M. Hanif and K.K Chopra

Introduction: Good quality specimen is of prime importance for the accurate diagnosis of Tuberculosis (TB). Though in the field even staffs are trained in sputum collection, many times poor quality samples are sent to the Intermediate Reference Laboratory (IRL). This all results in significant delay in patient care management.

Objective: In the present study, it has been tried to observe pattern of resistance (if any) among *M. tuberculosis* isolates from the specimen of poor quality referred to IRL.

Material and methods: Present study was carried out during March 2014 to March 2015. Specimen of poor quality were received from Multi Drug Resistance (MDR) suspected TB patients (criteria – C) referred to IRL, New Delhi TB Centre, New Delhi from 17 districts of Delhi attached through RNTCP programme. These specimens were subjected to various diagnostic modalities as smear microscopy, Line Probe Assay (*MTBDR plus v 2.0*, Hain Lifescience, Germany), MGIT culture (BD Life Sciences) and Drug Susceptibility Testing where ever required.

Result: A total of 252 specimens of poor quality were received in different proportions: Mucoid with food/ tobacco particles (61%), blood (27%), saliva (7%) and remaining contains Tobacco, etc. Nearly 75 (30%) of the specimens were smear positive and 28 (16%) of the smear negatives showed culture positivity. After LPA, 4% of patients showed MDR/mono-Rif resistance and about 30% of these patients showed Ofloxacin resistance pattern in liquid drug susceptibility testing.

Conclusion: A significant number of MDR cases were diagnosed. If such patients be overlooked by providing immediate laboratory support it is expected that due to unnecessary delay in start of treatment they may continuously spread infection in the society. Though fresh specimen should be requested, specimen of poor quality may not be overlooked.

INCIDENCE OF NON-TUBERCULOUS MYCOBACTERIUM AND MYCOBACTERIUM TUBERCULOSIS COMPLEX STRAINS AMONG DR-TB SUSPECTS IN DELHI AND ASSOCIATED RISK FACTORS

Sanjeev Saini, K.K Dwivedi, H. Vashistha, S. Sharma, Z. Sidiq, V. Ahmad, M. Dubey, M. Hanif and K.K Chopra

Objectives of the study: The incidence of infections with Mycobacterium tuberculosis Complex (MTBC) and Non-tuberculous Mycobacterium (NTM) species in Tuberculosis patients in Delhi varies considerably. This study was undertaken to determine the frequency of MTBC and NTM species among DR-TB suspects and compare the incidence based on their HIV status (Non HIV vs. HIV-infected) from Delhi.

Material and methods: The DR-TB suspects, screened under RNTCP PMDT criteria, referred to IRL, New Delhi Tuberculosis Centre from linked Chest Clinics in Delhi State were enrolled in the study from January to March 2014. Sputum specimens found AFB positive were subjected for Line Probe Assay (GenoType *MTBDRplus*, Hain Lifescience). The sputum specimens found AFB negative, and those showing absence of MTBC on LPA strips were processed for Liquid culture on MGIT 960 (Becton Dickinson). The culture positive isolates showing absence of MTBC on rapid card Immuno-chromatographic lateral flow assay (SD Biotline) were considered as NTM. Annexure-I form of RNTCP was used as reference to determine the HIV status of the patients.

Main findings: Of 635 specimens analyzed, 610 (96.1%) were identified as M.Tb complex and 25 (3.9%) showed absence of TUB band, considered as NTM through LPA. Out of 25 Specimens showing presence of NTM in LPA, 22(88.0%) turned out culture positive and were subsequently found negative on SD Biotline assay. Out of 22 NTM isolates, 18(81.8%) samples were found to be HIV infected on retrospective analysis.

Conclusions: High incidence of NTM strains was observed in sputum samples belonging to HIV infected DR-TB suspects. This information provides an understanding of increased risk of NTM infection among such patients and need for further management accordingly.

RECOVERY OF *M. TUBERCULOSIS* FROM SPECIMENS FOUND TO BE SMEAR NEGATIVE AT INTERMEDIATE REFERENCE LABORATORY AND ANALYSIS OF DRUG RESISTANT PATTERN

Srashty Sharma, S. Saini, K.K Dwivedi, H. Vashistha, Z. Sidiq, V. Ahmad, , M. Dubey, M. Hanif and K.K Chopra

Background: Although patients with sputum smear-negative TB is less infectious than patients with smear-positive TB, still they also contribute to active form of TB. Therefore, it is important that these specimens should be subjected to alternative rapid diagnostic methods.

Objective: To determine the proportion of MDR cases in patients with direct smear-negative pulmonary TB in Delhi region.

Methods: Sputum samples along with Annexure -1 were submitted by MDR suspects to IRL, New Delhi TB Centre, New Delhi from 17 districts of Delhi as per RNTCP guidelines were enrolled in this study for the period from January to June 2015. Smear negative specimens were subjected to culture and culture-confirmed TB cases were considered in this study. Line probe assay (LPA) [MTBD plus v 2.0, Hain Life science, Germany] was performed on cultures. All cases found to be resistant by LPA were also subjected to Phenotypic Drug Susceptibility testing by using MGIT960 (BD Life Sciences).

Results: Out of 1073 smear negative diagnostic specimens, 280 (26.1%) specimens were found to be liquid culture positive. Out of these, 22 (7.8%) were found to be MDR, 02 (0.7%) were Rifampicin mono-resistant and 19 (6.8%) were isoniazid mono-resistant. On comparing with LPA, MGIT C&DST showed three more MDR cases (N=25) and one more rifampicin mono-resistant case (N= 03)

Conclusion: Our study showed that a significant number of smear negative is found to be drug resistant which cannot be ignored. Though liquid culture identified slightly higher resistant cases as compared to LPA but the turnaround time of LPA is much lesser as compare to liquid culture.

BASELINE RESISTANCE TO OFLOXACIN AND KANAMYCIN AMONG MULTI-DRUG RESISTANT STRAINS OF *M.TUBERCULOSIS* ISOLATED AT AN INTERMEDIATE REFERENCE LABORATORY IN DELHI

Vasim Ahmad, Z. Sidiq, S. Saini, K.K Dwivedi, H. Vashistha, S. Sharma, M. Dubey, M. Hanif and K.K Chopra

Introduction: The worldwide emergence of extensively drug resistant *Mycobacterium tuberculosis* (XDR-TB) is a major setback to tuberculosis (TB) control. Early detection of XDR is essential to start early treatment.

Objective: The aim of this study was to estimate the prevalence of resistance at base line to two important second line anti-tuberculosis drugs i.e., Ofloxacin and Kanamycin among MDR-TB cases identified.

Material and methods: MDR-TB cases diagnosed by Line probe assay at New Delhi tuberculosis centre over a period of 12 months i.e., from April 2014 to April 2015 were further tested for presence of resistance to Ofloxacin and Kanamycin using MGIT 960 at standard concentrations according to the RNTCP guidelines.

Results: A total of 391 MDR-TB isolates were diagnosed and cultured on MGIT 960 during the study period. Of these 364 (93.0%) were found to be culture positive and subjected to drug susceptibility against Kanamycin and Ofloxacin. DST results showed that 86 (23.6%) of these

isolates were resistant to Ofloxacin, 5 (1.4%) resistant to Kanamycin and 10 (2.7%) of these isolates were XDR.

Conclusion: The results of this study showed that XDR-TB does exist at baseline and if diagnosed early and accurately, proper treatment can be initiated. Thereby preventing the transmission of this deadly strain and avoiding the unnecessary delay in the treatment.

PREVALENCE OF MULTI-DRUG RESISTANCE AMONG STRAINS OF *M. TUBERCULOSIS* ISOLATED FROM PATIENTS BELONGING TO DIFFERENT SUSPECT CRITERIA AT STATE LEVEL REFERENCE LABORATORY

Zeeshan Siddiq, V. Ahmad, S. Saini, K.K. Dwivedi, H. Vashistha, S.Sharma, M. Dubey, M.Hanif and K.K. Chopra

Introduction: For timely identification and prompt initiation of treatment of patients suffering with multi-drug resistant tuberculosis, the revised national tuberculosis control programme (RNTCP) of India developed strategy to initially screens patients with very high risk of MDR-TB with gradual expansion of the services across the country. To upscale the expansion uniformly, RNTCP has devised MDR suspect criteria- A, B and C. Each criterion has been further divided into sub-criteria.

Objective: This retrospective study was carried out to estimate the proportion of MDR-TB cases among suspects belonging to different suspect criteria referred for diagnosis of drug resistant tuberculosis at an intermediate reference laboratory.

Material and methods: The study was conducted at New Delhi Tuberculosis centre (NDTC) over a period of one and half years i.e., from January 2014 to June 2015. Sputum samples of MDR-TB suspects identified at various RNTCP designated district tuberculosis centres (DTC) were sent to NDTC for the identification of resistance to isoniazid and rifampicin by Line probe assay.

Results: A total of 6432 suspected were tested for the presence of resistance to isoniazid and rifampicin and 715(11.1%) of these were confirmed of having MDR-TB using LPA. High proportion (5570/6634 [86.6%]) of these suspects belonged to criteria B followed by criteria C (559/6634 [9.3%]) and Criteria A (303/6634 [4.7%]). 659 [92.0%] of the total MRD cases diagnosed belonged to Criteria B, 34 (4.7%) to criteria C and 22 (3%) to criteria A.

Conclusion: Data generated from this retrospective study showed that 92% of all the MDR cases identified belonged to suspect criteria B (which may also be regarded as the retreatment group). There is a need to ensure proper treatment adherence among CAT 1 patients for better treatment outcome so that the overall number of failures and hence the MDRs could be decreased significantly.

COMPARISON OF LINE PROBE ASSAY WITH CONVENTIONAL DRUG SUSCEPTIBILITY TEST FOR THE DIAGNOSIS OF MULTI DRUG RESISTANT TUBERCULOSIS

Manoj K Dubey, S. Saini, K.K Dwivedi, Z. Sidiq, H. Vashistha, V. Ahmad, S. Sharma, M. Hanif and K.K Chopra

Introduction: Newly developed molecular technique based drug susceptibility testing methods for detection of DR-TB have advantages over conventional phenotypic methods in terms of reduced turnaround time.

Objective: In the present study, we attempted to compare the performance of Line Probe Assay (LPA) with that of conventional solid culture & drug susceptibility test (C&DST) on Lowenstein-Jensen (LJ) medium.

Methodology: A total of five thousand two hundred ten (N=5210) MDR TB suspects under RNTCP PMDT criteria - C were referred to New Delhi Tuberculosis Centre laboratory from January to June 2014 were enrolled in the study. Of them, 2055 sputum specimens found acid-fast bacilli positive by Fluorescent Microscopy were processed for LPA (GenoType MTBDR*plus*, Hain Lifescience). Solid C&DST was processed on LJ medium using proportion method. The statistical analysis of data was performed using descriptive parameters.

Results: Of 2055 valid LPA tests, 1525 (74.2%) were found sensitive and 320 (15.6%) were MDR / Rifampicin mono-resistance. All 320 resistant and 260 randomly selected sensitive's were processed for LJ C&DST. Out of total 580 specimens, 566 were culture positive. On comparing with LJ C&DST, LPA showed 1.2% more sensitivity for Rifampicin and 1.6% for Isoniazid. Similarly LPA result showed 4.2% more resistance for Rifampicin and 5.8 % for Isoniazid when compared with LJ C&DST.

Conclusion: LPA test results had a good concordance with conventional DST with an additional advantage of a shorter turnaround time.

EFFICACY OF GENE XPRT MTB/RIF IN DIAGNOSING TUBERCULOSIS FROM EXTRAPULMONARY SPECIMENS

Jyothi Bhat, Kuldeep Sharma, Chandan Karfarma, Canina Luke

Background: Diagnosis of extrapulmonary Tuberculosis (EPTB) remains a challenge due to its paucibacillary nature and also the specimens from deep seated organs are difficult to obtain. WHO has recommended use of Gene Xpert for EPTB diagnosis in lymph nodes, tissues and CSF. However the performance varies in different specimens.

Objectives: The aim of the study is to determine the efficacy of Gene Xpert in the diagnosis of EPTB in different specimens and to detect Rifampicin resistance in them.

Material & Methods: Being an Intermediate Reference Laboratory, we received specimens for diagnosis by Gene Xpert. The records of EPTB specimens were reviewed retrospectively and compared with culture on solid Lowenstein-Jensen medium. Indirect proportion method was adopted for Drug susceptibility testing on solid LJ medium along with Gene Xpert. Results of 276 specimens were analysed.

Findings: Considering culture as gold standard the sensitivity, specificity, PPV and NPV of Gene Xpert was 75%, 89.8%, 67.3% and 92.7% respectively. The sensitivity and specificity for detecting Rifampicin resistance was 100% and 90.4% respectively.

Conclusion: Gene Xpert showed acceptable sensitivity and good specificity for detecting *M.tuberculosis* and Rifampicin resistance in EPTB specimens.

FOOD SIGNIFICANTLY REDUCES PLASMA CONCENTRATIONS OF FIRST - LINE ANTI-TB DRUGS

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Objectives: We examined the effect of food on two-hour plasma concentrations of rifampicin (RMP), isoniazid (INH) and pyrazinamide (PZA) and pharmacokinetics of these drugs.

Methods: Newly diagnosed adult TB patients receiving treatment for more than 15 days from the RNTCP treatment centres in Chennai Corporation were randomly recruited. Each patient was tested on two occasions (with and without food) with an interval of one week between occasions. Two-hour post-dosing plasma concentrations were determined in 25 patients and a semi-intensive pharmacokinetic study was undertaken in 6 patients. RMP, INH and PZA concentrations were determined by HPLC.

Results: The median two-hour concentrations with food and under fasting conditions were respectively 2.9 & 6.3 µg/ml for RMP ($p < 0.001$), 6.1 & 11.4µg/ml for INH ($p < 0.001$) and 26.1 & 38.3 µg/ml for PZA ($p < 0.001$). Drug administration with food caused the plasma concentration to decrease by 54%, 46% and 32% for RMP, INH and PZA respectively. Significant decreases in peak concentrations and exposures of drugs and delay in time to attain peak concentrations of drugs when taken with food were observed.

Conclusions: Food lowers anti-TB drug concentrations significantly and delays absorption. Patients may be explained about the beneficial effects of taking anti-TB drugs in a fasting state and advised to do so.

CAN WE AFFORD TO BE COMPLACENT WITH THE PERFORMANCE OF TB CONTROL ACTIVITIES IN TRIBAL AREAS?

Rao VG, Bhat J, Yadav R

Objectives

India's Revised National TB Control Programme is committed to universal access to TB care and TB Free India. There is however, limited information on TB situation from tribal communities in the country. We carried out studies to understand TB situation amongst the tribal population of Madhya Pradesh.

Methodology

A series of community based TB prevalence and risk factor studies were undertaken amongst various tribal communities including particularly vulnerable tribal groups (PVTGs) of Madhya Pradesh during 2006-2015. TB disease prevalence surveys were conducted among adults aged \geq 15 years. Two sputum samples were collected from all chest symptomatics and were examined for smear, culture and DST using standard methods. Risk factor studies were conducted amongst Saharia, a PVTG in the state of MP.

Main Findings

The findings showed a very high prevalence of 1,518 amongst the Saharia PVTG in Sheopur district of the state. Recently conducted studies amongst Saharias in Gwalior and Shivpuri districts also showed an alarmingly high prevalence of TB (3294 and 3003 per 100,000 respectively) among them. However, the MDR TB situation was found comparable with the findings in other parts of the country (18% in re-treatment and 4% in new cases). The major risk factors found to be associated with TB among them were tobacco use, alcohol consumption, under-nutrition, poor housing and indoor air pollution.

In view of the findings, we cannot afford to be complacent. Further studies are required to understand the access and utilization of RNTCP services in tribal areas of the country.

DETECTION OF MULTI-DRUG RESISTANT TUBERCULOSIS IN EXTRA-PULMONARY SPECIMENS BY LINE PROBE ASSAY: EXPERIENCE FROM NATIONAL REFERENCE LABORATORY

Ritu Singhal, Anand Jaiswal, Manpreet Bhalla, Gavish Kumar, Jyoti Arora, VP Myneedu,

Rohit Sarin

Objectives

GenoType MTBDRplus; Line probe assay (LPA) is being used as the primary test for the detection of multi-drug resistant tuberculosis (MDR-TB). As there is limited experience of the usage of LPA technology in the extra-pulmonary samples, hence, present preliminary study is conducted to determine the utility of LPA in determination of MDR-TB among EPTB cases.

Methodology

Total of 1313 extra-pulmonary samples from presumptive MDR-EPTB patients were received from 1st January 2014 to 31st December 2014. These included 422/1313; 32.1 % and 891/ 1313; 67.9 % smear positive and smear negative samples respectively. All smear positive samples and *M. Tuberculosis* (MTB) positive cultures were subjected to LPA.

Main findings & Discussion

Commonest sample was fine needle aspiration (FNAC) of lymph nodes (708/1313; 53.9 %) followed by pleural fluid (540/1313; 41.1%). Overall, 426/ 482(88.4%) MTB were reported, of which 13.4% and 3.1% were multi-drug resistant (MDR) and rifampicin resistant respectively. Direct LPA gave valid results in an average of 3.3 days.

Commonest mutation pattern in *rpoB* gene coding for RIF resistance was missing wild type (WT); WT8 with specific mutation S531L (56; 80%). For INH resistance, 87.1% and 14.1% of strains had mutations in *katG* and *inhA* genes respectively, commonest being missing WT with specific mutation in S315T1 in *katG* gene 46; 54.1%. Genotype MTBDRplus is found to be useful, rapid test for detection of MDR-TB in EP-TB samples. It is imperative to perform structured studies to generate validation data of test against reference methodology for larger usage.

EVALUATION OF A NEW MOLECULAR TEST “TRUPCR” FOR DIRECT DETECTION OF *MYCOBACTERIUM TUBERCULOSIS* AND RIFAMPICIN RESISTANCE IN SPUTUM SAMPLES

Shantanu Ghosh, Prateek Goel, Akhilesh Rawat Micheal Premkumar, Uma Devi k Ranganathan, Soumya Swaminathan, Gomathi N Sivaramakrishnan

Background: Need for low-cost reliable technologies for direct detection of rifampicin resistance in sputum samples has been strongly felt globally. Several technologies are in different stages of development and evaluation.

Aim: To evaluate the performance of a novel RT PCR based technology TruPCR against the standard molecular method, Line Probe Assay (LPA).

Method: Sputum samples from 105 presumptive drug-resistant tuberculosis patients and five patients on Cat-IV treatment were screened at National Institute for Research in Tuberculosis, Chennai. The samples were subjected to direct smear, solid culture by Lowenstein Jensen medium, LPA and the new test. LPA was performed directly on all smear-positive samples and on cultures among smear-negative samples. Sensitivity and specificity of the new test were calculated.

Results: Among 105 sputum samples tested, 76 were confirmed *Mycobacterium tuberculosis*, 2 were non-tuberculous mycobacteria (NTM) and 27 were negative. TruPCR yielded 72 MTB, 2 NTM and 24 negatives. Sensitivity, specificity, positive and negative predictive values of the new assay for detection of MTB was 95%, 90%, 96% and 87% respectively. TruPCR correctly

identified 63 of the 68 rifampicin susceptible and all six rifampicin resistant samples yielding a sensitivity and specificity of 100% and 93% in comparison with LPA.

Conclusion: The new RTPCR kit has high sensitivity and specificity in comparison with the standard test LPA. In addition, the assay has the potential to be developed in to a point-of-care test.

UNIVERSAL ACCESS TO TB CARE IN INDIA-HOW FAR WE HAVE ARRIVED?

Rajiva Ranjan

In 2010, RNTCP made a major policy decision for patients in India with the following targets by the end of 2015:

1. Early detection and treatment of at least 90% of estimated cases in the community including HIV
2. Initial screening of all retreatment smear positive cases for MDR TB and its treatment provision.
3. HIV counselling and testing for all TB patients.
4. Successful treatment of at least 90% of all new cases and 85% of previously treated patients.
5. Extension of RNTCP to private sector

2015 is on the verge of completion forcing us to review our shortcomings in meeting the deadline.

In spite of notification made mandatory by Govt. of India, it is not implemented by private practitioners leading to about 46% of patients remaining unreported.

The private sector in India has been a source of mismanagement of fresh TB cases resulting in drug resistance. The irrational practices include serological tests, overemphasis on x-ray, incorrect regimens and lack of supervision. The efforts are needed to engage private sectors and improve the quality of medicare.

A pilot project by WHP (world health partners) is underway at Patna engaging private practitioners with free diagnostics including gen expert on minimal charges and subsequently free treatments to all patients. The lacuna is non-uniformity of line of management and is limited for only 1st line treatment. MDR cases still need RNTCP.

Thus, it is imperative from now onwards to move beyond 70/85 and try to incorporate private practitioners, medical colleges, IMA, NGOs like TB Association, diabetics, prisoners and persons living with HIV on a uniform and judicious basis.

ENGAGING CIVIL SOCIETIES IN TB CONTROL – REPORT FROM TAMILNADU, SOUTHERN INDIA

Ganesh M, Ramya Ananthakrishnan, Nalini Krishnan, Anand Das

Background

Project Axshya, a Global Fund Round 9 Project is being implemented across India to increase case detection and improve timely access to quality TB diagnosis and treatment. The following abstract describes the experience from the project implementing in 14 districts of Tamilnadu by REACH, which caters to a total population size of 41.75 million. This is a retrospective analysis of routine programmatic data maintained as part of project from October 2014 to September 2015.

Methods:

To implement Project Axshya, 56 NGOs were trained for engagement from April 2013 to March 2015. The training encouraged the NGOs to engage in, organising community Meetings, mid media events, Axshya SAMVAD (AS), Sputum collection and transport (SCT), provision of DOTs, re-tracing patients lost to follow up and other community awareness activities.

Result:

From October 2014 to September 2015, 56 NGOs undertook 2346 community meetings, 192 mid-media activities. Of the 3786 TB symptomatic referred by the NGOs, 1485 (39%) underwent diagnosis for TB and 113 were found as TB positive. To address the missed symptomatic (61%), sputum samples from 394 symptomatic were transported and 19 were found as TB positives; the overall sputum positivity was 7 %.

Conclusion

These findings highlight the role of NGOs in community engagement activities for TB control. It is important to sustain the engagement of this trained pool of resources by provision of existing “RNTCP schemes for engagement of NGOs and Private Providers”.

ENGAGING RURAL HEALTH CARE PROVIDERS IN TB CONTROL TO IMPROVE CASE DEDUCTION – A FIELD REPORT FROM TAMILNADU, SOUTH INDIA

Ganesh M, Ramya Ananthakrishnan, NaliniKrishnan, Anand Das

Background and Method:

From 14 selected districts of Tamilnadu, wherein REACH has been implementing the Project Axshya, 1179 rural health care providers (RHCPs) were trained from April 2013 to September 2015. The training encouraged the RHCPS to engage in the following ways- referral of chest symptomatic, as DOT providers, sputum collection and transport activities. This is a retrospective analysis of engagement of those providers from routine programmatic data maintained as part of project implementation in those districts from October 2014 to September 2015.

Results:

Of the 1179 RHCPs trained, 61% of the RHCPs have an average of 5 to 20 outpatients. Among the trained RHCPs, 58% are Siddha practitioners, 16% are Homeopathy practitioners, 12% are Acupuncture specialists, 9% are pharmacists, 4% are traditional Healers and 2% are Unani Practitioners.

Of the trained RHCPs, 207 (18%) referring symptomatic to the RNTCP services; among them majority of 66% from Siddha practitioners, of the 2815 referrals from the period Oct 2014 to Sep 2015; 386 symptomatic were underwent diagnosis for TB and 58 (15%) were found to be TB positives.

Conclusion:

These findings highlight that 66% of engaged RHCPs were Siddhas and they can be trained for increasing case detection rate. In the context of universal access, this potential group could also be engaged as DOT provision and sputum collection and transport.

UPTAKE OF THE REVISED SCHEMES FOR NGOS AND PRIVATE PROVIDERS IN REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAM - AN EXPERIENCE FROM TAMILNADU, INDIA

Ganesh M, Ramya Ananthakrishnan, Nalini Krishnan, Anand Das

Background and Methodology

The following abstract describes the experience from trainings in Project Axshya on NGOs and PPs Schemes in RNTCP and facilitation of applications in 14 districts of Tamilnadu. This is a

retrospective analysis of routine programmatic data maintained as part of Project implementation in those districts from April 2013 to June 2015.

Results or Lessons learnt

Of 161 NGOs trained across 14 districts, 70 NGOs applied for 82 schemes. In which, 49% was for Advocacy Communication Social Mobilisation (ACSM), 23% was for Sputum pickup and Transportation (SCT), 17% was for Adherence scheme for NGO and PPs (AS), 5% was for Slum scheme, 5 % was for Designated Microscopic and Treatment Centre (DMC) scheme, 1 % was for RNTCP Scheme for HIV risk population.

Of the 70 NGOs who applied for the schemes, 28 NGOs (40%) received 33 schemes over 8 districts. Of the various schemes obtained, 74% was for SCT, 50% was for Adherence scheme for NGO and PPs, 25% was for ACSM, Slum scheme and DMC.

Conclusion

From this experience, signing up with NGOs for the existing RNTCP schemes is very critical to ensure sustainability of TB control activities at the community level. It is important to match the need and the demand for engaging NGOs through the Revised Schemes for NGOs and PPs in RNTCP.

ENGAGING PRIVATE PHARMACIES IN THE PUBLIC PRIVATE PARTNERSHIP FOR TB CONTROL IN CHENNAI CITY, INDIA

Ramya Ananthakrishnan, Sujatha, Nalini Krishnan, Sunita Prasad

Background and challenges to implementation

Pharmacies are often the first point of contact for many TB patients in private sector and form a vital component of any PPM (Public Private Mix) because they are closest to community and are hence also in a position to influence patients' treatment choices. Chennai city with 4.7million populations has a presence of huge and vibrant private health sector and pharmacies.

Intervention

A sustainable partnership for TB control was built with private pharmacies in Chennai city to encourage referrals from private pharmacies of symptomatic to RNTCP, to promote awareness, education on TB and DOTS to TB patients by private pharmacies and to facilitate pharmacists to act as DOT providers.

Results

Between January 2013 to September 2015, 350,436 and 357 pharmacists have been trained, of whom 146, 178 and 99 are actively involved in referrals for last 3 years. We have received 1038 referrals over this period and 231 TB patients have been linked to RNTCP for treatment. 160 TB patients receive DOTS from pharmacists. In addition, pharmacists had educated patients by displaying posters, directing them to appropriate treatment choices and by motivating patients for completion of the treatment course.

Conclusion

The above finding has shown that pharmacists could be successfully engaged in TB control efforts. Contribution of private pharmacists towards DOTS program could be considerable and it is critical to engage with them in a sustained manner.

KEEPING TB ALIVE IN THE PUBLIC DOMAIN THROUGH SUSTAINED MEDIA ENGAGEMENT

Anupama Srinivasan, Ramya Ananthakrishnan, Nalini Krishnan, Sunita Prasad

Background: Public health issues continue to find limited space in newspapers in India. Given that newspapers remain a trusted source of health information in India, improving the frequency and quality of reporting on TB is imperative. This can help meet the knowledge gap on TB and give readers access to accurate information on symptoms, diagnosis and treatment.

Intervention: The media engagement programme was initiated in 2010 to improve the quality and frequency of media reporting on TB, particularly among local language media. Through annual Fellowships programme, 62 mid-career journalists have received Fellowships to investigate TB-related issues. All Fellows participate in an intensive orientation, learning about the science of TB and identifying locally relevant TB stories.

Results: In all, 62 Fellows have written 257 stories on different aspects of TB, all published in leading dailies and magazines. 46% of Fellows have continued to report on TB beyond the Fellowship period and 36% have demonstrated interest in improving their capacity to report on TB. Over 10% of Fellows have voluntarily expanded their mandate to advocacy, such as lobbying for inclusion of TB in political manifestos. Overall, the initiative has engaged journalists in 13 states and generated reporting on TB in seven different languages.

Conclusion: This initiative has drawn attention to the necessity of sustained engagement with the media if TB is to remain alive in the public domain. The Fellowship programme has demonstrated the long-term impact of investing in building the capacity of local language media.

A PROTOTYPE FOR ACTIVE TUBERCULOSIS CASE FINDING IN MUMBAI

Yatin Dholakia, Nerges Mistry

Background: Undiagnosed TB patients are likely to drive the TB epidemic in slums with overcrowding and poor living conditions. Several studies have shown delays in diagnosis and

treatment in such settings. These delays could be reduced by actively screening for undiagnosed TB and instituting early treatment.

Aim: to develop a prototype for active TB case finding.

Methodology: After sensitization of the community through awareness programs, house to house survey was conducted to identify chest symptomatic using structured questionnaires. Symptomatic adults were subjected to chest x-rays and children to TST and x-rays. Individuals with abnormal tests were subjected to sputum AFB smears and referred to the TB program for further management.

Results: Of 315 individuals with symptoms suggestive of TB from 1798 households (around 9000 population), 30 out of 97 X-rays were abnormal, 3 children has positive TST. Seven adult TB cases were identified (**5** on treatment at RNTCP) **2** new cases were identified and were initiated on treatment. Of the children one was identified as new TB case and initiated on treatment. The crude prevalence is around **9%**. The numbers needed to screen and identify **one TB** case were **1125** of population and **39** symptomatics.

Conclusions: Active case finding should be carried out systematically as a general health screen and a continuum strategy involving “local champions” as intermediaries. Diagnostic facilities should be available at the time of survey and treatment and follow up services should be in place at the time.

A TALE OF FEW CYTOKINES IN UNDERSTANDING TB OR NOT TB

Bhaswati Pandit, Chandrika Bhattacharyya, Partha Pratim Majumdar

Purpose: Recognition of M.tb specific components by host-receptors activates the host defence mechanism. Microbial components mediate secretion of cytokines and chemokines which in turns triggers activation of other immune cells and immune relevant genes. From animal and human studies it is well established that cytokines and chemokines play major role in determining the outcome of infection. The aim of this present study is to explore the differential expression of various classes of cytokines in the different response group of tuberculosis (TB)-TB patients, latent, and healthy.

Material & Methods: Multiplexed immunoassays were used to measure concentrations of 23 different cytokines in 119 pair of smear positive TB patients and their corresponding culture negative household contacts sharing same household for at least last three months. Statistical analyses were performed in R.

Results: The present study demonstrated that plasma level of IL18, IL2, IL15, IFN γ , TNF α of Th1; IL1 β , IL4, IL5, IL6, IL10 of Th2; IL17, TGF β , and chemokines IL8, CXCL9, CXCL10, MCP1, MIP1 α are significantly high in TB patients compared to healthy household contacts. When compared with only latent group, a subset of the above mentioned cytokines are also

significantly different in TB patients than that of latent individuals. When the cytokine expression profile is compared among TB patients, CXCL10 is found to be associated with bacterial load.

Conclusion: Thus, our study concluded that plasma cytokines and chemokines signature could be used as immunological markers for diagnosing active TB disease and for monitoring effective anti tuberculosis therapy.

EFFICACY OF ESTIMATING PLEURAL FLUID CHOLESTEROL IN DIAGNOSING TUBERCULAR PLEURAL EFFUSION

Vipin Goyal, Yuthika Agrawal, Sangeeta B. Singh, Vijay Shanker, Abhishek Singh

Background: Tuberculous pleural effusion (TPE) is diagnosed by biopsy or PCR on clinical suspects and delay in this is still frequent in India. ADA is not readily available mostly in hospitals with limited laboratory facilities. Pleural fluid cholesterol has been used to classify exudates and transudates as it misclassifies fewer cases than any other Light's parameters.

Aims and Objectives: To evaluate the utility of cholesterol in lymphocytic exudates in diagnosing TPE in a region of high prevalence of PTB which has never been done before.

Materials and Methods: The study was carried out on 80 patients with PE. Fluid classified as lymphocytic exudates based on light's criteria and lymphocytic proportion >0.75 were differentiated into tubercular and non-tubercular PE based on biopsy or PCR. Fluid ADA and fluid cholesterol were done in both the groups.

Results and Observations: 49 were positive for TPE. Fluid ADA and fluid cholesterol levels were significantly different in tubercular and non-tubercular PE cases. Fluid cholesterol correlated positively with fluid ADA. Sensitivity, specificity, PPV, NPV with fluid cholesterol value of 50 mg/dL as cut off were 95.9 %, 100 %, 100%, 84.6 % which was better than using fluid cholesterol value of 60 mg/dL as cut off and fluid ADA.

Conclusion: Fluid cholesterol estimation could be a feasible option for cheaper diagnosis of TPE and it correlates with fluid ADA. The good accuracy of this method makes it a promising diagnostic tool that could be used for diagnosis of TPE in area where disease has high prevalence. A negative result excludes TPE with a high degree of certainty.

CLINICAL STUDY OF PNEUMOTHORAX WITH OR WITHOUT FLUID

C.Sumalata

Introduction: Pneumothorax is defined as the accumulation of air in the pleural space with secondary collapse of the surrounding lung. Pneumothorax is a common medical emergency and

is a diagnostic and therapeutic challenge to the physician. The condition can itself be serious and crippling and at times may endanger the life of the patient, because of the respiratory insufficiency and cardio-respiratory embarrassment or due to associated complications.

Aims and Objectives: To study the cause of pneumothorax and their association with TB and HIV.

Methods: A Hospital based prospective observational study was conducted at Department Of Pulmonary Medicine, Government General Hospital, Siddhartha Medical College, Vijayawada. Sixty consecutive patients were diagnosed to have pneumothorax after clinical examination and radiological investigations. All the cases were studied and investigated appropriately and managed accordingly.

Discussion: Fifty five cases were due to secondary pneumothorax, five cases were due to primary pneumothorax. Twenty one cases had TB etiology (excluding TB-HIV co- infection). HIV was found in 21 cases of which co-infection of TB-HIV was seen in 15 cases, 6 cases had Pneumocystis jirovecii. Five cases had pyogenic infection and 5 cases had pneumothorax due to COPD. One case of Asthma, Amoebic abscess and pancreatic pseudocyst presented with pneumothorax. The most common etiology in our study was TB (36 cases: 21 cases of TB and 15 cases were due to TB-HIV infection).

Conclusion: The most common cause of pneumothorax in our study was found to be Tuberculosis.

THE CONFLUENCE OF TWO PANDEMICS: A NEW PARADIGM OF EPIDEMIOLOGICAL TRANSITION

Abraham Alex Kodiatte, Jubbin J. Jacob, Mary John

Background: Tuberculosis (TB) and diabetes mellitus (DM) have always exhibited a dangerous trend as far as epidemiology is concerned. The TB epidemic has amalgamated with another global conqueror – DM and has compounded the riddle even further. The rampant pattern that TB and DM follow individually is well known, but their behaviour collectively as comorbidities, is relatively unknown. From previous studies in India, the prevalence of diabetes mellitus among patients with tuberculosis ranges from 13-30%.

Aims and Objectives: To determine the prevalence of diabetes mellitus and pre-diabetes in adult patients with tuberculosis

Methodology: This cross-sectional, prospective study was conducted in our department for a period of 4 months on 100 patients diagnosed to have TB. Historically, those patients found to have DM were noted and patients with no previous history of DM were subjected to an oral

glucose tolerance test (OGTT) using a WHO standard 75g oral glucose. The results were classified according to the ADA criteria 2014.

Results: A total of 100 patients with TB (59 Pulmonary, 29 Extra-pulmonary, 12 Disseminated type) formed the study group; of them 43 patients were already known to have DM. The rest of the 'apparent normoglycemics' (57) were subjected to an OGTT, unmasking 11 pre-diabetics and 1 new diabetic patient. Only 50% of the diabetic individuals were overweight, emphasizing on the fact that Indians are 'thin-fat'. Among the individuals diagnosed with PTB, 52% were found to be diabetic, with 58% of them having a poor (HBA1c > 10%) glycemic control. The overall glycemic status was found to be poor in 46% of diabetic patients.

Conclusion: With a 55% prevalence of diabetes mellitus and prediabetes in patients with tuberculosis, it is only wise to encourage bi-directional screening in routine settings, along with a possible incorporation into the RNTCP, to reduce this dual burden and thereby improve treatment outcomes in tuberculosis. A staggering 46% were identified to have poorly controlled DM, indicating the need for blood sugar control in the co-treatment of TB.

SPIROMETRY AND QUESTIONNAIRE : A SENSITIVE TOOL FOR EARLY DIAGNOSIS COPD: A PILOT STUDY

R Rathi, V.K.Arora, M.B.Gupta, S.Gupta, A.Shukla

Objective: To assess middle aged individuals for early detection of COPD through spirometry in Santosh Medical College and hospital.

Methodology:

Study was conducted in the OPD of pulmonary medicine and general medicine department of Santosh Medical College and hospital from Feb 2015 till July 2015. All males and females between 35-45yrs of age were randomly included in the study. Questionnaire based study which was pretested and had questions regarding respiratory illness, exposure to dust, irritants and smoking history were registered. All individuals who gave consent and were in the criteria were included in the study. They were asked to fill the questionnaire and then spirometry was performed for all the study subjects. Validation was done before performing the test.

Result

Study period being six months a total of 30 individuals were registered. Of the total 43% were females and 66% were males. 77% of total individuals had complained of cough. 10% had ACOS, 34% had BA, 16% had COPD (Early stages) and 40% were normal. The mean age for early diagnosis of COPD was 39.7 (SD 3.3), BA mean age was 37 (SD 3.7) ACOS mean age was 39 (SD 5.2) by chi square test it was found that seasonal variation had effect on the subjects (p 0.014) and history of smoking with number and days of smoking were also responsible for the respiratory illness (p 0.031). Thus with this we can say that seasonal variation and history of

smoking plays important key role in diagnosing the case of respiratory illness. Spirometry suggested 10 percent of the subjects had mixed pattern, 40 percent were normal, 34 percent were restrictive disease pattern and 16 percent were having obstructive pattern.

Conclusion

Spirometry is an important tool for the early detection of respiratory illness among the individuals exposed to risk factors but when clubbed with questionnaire the diagnosis can be established, as spirometry can lead to obstructive, restrictive, mixed and normal pattern. Sixteen per cent of current smokers (35-45yrs) were diagnosed as the case of COPD.

INNOVATIVE REAGENTS AND APPROACHES FOR HIGHLY SENSITIVE AFB MICROSCOPY

Kulkarni Prabhakar S, Avaneesh Thautam, Bharath B R, Pooja Murali, Chandrakumar H P, Shruthi Rao

Tuberculosis has plagued humanity for over 9000 years. Today it is still one of the top three killer infections, killing nearly 2 million people every year. Past two decades have seen alarming emergence of antibiotic resistant TB. The ability to detect TB accurately and early in the course of infection would prevent delayed and incorrect treatment and curb the spread of the disease. Diagnostic techniques used need to be simultaneously sensitive, specific, rapid, easy to use and affordable. For the past 133 years AFB Smear microscopy has been the cornerstone of TB diagnostics. It is specific, rapid, easy to use and affordable, but highly unreliable in detecting early infection. AFB culture, though highly sensitive is time-consuming, expensive and ineffective for rapid detection of infection. NAATs (particularly Cepheid's GeneXpert) are now gaining popularity because they are both sensitive, rapid and easy to use. But they are expensive and require significant infrastructure, making them difficult to implement in developing economies with high burden of TB. Innovations in TB Diagnostics should leverage existing infrastructure and processes to be truly effective. Here we describe ReaMetrix's novel reagents and methods for AFB microscopy that retain the specificity, ease of use and affordability of the conventional methods, but make it nearly as sensitive as NAATs. Our innovations will allow sensitive screening of TB in field settings.

ENGAGING PRIVATE PROVIDERS AND AYURVEDA PRACTITIONERS IN BILASPUR, HIMACHAL PRADESH,INDIA: DID IT INCREASE TB CASE DETECTION?

Rakesh Roshan Bhardwaj

(a) **Objectives of the study:** To compare the case notification rate of smear positive TB cases in first quarter 2015, following an intervention involving sensitizing of Private Practitioners (PPs) and Ayurveda Practitioners (APs), and weekly SMS reminders during the quarter, for referring

chest symptomatic to Revised National Tuberculosis Control Program (RNTCP), with the case notification rate in 1st quarter 2014.

(b) **Methodology of investigation:** We trained PPs and APs to recognize the signs and symptoms of TB and refer presumptive TB patients (cough \geq two weeks) to DMCs, in Bilaspur. Each PP and AP was supplied sputum collection cups and referral forms. A weekly telephonic message about the importance of referring presumptive TB cases to DMC was sent to them. All referrals were documented in the laboratory register. The diagnosed patients were referred back to the referring providers for initiation of treatment supplied free of cost by RNTCP. We calculated the difference in presumptive TB patients examined and smear-positive patients diagnosed by the PPs/APs before and after the intervention.

(c) **Main findings:** Compared to the referrals made by Ayurveda practitioners and Private practitioners in January-March 2014, there was an increase of 66 (174%) and 11 (220%) respectively in the number of individuals examined and diagnosed with smear-positive TB.

(d) **Conclusion:** Engaging PPs and APs led to an increase in numbers examined and TB patients diagnosed by PPs and APs.

AN EXPLORATORY STUDY OF PROFILE OF MDR CASES IN KASHMIR REGION

Taha Ayub

Background: Tuberculosis is an ancient disease but the emergence of resistant forms like Multidrug resistant tuberculosis (MDR) and Extensive drug resistant tuberculosis (XDR) is a serious threat to mankind. Since tuberculosis is a socio-clinical disease with deep rooted social factors, an attempt was made to explore the issue of MDR in Kashmir region.

Methodology: An exploratory study was conducted on the MDR cases registered under RNTCP of Kashmir division from 2012 to November 2015. Information was collected using in-depth interviews with the help of pretested semi-structured questionnaire.

Results: A total of 93 patients were enrolled under RNTCP out of which 6 have been switched over to XDR category, 24 have been cured, 12 have died and 3 have defaulted. About 2/3rd of the cases were females and majority of the cases were of productive age group. More than 50% of female cases were illiterate whereas majority of the males were literate. Almost 1/3rd of male and female cases had habit of self medication. Almost all the cases (94%) were pulmonary type with almost half of the cases have had history of contact with tuberculosis case in the past and more than 2/3rd of cases were secondary cases. No case was HIV positive and only two cases were diabetic with 7 females being hypothyroid. Majority of patients had more than one complaint. Resistance to Rifampicin only was seen in 2/3rd of cases. Smear and culture conversion rate was 3 – 4 months in 2/3rd of cases. Of all the cases, nearly 2/3rd did not reveal their disease to anybody. About 45% of the cases were ashamed because of their disease, with females outnumbering the males (54% vs 27%) Only 27% cases revealed that the people avoided them once they get to know about their disease. Only one male case attended the social gatherings

whereas remaining avoided. Around 60% cases considered TB as threat for marriage or job. Around 4/5th of cases were happy with the attitude of Health Care workers towards them.

Conclusion: Majority of the MDR cases were females and had habit of self medication with almost half of the cases had history of contact with tuberculosis case. The perception of TB as stigma was found to be prevalent. All these issues need to be looked in detail and an effective education programme should be incorporated to highlight the issue of self medication and allay the stigma associated with TB.

SERUM LEVELS OF SOLUBLE UROKINASE PLASMINOGEN ACTIVATOR RECEPTOR(SUPAR) AS A MARKER FOR TUBERCULOSIS TREATMENT EFFICACY

V. Vijay

Background: Upon diagnosis, Pulmonary Tuberculosis patients are treated for TB for a period of 6-9 months. At present, there exists very little indication of the efficacy of the particular treatment. A few previous studies have shown that soluble urokinase plasminogen activator receptor (SuPAR) may be used as treatment efficacy marker. SuPAR is a cellular receptor for serine protease urokinase plasminogen activator (uPA). Bacterial endotoxins and cytokines of the innate immune system stimulate the secretion of uPA in monocytes & neutrophils. Serum SuPAR levels are elevated when TB is active and decrease when the patient responds positively to therapy.

Objective: To investigate if SuPAR levels decline upon treatment and whether serum SuPAR levels may be used as a biomarker to monitor Tuberculosis treatment efficacy.

Design: The study was conducted in the department of Biochemistry at VIMS, Ballari, Karnataka. The study subjects were randomly selected from RNTCP centre of VIMS.

Controls: Twelve tuberculin skin test positive healthy controls from the community.

Cases: A total of 60 cases were enrolled for the study and were divided into 3 groups with 20 in each, based on the duration of TB treatment. **Group I (n=20):** Newly diagnosed pulmonary TB patients before initiation of DOTS. **Group II (n=20):** TB patients, 2-3 months after initiation of DOTS. **Group III (n=20):** TB patients who had completed 6 months of DOTS.

Methodology: Hb%, TC, DC (P)%, DC(L)% & ESR were measured by standard procedures. Serum suPAR was measured by the quantitative sandwich enzyme immunoassay technique using the R & D systems Human uPAR Quantikine ELISA Kit.

Results: The suPAR levels were elevated before treatment (3.27 ± 2.08 ng/ml) and dropped significantly in groups after 2 months of initiation of therapy (2.18 ± 1.17 ng/ml) and after completion of 6 months of treatment (1.50 ± 0.93 ng/ml).

Conclusion: The decrease in suPAR levels in PTB patients with treatment is a manifestation of treatment efficacy. Hence suPAR levels can be used to guide clinical decisions in TB management.

SOCIO-DEMOGRAPHIC PROFILE AND BARRIERS AND CHALLENGES IN TREATMENT SEEKING BEHAVIOR IN PEDIATRIC TUBERCULOSIS PATIENTS ATTENDING DOTS CENTERS IN URBAN AREAS OF DELHI

Sunita Dhaked, Nandini Sharma, K. K. Chopra, Rajesh Kumar

Background: Tuberculosis (TB) remains a major global public health problem. It has been assumed that 10% of total TB load is found in children in India. **Objectives:** The study attempts to understand the socio-demographic profile, barriers and challenges related to treatment seeking under RNTCP in urban areas of Delhi. **Methodology:** study design: prospective. A predesigned, pretested and semi-structured questionnaire was used to interview 166 participants of pediatric age group (0-14 years) at two chest clinics selected purposively viz. Karawal Nagar Chest clinic and Lok Nayak chest clinic. **Results:** Out of 166 participants, 105 (63.3%) were females, mean age of participants was 10.11 years. Most of them, 152 (91.6%) were on category 1 treatment. 80% of them has taken BCG at birth but no one had received INH prophylaxis after getting in contact of active TB patient. Mothers were the caregivers and DOT providers but lacked knowledge about TB and its prevention. The barriers and challenges which resulted in delayed treatment seeking were: delayed attention of parents, lack of knowledge about TB symptoms and prevention, delayed referral by the first source of treatment and diagnostic difficulties etc. **Conclusion:** Studying the barriers and challenges in treatment seeking of pediatric tuberculosis patients may help to address these issues and thus strengthen the program.

TUBERCULOSIS DIAGNOSIS FOR WOMEN: SOCIO-CULTURAL AND KNOWLEDGE-BASED BARRIERS

Kanchan Srivastava, Surya Kant, Ajay Kumar Verma, Anand Srivastava, Amita Jain

More than three million women become afflicted with tuberculosis and more than half a million women die from it each year. Previous studies have indicated gender disparities in care-seeking behaviour and TB diagnosis; however, little is known about the specific barriers women face in India, a country accounting for 30% of the global TB burden. While men make up the majority of people affected by TB, women and girls with TB suffer unique and often oppressive challenges. Women diagnosed with TB are often abandoned by their families, ostracised by their communities, fired from their jobs, deemed unworthy of marriage and motherhood. This study aimed to characterize socio-cultural and knowledge-based barriers that affected TB diagnosis for women in Tertiary care Hospital of Northern India. In-depth interviews were conducted with 75 affected women, were examined for diagnostic trends. We investigated that Women, especially younger women, faced socio-cultural barriers and stigma, causing many to hide their symptoms. Older women had little awareness about TB. This may reflect differences in biology,

socioeconomic roles, health-care access, educational levels, and decision-making power between men and women. Studies have identified gender inequalities in care-seeking behaviour, TB diagnosis, and TB treatment. Women often sought treatment from private practitioners, resulting in delayed diagnosis. Continuing research and implementation of gender-sensitive approaches are needed to supplement the current approach to gender-sensitive TB control program.

SUMMARY OF EXPERIENCE WITH INDIGENOUS TECHNIQUE OF PLEUROSCOPY

Hanmant Varudkar

Background:

Variety of presentations of pleural diseases, difficulties in obtaining correct tissue with closed pleural biopsies, and costlier thoroscopes are major limitations in the diagnosis and correct management of respiratory patients of lower socioeconomics. We have successfully achieved solutions to all of above difficulties with economical means by designing, developing, and using in patients successfully the novel concept of patented specialized indigenous pleuroscopy conduits.

Aim and Objectives:

With the aim of visualization of diseased pleurae and possible therapeutic interventions this study was undertaken to reduce the necessity of costly modalities.

Methods:

This is a retrospective serial study conducted in the respiratory ward of a rural medical college from Jan 2009 to Dec 2014 with undiagnosed moderate to massive pleural effusions, empyema hemothorax or pneumothorax needing inter costal drainage, and with specified inclusion criteria. All eligible patients who underwent all routine diagnostic tests as per our hospital practice were subjected to indigenous pleuroscopy technique with Fiberoptic bronchoscope, followed by chest tube insertion. Post operative management was done in ward.

Results:

Undiagnosed 107 patients with Penumothoraces – 18 (17%), Pleural effusions-38 (35%), Hydropneumothoraces –22(20%) and Empyema -29 (28%) were included in final analysis.

Histopathology showed that there were total 32 cases of tuberculosis and 17 cases of malignancies. A foreign body- synthetic suture was retrieved in one case of recurrent empyema. There were complications like minimal bleeds, pain, and correctable hypoxia.

Conclusions:

Thus we conclude that this procedure is easy, safe and acceptable to the patients with usual complications. The diagnostic yield is comparable to conventional procedures.

DOES EXTENSION OF INTENSIVE PHASE IN SMEAR POSITIVE PULMONARY TB PATIENTS TAKING TREATMENT UNDER DOTS REDUCES UNFAVOURABLE OUTCOME?

S.K.Tripathy, A.Krishnamurty, P.Kumar

Objective: To analyze whether extension of intensive phase for one more month in smear positive pulmonary TB patients who were found smear positive at the end of intensive phase was associated with reduced unfavourable treatment outcome in a cohort of patients registered under RNTCP during 4th quarter 2010 to 3rd quarter 2011 in Bengaluru city.

Methodology: Cohort study of both new and previously treated smear positive pulmonary TB patients registered under RNTCP in Bengaluru city from 1st October 2010 to 30th September 2011. Data was collected from TB register and treatment card of all the 9 T.U.s of the city. The EpiData statistical software package was used for data entry and analysis.

Result: Out of total 2,674 smear positive pulmonary TB patients registered during the period 1,909(71%) had sputum conversion at the end of intensive phase, 335(13%) were still smear positive and 430(16%) were not evaluated. Of the 335 patients put on extended intensive phase treatment 199(59%) got converted at the end of extended intensive phase. 173(9%) had unfavourable outcome among those converted at the end of intensive phase and among those who had extended intensive phase the unfavourable outcome was found in 40(20%) patients ($P < 0.0005$). The relative risk of unfavourable outcome was 2.23 (C.I., 1.63-3.07) times higher in those who have converted after extension of intensive phase than those who have converted at the end of intensive phase.

Conclusion: The chances of unfavourable outcome was significantly higher in those who have converted after extension phase than those who had converted at the end of intensive phase indicating minimal role of extension of intensive phase in treatment of smear positive pulmonary TB patients.

IMPROVING TB CASE FINDING EFFICIENCY AND MANAGEMENT OF CASES IN PRIVATE HEALTH CARE FACILITIES IN BANGALORE CITY

V.K.Chadha, Bhoomika Bajaj Bhalla, Joydev Gupta, N. Nagendra, R.K.Shrivastava, Praseeja P, P. Kumar

The first point of contact for a majority of patients once they develop symptoms of TB is a Private Practitioner (PP). PPs have the responsibility to ensure that patients suffering from TB

receive the highest standards of care. In view of this, an implementation study was carried out in private health care facilities (PHFs) coming under the purview of Dasappa TU in Bangalore city with the following objectives-

1. To enhance TB case finding efficiency in private health facilities
2. To enhance treatment success rate among TB patients in the private sector
3. To document case finding activities and treatment outcome in PHFs

PPs and RNTCP officials were sensitized on Standards of TB Care in India (STCI) and Standard Operating Procedures (SOPs) of the study formulated in discussion with RNTCP officials, professional associations and on the basis of feedback from PPs. Linkages between PHFs, RNTCP and NTI were established for providing support to PPs in TB diagnostic and treatment activities as also for referrals for anti-TB treatment, HIV testing and culture and drug sensitivity testing. A state of the art TB symptomatic card was formulated for PPs to record the patients' symptoms, investigations undertaken, antibiotics given if any and the final diagnosis. Similarly, a modified treatment card was adopted that included information on anti-TB drugs prescribed by the PPs besides the results of all investigations undertaken including X-ray, biopsy etc. Onsite support in the form of additional manpower was provided to select PHFs with heavy OPD.

The diagnostic and treatment activities followed by the PHFs during the prospective study after intensive training in STCI and support from RNTCP and NTI, as analysed from filled in symptomatic forms (N=250) and treatment cards (N=100) by PPs will be presented during the conference as the analysis is under way.

EFFECT OF CO-MORBID ANXIETY AND /OR DEPRESSIVE DISORDERS ON COPD

Ruchi Dua , Abhishek Singh, Sandeep Kumar, Subodh Kumar, Mayank Mishra

Aims-To find the impact of co-morbid anxiety and/or depression on course of COPD

Objectives-To assess impact of co-morbid anxiety and/or depressive disorders on COPD in terms of quality of life(CCQ-Clinical COPD questionnaire), BODE index(BMI,FEV1,dyspnea by mMRC,6 Minute walk distance), exacerbation frequency and functional capacity (6MWD).

Material & methods

250 patients were screened and 128 patients (age<70 years) of COPD attending OPD of Pulmonary medicine department and consenting for the study were included. Patients with age more than 70 years, with other major co-morbidities were excluded from the study. Detailed questionnaire assessing demographic data, HADS(Hospital anxiety and depression score) for assessing anxiety and/or depression, clinical COPD questionnaire were administered.6MWD and baseline spirometry was performed, where needed a psychiatric opinion was sought for confirmation of diagnosis. A prospective follow up over a period of one year is also being conducted as part of this study.

Results – Dyspnea scores, BODE index as well as CCQ scores are significantly more in COPD patients with co-morbid anxiety and/ or depression than in COPD patients without any psychiatric co-morbidity. No significant difference in BMI, smoking status, post bronchodilator FEV1, history of hospitalisation or 6MWD is seen.

Conclusion- Depression is the most frequently associated psychiatric co-morbidity with COPD and adversely affects the symptom scores BODE index and quality of life though no significant difference was found among spirometric parameters, previous history of hospitalisation or proportion of current smokers.

SPECIATION OF NON-TUBERCULOUS MYCOBACTERIUM USING HPLC UNDER PROGRAMMATIC SETTINGS IN INDIA

George Sebastian, Sharath B N, P. Kumar

Background:

Non-Tuberculous Mycobacteria (NTM) are ubiquitous in nature. The data on prevalence of NTM under the RNTCP is scarce. Many NTM species have clinical significance, and hence its identification and speciation are important. Since NTM are emerging as important causative agents of pulmonary and extra pulmonary disease, the ability to recognize disease caused by NTM and subsequently treat such disease has become increasingly important.

Objectives:

To determine the non-Tuberculous Mycobacteria (NTM) species isolated among the smear positive tuberculosis cases using High Performance Liquid Chromatography (HPLC) technique.

Material and methods:

It is a cross-sectional study conducted during the month of August 2014 - August 2015. All the culture isolates which were smear positive and tested negative on immune-chromatography were included in the study. The study samples were obtained from the Intermediate reference laboratories of IRL Bangalore, IRL Ajmer, and IRL Nagpur. The isolates were processed at the culture laboratory of National Tuberculosis Institute (NTI) for the identification using Immuno - chromatography technique and speciation was done using HPLC. The speciation for HPLC was standardized before interpreting the results.

Result:

A total of 85 culture isolated were processed during the study period. The species identified were *M. chelonae* 32 (37%), *M. interjectum*05 (5.8%), *M. gordonae*11 (12.9%), *M. tuberculosis complex*06 (7.05%), *M. thermophile*05 (5.8%), *M. gastri*04 (4.7%), *M. simiae*03 (3.5%), *M. scrofulaceum*03 (3.5%), *M. fortuitum*03 (3.5%), *M. flavascens*02 (2.3%), *M.terrae*01 (1.17%), *M. pheli*01 (1.17%), *M.kansasii*01 (1.17%), and *M.avium*01 (1.17%), Indeterminate 7 (8.2%).

Conclusion:

The NTM are emerging as important causative agents of pulmonary and extra pulmonary disease, the ability to recognize disease caused by NTM and subsequent treatment should gain prime importance under programmatic settings.

MDR-TB: OUTCOME WITH STANDARDIZED REGIMEN [2012-2013]

Divyashree J, Ghanshyam Borisagar, Rajesh N Solanki

HYPOTHESIS:

Multidrug-resistant tuberculosis (MDR-TB) caused by Mycobacterium tuberculosis resistant to both Isoniazid and rifampicin with or without resistance to other drugs is among the most worrisome elements of the pandemic of antibiotic resistance. This study is undertaken to evaluate the treatment outcome of second line drugs in directly observed treatment, short-course (DOTS)-plus regimen under Revised national Control Program (RNTCP).

MATERIAL AND METHODS:

A prospective, observational study was carried out on multidrug resistant tuberculosis (MDR-TB) patients enrolled for DOTS-Plus regimen at TB and Chest Disease Department BJ Medical college Ahmedabad from January to December 2012. Demographic details, symptoms, sputum examination, adverse drug reactions & treatment outcome were recorded in a case record form. Patients were followed up for 24 months. The data were analysed by Fisher's exact test and paired students' "t" test.

RESULTS:

Out of 880 patients -586 were males, 294 were females. Higher number of cases in the age group 21-30 years(330),31-40years(200).The proportion is higher in patients who were previously treated. Approximately 2.27% cases were HIV associated. Majority cases diagnosed by LINE PROBE ASSAY(>90%),L J Medium showing resistance to both Rifampicin and or Isoniazid.

Treatment outcome included-

170(19.3%) cured, 200(22.7%) treatment completed, 250(28.4%) died,150(17%) defaulted,40(4.5%) failure and 70(7.95%)switch to XDR-TB.A significant increase in body weight was observed at the end of the 24 months. Out of 310 patients with sputum culture conversion majority (75%) turned negative in first 6 months. The most common ADR was joint pain due to pyrazinamide, vomiting due to ethionamide followed by neurological & psychiatric disturbances due to cycloserine.

CONCLUSION:

The treatment outcome of standardized regimen in MDR-TB pt was low. Judicious use of 2nd line drugs, supervised individualized treatment, focused clinical radiological & bacteriological follow up are the key factors. The long duration of treatment, pill count per day, frequency of ADRs & lack of education & awareness could be the possible reasons for default & are the major challenges for a successful treatment outcome.

UTILITY OF RIGID THORACOSCOPY IN PLEURAL EFFUSION OF UNDETERMINED ORIGIN

C M Rao, Anita Mohanty, Suvendu Chattopadhy

Background:

Even after extensive diagnostic evaluation of a patient with pleural effusion, the etiology often remains unclear. In this context pleuroscopy or medical thoracoscopy becomes an important investigation so that the pleural surface can be directly visualized and easily biopsy can be taken from the lesions. Medical thoracoscopy has received renewed interest in the recent past for diagnostic as well as therapeutic uses including pleurodesis and adhesiolysis. In this study, we describe our experience in Ispat General Hospital its diagnostic utility.

Aim and objectives:

- **Primary objective:** Diagnostic yield of medical thoracoscopy in exudative pleural effusions which could not be diagnosed after routine pleural fluid analysis.
- **Secondary objective:** To find out different complications of medical thoracoscopy.

Material and methods:

The study was conducted in the P.G. dept. of pulmonary medicine, Ispat General Hospital, Rourkela, Odisha, from July 2014 to October 2015. 18 consecutive adult patients with undiagnosed lymphocytic predominant exudative pleural effusions (inconclusive pleural fluid analysis and ADA <40IU/L) underwent thoracoscopy under local anaesthesia and conscious sedation. They were evaluated by thoracoscopic pleural biopsy from visible lesions. Complications of thoracoscopy were also assessed.

Results:

A total of 18 patients (11 males and 7 females; mean age 58.6 years) underwent diagnostic rigid thoracoscopy. 8 cases were found to be metastatic adenocarcinoma, 7 cases tuberculosis and 3

cases were non-specific pleuritis. The yield was 83.33% (15 out of 18 patients). Complications were mild and most common was subcutaneous emphysema (16.7%, 3 patients), chest pain (11.1%, 2 patients) which resolved after 3 days and re-expansion pulmonary edema (5.6%, 1 patient) which resolved after 2 days. No major complications or mortality were noted. No specific diseases detected in 6 month follow up of Non-specific pleuritis cases.

Conclusion: Rigid thoracoscopy is a safe procedure and has a good diagnostic yield in patients with undiagnosed pleural effusion in this era of evidence-based medicine.

RADIOLOGICAL OUTCOMES AMONG NEW PULMONARY TUBERCULOSIS PATIENTS

Harshita Gupta, Surya Kant

Background: Radiographic findings in new pulmonary tuberculosis (TB) patients by recent infection are upper lung lesions, consolidation, and cavitation indicates reactivation of pulmonary TB by remote infection.

Objective: To determine the radiological outcomes among new active pulmonary tuberculosis patients at tertiary care hospital.

Study Design: A hospital based prospective follow-up cohort study design.

Setting and Subjects: Two urban Directly Observed Treatment Short-course (DOTS) centres in Lucknow District of Uttar Pradesh, India. Newly diagnosed sputum smear-positive cases for Acid-fast Bacilli (AFB) between the age group of 12 to 65 years were enrolled in the study.

Outcome Measures: Each participant was interviewed and completed a structured questionnaire to provide demographic information and chest radiographs from 185 patients with identical strains of TB were analyzed. Radiological outcomes were evaluated by complete radiological clearance (complete clearance of residual radiological lung lesions) and incomplete radiological clearance (degree of residual radiological lung lesions) in the chest x-rays.

Result: A total of 185 newly diagnosed patients were recruited. Out of these, 14 (7.6%) patients were lost to follow up after treatment. The mean (\pm SD) age of the remaining 171 patients was 29 (\pm 12) years. In the radiological assessment, cavitory lesions were present in 11.1% patients after 6 months treatment. Complete radiological clearance was observed in 73.1% patients at six month and 26.9% patients showed residual radiological shadows included *grade I* (0%), *grade II* (8.7%), *grade III* (17.4%), *grade IV* (73.9%) in the chest x-ray.

Conclusion: Complete radiological clearance was observed in 73.1% among new pulmonary TB patients after six months treatment.

INFLUENCES OF POORLY CONTROLLED DIABETES AND ADVERSE DRUG REACTIONS ON TREATMENT OUTCOME IN PATIENTS RECEIVING DOTS: A PROSPECTIVE STUDY FROM SOUTH DELHI

Khalid Umer Khayyam, Ali Nasir Siddiqui, Manju Sharma, Rohit Sarin

Objective: Tuberculosis and Diabetes mellitus are two public health problems which not only often coexist but have serious implications on each other. Poorly controlled DM patients is on higher risk, as elevated HbA1c concentration of >7 mmol/mol is associated with decreased phagocytic activity and T- cell functioning results in impaired cell mediated immunity. Present study focuses on the impact of uncontrolled diabetes and adverse drug reactions on the treatment outcome, compared with controlled diabetes on TB patients under DOTS therapy.

Method: Eligible TB patients were subjected to blood glucose screening under fasting condition at treatment initiation time. Patient found diabetic during screening, underwent HbA1c estimation for glycemic index determination at the end of I.P and C.P. Patients having average HbA1c ≥ 7 mmol/mol were considered as un-controlled diabetic while those of < 7 mmol/mol were controlled diabetic. The clinical presentation and treatment outcomes were compared between controlled diabetic and un-controlled diabetic TB patients. The ADRs were recorded in the suspected adverse drug reporting form i.e. “voluntary reporting of adverse drug reactions by healthcare professionals.” Odds ratio was calculated by logistic regression analysis for sputum conversion, treatment outcome and ADR incidence due to anti-TB drugs.

Results: Out of total 316 patients, prevalence of DM was found 15.8% (50/316), in which 19.4% and 9.6% were PTB and EPTB patients respectively. It was observed that 33 (66.0%) and 17 (34.0%) patients with controlled and un-controlled diabetic patients respectively. In PTB patients, 8.4% & 23.1% patients were finished with unsuccessful outcome at the end of treatment in controlled and uncontrolled diabetes respectively. More patients remain sputum positive at the end of I.P in uncontrolled diabetes patients. ADRs were recorded in total of 92% diabetic patients.

Conclusion: Poorly controlled diabetes has poor treatment outcome and cause more ADR incidence among TB patients. Screening for DM is recommended in TB patients with all age groups could improve the treatment outcome and diagnosis and early management of DM complications.

TRACING OUT OF HIDDEN SUSPECTED TB CASES IN THE VULNERABLE COMMUNITY OF PUNJAB – AN EXPERIENCE

R. P. Verma

1. Introduction: -

Tuberculosis and MDR-TB is a major public health problem of India as 22% TB cases of the world are reported in this country. The woman and children are the most sufferers because of this disease. Therefore, in order to mitigate the human suffering and deaths due to TB, IRCS

took partnership in TB Control Program in 2009 for retreatment of those TB patients who had discontinued their treatment in the past. This project was successfully implemented in Punjab covering Amritsar & Jalandhar districts. However, one more important activity of tracing out hidden TB suspects in the slum areas was added under the project from the year 2015.

2. Importance of tracing out hidden TB cases: -

From the experience, it was found that a large number of hidden TB suspects are living in the slum areas, but due to ignorance they ignored to go to chest specialists in the hospital for investigation and proper treatment. These untreated hidden TB cases are responsible for further spreading of TB infection in the community. Therefore, it is, really a matter of great importance that such hidden TB cases are traced out and put on DOTS treatment at the early stage to contain the disease in the vulnerable community.

3. Project Objective:

To trace out 1000 hidden TB suspects by organization of 6 screening camps in slum areas of Amritsar & Jalandhar district in Punjab in the year-2015.

4. Implementation (Approach): -

The project activities were implemented through Punjab State Red Cross branch under the supervision of TB Control Programme In charge cum State Coordinator (author) with a team of two district Red Cross managers and 27 Red Cross volunteers.

a. Identification of Area:-

Different slum areas were identified for holding 6 screening camps in two districts with the help of local DTOs and RNTCP staff.

b. Support from District Health Department: -

A mobile x-ray unit and some chest specialists were provided as a support by the health department for the camps.

c. Publicity of the Camp: -

Wide publicity was done 3 weeks before each camp through munadi, displaying of flex banners, distribution of hand bills and arranging of street plays on TB in different localities.

d. Services Provided in the screening camps: -

- (i) Patients with cough more than 2 weeks were examined by the chest specialists. The TB suspects identified were referred for sputum examination while spot x-ray was done in the camp. (309 persons got their x-ray done).

(ii) After the camp, the Red Cross volunteers contacted and provided support to all the referred patients in depositing their sputum samples at the TB centre for microscopy examination. (640 persons covered)

(iii)**Health Education:** People attending the camp were made aware about the dangers of smoking and use of drugs. The basic information on tuberculosis was given and stress was laid that the persons having cough more than two weeks should go to hospital for check up by the chest specialists at the early stage. Hand bills were also distributed so that the information may reach to the large number of people.

5. Support & Participation:-

These screening camps were visited by two cabinet ministers of Punjab (Sh. Chunni Lal Bhagat and Sh. Anil Joshi), Mr. John Rosche Representative from IRISH Red Cross Society, Dr. Veer Bhushan Joint Secretary, Director Blood Bank and Senior Advisor from IRCS National Headquarters, Sh. C.S.Talwar (IAS Retd.) Secretary Punjab State Red Cross Branch, two Civil Surgeons, two District TB Officers, SDMs, Mayor, 10 councillors from municipal corporation and many other local community leaders.

6. Outcome: -

- (i) 4028 patients visited the 6 screening camps and 1639 of them were found as suspected TB cases.
- (ii) 91 confirmed TB patients were identified and put on DOTS treatment.
- (iii) 1564 patients who had other chest problems were also examined and given required free treatment in the camp.
- (iv) The people in vulnerable community were able to get correct information on prevention & proper treatment of TB.
- (v) This activity would be helpful to contain tuberculosis in the community.

7. Conclusion: -

- (i) The experience gained through this project suggests that there is a need to hold more such screening camps in urban slum areas to trace out hidden suspected TB cases.
- (ii) Some other NGOs in different parts of the country can use this experience in holding such Camps in their areas. It would help to contain tuberculosis in the vulnerable community.

CREATING AWARENESS AND SENSITIZING THE COMMUNITY PHARMACIST AS DOTS PROVIDER THROUGH PUBLIC - PRIVATE PARTNERSHIP POLICY OF RNTCP

K.Anupama Murthy

Tuberculosis despite being curable, is responsible for widespread morbidity and mortality globally. If left untreated, each person with active TB can infect on average between 10 to 15 other healthy persons in a year. Community Pharmacist constitutes an important and essential health work force, In India, community pharmacist are the frontline health care provider and are often a first point of contact with the patients. There are 7,50,000 pharmacies in India & the pharmacies are more or less business-oriented. The purpose of this project is to bring the awareness and ensure participation of community pharmacists in TB control in Coimbatore with active coordination with DTC.

METHODOLOGY

- This is a prospective longitudinal study. This study was done in a phase wise manner.
- Identification of Community Pharmacies on TB patient load
- Educating and training Community Pharmacist as DOTS provider
- Converting Community Pharmacies as DOTS providing center and patient enrollment
- Follow up for six month to analyze the effectiveness of the system
- Analyzing the pit falls and restructuring the system for effective functioning.

DATA ANALYSIS

Feedback questionnaire was collected from pharmacists, patients, and STS involved in the program. Data collected was analysed by quantitative analysis to understand pitfalls and strengths of this Public private partnership. Results of this data will be presented in detail during conference.

CONCLUSION

Majority of STS reported that involvement of pharmacists will help program implementation, however concerned regards default action and home visits were pointed out. Patients were comfortable to receive DOTS from pharmacists to avoid social stigma and easy access. Most of pharmacists were keen to become part of this National program and serve by improving treatment outcomes.

TREATMENT OUTCOMES IN INH MONO RESISTANT CASES OF TUBERCULOSIS

K.Anupama Murthy

Background: - Multidrug Resistant TB is resistance to both rifampicin and isoniazid. Most TB diagnostics detect RIF – mono resistance, few detect INH mono resistance which may increase risk of acquired MDR TB. Data on treatment outcomes of INH monoresistance cases will help for early identification and aggressive follow up of isoniazid monoresistance and thereby increase treatment success.

Methodology:-

Retrospective data of 631 patients who were started on CAT II treatment in DOTS under RNTCP between January 2013–December 2013 were studied in department of Respiratory Medicine, PSG – IMSR in coordination with DTC. Their sputum samples were sent for LPA to NIRT Chennai to exclude MDR TB and detect INH mono-resistance. We analyzed treatment outcomes of INH mono-resistance cases.

Results:-

Retrospective data was analyzed for 631 patients; Amongst them 59, patients had INH + RIF Resistance, declared MDR TB , whereas 49 patients had only INH resistance.MDR TB patients were initiated on CAT IV DOTS INH mono-resistance were continued on CAT II DOTS. Amongst the INH mono-resistance cases 42 were female, 7 were male., most of male patients were in 30 -50 yrs category. Amongst these 49 patients, 15 got cured, 8 died, 2 went to be. MDR TB, 4 were transferred out, 4 defaulted 2 cases were treatment failure. Their health status was monitored over 2 yrs through telephonic consult and health visitors home visit.

Conclusion:-

Amongst patients detected with isoniazid – Monoresistant Tuberculosis during 1year period (January –December 2013); 4% progressed to MDR Tuberculosis. Poor treatment outcomes were seen in 12% cases, 16% died and 30% got cured. High proportion of poor treatment outcomes.

COMMUNITY BASED MANAGEMENT CAN STRENGTHEN TREATMENT ADHERENCE IN DRUG RESISTANT TB

Akshay Kumar Vasisht

Drug resistant TB is a major public health problem world-wide. Not following Basic DOTS and incomplete treatment of MDR TB fuels the situation and further leads to emergence of new cases. As the drugs are toxic, development of Adverse Drug reactions further complicate the situation leading to treatment interruption, development of further resistance and increased mortality. To take care of these aspects community based interventions need to be adopted for improved treatment outcomes.

The chest clinic caters to a population of approximately 13 lakhs. Members of community ranging from slum dwellers to those in low and middle income groups are provided TB related services. Various innovative practices are being adopted at the DOTS centres under the clinic to improve treatment outcomes. Conducting monthly meetings in groups of 15-20 patients and their family members by the attending doctor who instils confidence in the patient and his family members during the course of treatment are proving to be of immense help. Patients are also informed about the importance of regular sputum follow up along with monitoring of LFT, KFT and recording weight as per guidelines. The drugs being toxic, patients are explained through pictorial charts the development of ADR if any, so that they are aware and report to their attending physician for further management. An invaluable piece advice by cured MDR TB

patients in sharing his experiences during the course of treatment has contributed to further strengthen the programme. Apart from these, the patients are educated about infection control measures which can be practiced at their homes and place of work

These innovative initiatives connect with the community in imparting much needed awareness about MDR TB and its management as majority of problems and myths about the disease are also solved during these campaigns involving doctors, patients and their family members.

Conclusions and key recommendations:

To prevent defaults and ensure improved treatment outcomes, such informal sessions conducted in the field have a strong pull which cannot be provided in the OPDs as they are congested.

IMPACT OF NUTRITION SUPPORT PROGRAMME OF MDR-TB PATIENTS IN KASARAGOD DISTRICT, KERALA

K.Raviprasada

Tuberculosis (TB) is a global public health concern according to World Health Organization. In India, 3 million has TB and Kerala bears 2.96 % of the chronic morbidity, with a rate of 1.86 per1000. However, the management of patients with multi drug resistant TB is inadequate. There were no relevant studies to find out relation between nutrition and MDR-TB (Multi Drug Resistant TB) in India.

This paper discusses Impact of Nutrition Support Programme of MDR-TB patients in Kasaragod district, Kerala

The Nutrition Support Programme ('Kaithangu') was implemented in Kasaragod District, Kerala in the year 2012 in association of District Panchayath, Kasaragod. The quality assured nutrition kits bearing rice (10 kg), green gram (1 kg), coconut oil (1 litre), garlic (250 gm) were procured from civil Supplies corporation, Kasaragod and supplied to the patients through TB centre every month. 86 DRTB patients reported in the period of 2009- 2015 were included in the programme. The outcomes were weight gain and wellbeing, dependency, educational wellbeing of family members and Job continuity. The secondary data have also been collected from treatment records kept at District TB Centre. Percentage wise analysis was done to identify treatment response. In Kasaragod district total 86 DR TB patients were identified so far. (76%) are below 50 years of age, which is an economically productive age group. 83% of the MDRTB patients were male. The nutrition support with the help of district panchayath helped to strengthen Patient's adherence to the treatment. It helps to reduce the default and death rate from 11 to 2%. Treatment adherence rate was raised up to 99 %.

This Programme increased provider- patient relationship. We found increased medical adherence and weight gain of TB patients. We recommend Implementation of the same in Revised National TB Control Program.

NTM ASSOCIATED CERVICAL LYMPHNODE INFECTION: A FACT FINDING STUDY

Ajoy K Verma, Hari Babu Pujari, Sushil Kumar Munjal, Kumud Gupta, Rajnish Gupta, Gavish Kumar, Jyoti Arora, Vithal P Myneedu, Rohit Sarin

Introduction: Cases of enlarged lymphnode in cervical region emerge in clinical OPD often. These swellings are caused by non-infective as well as infective clinical diseases. Among the infective clinical diseases, mycobacteria associated cervical lymphnode infection is a common problem. In practice, the diagnosis of these cervical enlargements is done through pathological and smear examination of FNAC samples. In the recent years, non-tuberculous mycobacteria (NTM) has been reported as etiological agent in many of the cervical lymphnode swellings. This study was undertaken to see the clinical, pathological and detailed microbiological examination of enlarged cervical lymphnode and to identify the NTM up to species level isolated from the FNAC samples.

Material and Methods: Culture confirmed patients with lymphadenitis, who were attending the OPD and ward as mycobacterial infection, were recruited in the study during January - December, 2014. Therein detailed history and thorough clinical examination of patients were reviewed. All patients with superficial cervical lymph nodes were subjected for fine needle aspiration (FNA) using 10 ml syringe fitted with 21 G needle. The aspirated samples were subjected for Ziehl Neelsen (ZN) smear stain examination and MGIT culture. Positive cultures were primarily identified by cord formation in ZN smear examination, detection of MPT-64 antigen by immuno-chromatographic test (Capilia test). A portion of aspirate is used to prepare smear for cytological examination after air drying and fixing in methanol for 5 minutes. Fixed smears were used for May Grunwald - Giemsa stain.

Results: A total 154 lymph node samples were received and processed for culture during the study period. Out of total sample (22%) patients were positive for mycobacterium. 27/154(17.5%) was identified as mycobacterium tuberculosis lymphadenitis (MTB LAP) and 7/154(4.5%) were non-tuberculous mycobacterial lymphadenitis (NTM LAP) cases. Amongst the NTM LAP, 4/7 (57%) belonged to >18 years and 3/7(43%) were <18 years age group. Male:Female ratio was 2:5. Clinical history showed that swelling of cervical lymphnode (7/7,100%), fever (7/7, 100%), Mantoux+ve(3/7, 43%), Mantoux-ve (4/7, 57%), pain in the swelling (2/7,28%), pus discharge (3/7, 43%), no history of contact with active tuberculosis was found. All the 7 cases of NTM had previous history of ATT. Pathological finding showed epithelioid granuloma with caseation (2/7, 28%), necrosis and inflammation (2/7, 28%), occasional epithelioid cells and few inflammatory cells (3/7, 43%). All the patients were HIV-ve. The 7 NTMs were identified as : *M.chelonae* (3/7, 42%), *M. fortuitum* (2/7, 28%), *M. abscess* (1/7, 14%) and *M.terricomplex* (1/7, 14%) by using various biochemical tests.

Conclusion: NTMs are important definitive etiological agents in cervical lymphnode swelling. Clinical and pathological findings help in suspecting the infection. Definitive and detailed microbiological examination is vital for proper treatment and patient management.

DIAGNOSTIC, THERAPEUTIC MONITORING OF TUBERCULOSIS PATIENTS OF SILK CITY BY TELEMEDICINE

Karthika Jayakumar,Sundaramurthy,Srividhya

INTRODUCTION:

In this era of mobile phone, this electronic gadget has become a permanent member of every household & it has outnumbered the family members in a nuclear set up!!!this explains the importance of the handset & its role in an individual's routine It can be used not only for personal, official communication but also for MEDICAL PURPOSE!!

The equipment was used in our study as a two-way communication tool for diagnostic & therapeutic communication between the diseased & the treating physician of our Medical college, which is situated in the Kanchipuram District –the place where Silk sarees,dhoties & skirts are woven.

AIM & OBJECTIVES:

- 1) To study the effectiveness of diagnosing & therapeutic monitoring of TB patients through telemedicine.
- 2) The assess the cost effectiveness, turn around time through the technique
- 3) To evaluate the compliance of the patients.

Materials & methods:

IEC NO:2015/202.

75 willing patients were included in the study, after obtaining their written consent, in vernacular language. Sensitization programme was conducted for patients, as many of them belonged to rural population. The schedule was completed in three months (sep-oct 2015).

434 patients attended the TBCD during the three months. There was 3:1 male: female ratio. Their address & telephone number with video facility was collected and this was used for the Direct follow up of diagnostic & therapeutic monitoring. Those patients who were lacking video facility in their phones were included under separate house visit category.

Result: 51 positive patients, had two sets of care:1) direct follow-up &2) house visit. They were 37&14.out of 37, who had direct video chat with treating physician, 32 were highly interactive ,felt it was an easy method to have contact with their doctors, less time

consuming without affecting their routine work & cost effective. Second group had the Junior residents making regular house visit & ensuring video-chatting through their phones between the patients & treating physicians, this created a comfortable ambience for the diseased & ensured proper intake of the drug even in far flung remote areas.

Conclusion: Telemedicine delivers cost effective, individual patient care .ensures optimum time for the ailing to have therapeutic & diagnostic management without interference to their daily chores as proved by our study.

DISMAL REFERRALS FROM PRIVATE SECTOR FOR MICROBIOLOGICAL CONFIRMATION OF TUBERCULOSIS (TB) BY XPERT MTB/RIF

Shikha Dhawan, Shamim Mannan, Kiran Rade, Sarabjit Chadha, Devesh Gupta, Sunil Khaparde

Introduction: For Universal access to TB care, the Revised National TB Control Program (RNTCP) engages all care providers. Individuals presumed to have TB referred from private sector are provided free quality diagnosis by Xpert MTB/Rif laboratories established under RNTCP.

Methodology: Data on referrals from private sector for microbiological confirmation of TB by Xpert MTB/Rif was collected for 2014 from 76 functional Xpert sites across 26 States and Union Territories using a standard tool.

Results: Of the 1,12,273 tests done across 76 Xpert sites, there were 1413 (1.3%) referrals from private sector. Tamil Nadu reported the maximum referrals (687) from 5 sites followed by Bihar (163, 3 sites) and Maharashtra (140, 10 sites). Less than 10 referrals were from 7 sites (Arunachal Pradesh, Delhi, Jharkhand, Manipur, Rajasthan, Telengana and Uttarakhand). Six states did not have referrals from private sector (Andaman and Nicobar Islands, Andhra Pradesh, Haryana, Himachal Pradesh, Odisha and Punjab)

Conclusions: Poor referrals from private providers for utilising Xpert/MTB Rif, a rapid diagnostic tool highlights the need for strong advocacy for utilising these public sector facilities and overcoming the obstacles involved in public private engagements. A comprehensive strategy should include sensitising on the Standards for TB Care in India and dissemination of partnership options available for utilising these services. At the same time, RNTCP should ensure that public facilities are prepared for the demand generated and support the private sector with required resources.

ASSOCIATION BETWEEN OXIDATIVE STRESS IN COPD PATIENTS AND SERUM CYTOKINE LEVELS IN NORTH INDIAN POPULATION

**Seema Singh, Santosh Kumar, Mohd K Ahmad, Anuradha Nischal, S K Singh, R K Dixit ,
S K Singh, Verma**

BACKGROUND: Cigarette smoking is a major risk factor for chronic obstructive pulmonary disease (COPD). Oxidative stress has been known for having a key role in pathogenesis of many diseases. The aim of this study was to investigate the serum cytokines levels in [Interleukin-1 β (IL-1 β), Interleukin-6 (IL-6), Tumour necrosis factor- α (TNF- α)] and their correlation with smoking categories, oxidative stress and also the relationship between antioxidant system statuses and lung function in patients with COPD and subjects. Diagnosis was made by spirometry. **METHODS:** Total 150 newly diagnosed patients from 30-80 years were included in the study. Participants diagnosed as COPD were selected for the systemic serum cytokines levels. Healthy controls were also included in for comparison. **RESULTS:** the comparison of oxidative stress and anti-oxidant activity between cases and controls. The estimated values of SOD, Catalase, GPX, GSH and GR were found to be significantly ($p=0.0001$) lower among the cases compared to controls. But the levels of MDA were higher ($p=0.0001$) in cases as compared to control group. Table-2 depicts that there was significant difference in the oxidative stress parameters except GSH among severity of COPD. The post-hoc analysis revealed that SOD was significantly ($p<0.01$) lower among the very severe patients compared to moderate and severe patients. The catalase was also observed to be significantly ($p=0.01$) lower among very severe patients than severe patients. The GPX was found to be significantly ($p=0.002$) lower among the very severe compared to moderate patients. MDA was observed to be significantly lower in the moderate patients compared to severe ($p=0.0001$) compared to very severe ($p=0.001$). However, GR was significantly ($p=0.003$) significantly lower among very severe than mild patients. A significant strong positive correlation was observed between post FVC and pre FVC ($r=0.95$, $p=0.0001$). Similarly, pre FEV1 was found to be positively correlated with pre FVC ($r=0.80$, $p=0.0001$) and post FVC ($r=0.75$, $p=0.0001$). Post FEV1 was also observed to be positively correlated with pre FVC ($r=0.76$, $p=0.0001$), post FVC ($r=0.75$, $p=0.0001$) and pre-FEV1 ($r=0.96$, $p=0.0001$). None of the oxidative stress parameters were correlated with spirometry parameters, secondly it shows that among the smoking categories there was significant difference in the level of TNF- α ($p=0.03$), IL-6 ($p=0.01$) and IL-1 β ($p=0.02$) among the different categories of smoking habit. The pos-hoc analysis revealed TNF- α (pg/ml) was significantly ($p<0.05$) higher among ex-smoker than non-smokers. **CONCLUSION:** In conclusion on the basis of study the increasing pack years contribute to disease severity. Oxidant Anti – Oxidant imbalance is more in Moderate COPD as compared to Mild COPD. It concludes that as severity increases oxidative stress also increases. Smoking may influence TNF- α mediated systemic inflammation, which, in turn, may account for some of the benefits observed in patients with COPD who stop smoking.

CLINICO-PATHOLOGICAL PROFILE OF ABDOMINAL TUBERCULOSIS AND THEIR TREATMENT RESPONSE

Niyas K Naseer, V Achuthan, ,Manoj D K, Rajani

OBJECTIVES OF THE STUDY:

To evaluate the clinico-pathological profile of patients with abdominal TB in a tertiary care centre in northern Kerala and assess their response to ATT under DOTS

METHODOLOGY:

This is a retrospective follow up study conducted by the department of Pulmonary Medicine in association with the department of Gastromedicine and Surgery, and medical college DOTS CENTRE, Pariyaram Medical College, Pariyaram Kannur, Kerala. Patients diagnosed of abdominal tuberculosis, on ATT under DOTS during the time period 2011 to 2014 were included in the study.

Total 55 patients with abdominal TB diagnosed on the basis of clinical profile and supported investigations were selected and evaluated and treatment response assessed. The results were tabulated and analyzed with epiinfo7.

RESULTS:

In 55 patients, males:females 31: 24 with age range 16-80 years. Most common presenting symptoms -Abdominal pain in 81.81%, weight loss in 72.3% and low grade fever in 67.3% cases. 10 patients had family history and 2 had past history of TB. The diagnosis confirmed histopathologically in 76.36%. Rest were diagnosed by imaging and cytology. Most common site was intestinal 27(stomach-1, ileum-6, ileocaecal-9, colon-10, rectum-1). After ATT, 51 patients became symptom free. 3 patients expired during treatment, 1 patient developed ATT induced hepatitis and rest due to unrelated causes. A patient with unsatisfactory response was found to have coexistent adenocarcinoma of colon.

DISCUSSION AND CONCLUSION:

Abdominal TB is an important clinical entity having varied mode of clinical presentation. In this series of abdominal TB, intestinal TB was the most frequent clinical type and the common presenting symptoms were abdominal pain, fever and weight loss. If diagnosed early, Abdominal TB can be treated successfully with anti-TB drugs.

COLLABORATIVE PUBLIC PRIVATE MIX OPERATIONAL RESEARCH PROJECT (COPPMOR) "NOT TO COUGH MORE" AN EXPERIENCE AT P D HINDUJA SINDHI HOSPITAL, BENGALURU

Sowmya B Ramesh, Bhoomika Bajaj, Vineet Chadha

OBJECTIVE: To check effectiveness of private public mix project "CoPPMOR" by NTI Bengaluru in management of TB cases at P D Hinduja Sindhi hospital, Bengaluru .

INTRODUCTION:

Tuberculosis in myriad form causes multiple deaths. Advancement in public health measures as well as pharmaco therapeutics has not led to an outright victory owing to various reasons. One among them being lack of adequate awareness among primary care providers in case detection and management. Hence the necessity of a collaborative project involving epidemiological expertise guiding an existing infrastructure of private hospital to improve case finding efficiency and management.

METHODS

A four quarter study during 2015 was carried out between Jan 2015 and December 2015.CoPPMOR was started with educational awareness CME followed by standard case detection methodology using uniform formats designed for execution of project in private hospital setting. Every case of suspected TB was included in study with retrospective and prospective record reviews. Comparison was done for case detection before project implementation and after implementation.

RESULTS:

Out of 4186 OPD cases during JAN-MAY ,total no of TB cases were:4 cases of PTB,64 CASES OF X-RAY POSITIVE CASES .

Total no of cases from JUNE –NOV (with COPPMORE implementation and post implementation period of 3 months) out of 6613 total OPDS JUNE-NOV 2015, there were 13 cases of sputum positive, 118 cases of X RAY POSITIVES, 14 cases of extra-pulmonary ,2 PAED TB cases with increase in case detection rate by four folds for pulmonary TB ,and more than tenfold increase in detecting EXTRAPULMONARY TB cases proving the operational efficiency of CoPPMOR NOT TO COUGH MORE’.

There was better outlook of challenges and hurdles in case management by practitioners with easy operability of this national institute collaborative project whose guidance reflected as an empowered private hospital for BETTER MANAGEMENT OF TB CASES.

SILICOSIS

Tariq Mahmood, A D Shukla, Abhinav Chaudhary, Shreenivasa A

Silicosis is most common occupational lung disease in the world. Caused by exposure to respirable tiny bits of crystalline silica, a mineral that is part of sand, rock, and mineral ores. It affects the workers exposed to silica dust in occupations such as mining,quarry workers , stone cutters , stone blasting, glass manufacturing, and foundry workers , drillers. Prevalence of disease varies from 3.5%– 54..6% , clinically important size of dust particle is around 0.5 to 5

µm. Interaction of crystalline silica and pulmonary alveolar macrophages is crucial event in development of silicosis, IL-1, TNF α and proteolytic enzymes which released by macrophage injury or death results in fibrosis and local tissue damage. Depending upon duration and intensity of silica exposure silicosis presents as chronic, accelerated and acute silicosis classified regarding onset and rapidity in progression. Dyspnoea, cough, chest pain, fatigue, loss of appetite, tachypnea, are usual clinical presentation of silicosis. In advanced case of silicosis may presents with cyanosis, cor-pulmonale, respiratory insufficiency. Classic radiographic features of simple silicosis are rounded opacities ranging from 1 to 10 mm, predominantly in upper zones with associated Hilar lymphadenopathy with “egg shell calcification”. PFT usually suggestive of Significant airflow limitation, reduced peak expiratory flow (PEF) and forced vital capacity (FVC). Patients with PMF may show restrictive impairment. BAL may demonstrate an increased number of cells, protein and quartz in the macrophages.

Most frequent complication of silicosis is silico tuberculosis. Silicosis and tuberculosis is most deadliest combination in occupational disease world. Both diseases are synergistic in nature. Diagnosis of silico tuberculosis is a very challenging as symptoms of silicosis and silico tuberculosis are misleading and difficult X-ray interpretation. Risk of relapse of tuberculosis is higher and may continue indefinitely after completion of treatment.

The main goal is Disease prevention, It comprises a) medical screening and surveillance b) Dust control measures. Smoking cessation efforts are strongly advised. Corticosteroids may be of benefit in acute silicosis. Prompt treatment associated complications and long term follow up is recommended.

RELIABILITY AND ACCEPTABILITY OF AN AUDIO SIGNAL MODIFIED SHUTTLE WALK TEST

Abhishek Faye, Rupak Singla, Richa Rai, Anil Jain

Background: In conventional shuttle walk test (CSWT) patient is blinded towards the time left in each shuttle to complete the test leading to difficulty in understanding the instructions. There was a felt need to modify the audio signal and make it easier to understand and carry out the test, this is expected to better guide the patient’s adjustment to the speed required during each shuttle.

Objectives: To study the reliability and acceptability of an audio signal modified shuttle walk test, called the Singla-Richa modified SWT (SWT_{SR}), in healthy normal adults and in chronic obstructive pulmonary disease patients.

Design: We modified the audio signal by adding reverse counting to it so that patient can know how much time is left to complete each shuttle. 54 Healthy normal adults and 76 COPD patients underwent conventional shuttle walk test (CSWT) at one instance and two times modified shuttle walk test (SWT_{SR}) on the same day. The acceptability of the modified test was evaluated by their response to questionnaires which were analyzed on Likert scale. The reliability of the test was

evaluated by Intra class coefficient (ICC) of distance walked and by Bland Altman plots for first and repeat SWT_{SR} .

Results-In healthy normal subjects as well as in COPD patients, the ICC showed positive (direct) and significantly high correlation in distance walked between first and repeat SWT_{SR} ($r=0.988$, $p<0.001$; $r=0.973$, $p<0.001$ respectively). The acceptability of SWT_{SR} was significantly higher than CSWT in normal and in COPD patients.

Conclusions-The modified audio signal with reverse counting in SWT_{SR} is better understood by subjects. It is a reliable as well as a more acceptable test when compared with CSWT in both healthy normal adults and in COPD patients, irrespective of the severity of COPD.

COMPARISON OF CLINICO RADIOLOGICAL PRESENTATION IN PULMONARY TUBERCULOSIS PATIENTS WITH TYPE II DIABETES AND EUGLYCEMIC SUBJECTS

Suresh.S, N.Meenakshi, Arunashanmuganathan, Subramanian.S

INTRODUCTION:

Diabetes is one of the major risk factor for tuberculosis. The New” Deadly Duo” of tuberculosis and diabetes is on the rise and associated with significant mortality and morbidity. The varied and atypical clinico radiological presentations have to be recognized to enable early diagnosis and optimal treatment of both disorders. Hence this study was undertaken to identify the different clinico radiological presentation in both diabetes and non diabetes patients.

AIM : To compare the clinico-radiological pattern of pulmonary tuberculosis with Type II diabetes mellitus and euglycemic subjects

METHODS: This prospective observational study was carried out in our DOTS Clinic, 250 patient were diabetic and 250 patient were euglycemic with clinical ,microbiological and radiological evidence of PTB were included in the study.

RESULTS:

Males are predominant population in both the groups accounting for 66.1 % in patients of DM group and 63.8% in patients with Non Diabetic group.

Symptoms of Cough ,Expectoration, Shortness of breath, Chest pain and Fever were evenly distributed in both groups whereas loss of appetite and loss of weight were less common in TB patients with DM which were statistically significant ($P<0.004,0.033$).

48.4% of TB patients with DM had symptom duration of less than one month compared to 32.4% in Non Diabetic patients.($p<0.009$).

Smear positive PTB was more in TB patients with DM accounting 80.3% whereas in TB patients without DM it was found to be 70.9% Statistically significant ($p<0.037$).

The predominance of lower zone involvement (57.10%) is noted in TB with DM with statistical significance (0.000).

In this study 67.7% of moderately and far advanced lesion in chest x ray were found in uncontrolled Diabetes ($HbA_{1c} > 7$)

CONCLUSION: Screening of TB patients for presence of DM will lead to earlier detection and optimal control of the diabetic status, thereby leading to favourable outcome for TB as well as DM. We hereby suggest routine Diabetes screening in all patients of Tuberculosis as mandatory, similar to HIV screening under RNTCP.

ROLE OF CBNAAT IN CONFIRMATION OF TUBERCULOSIS IN SMEAR NEGATIVE SPUTUM SAMPLES

Mridushri, Shampa Anupurba, Rajneesh Tripathi

Mycobacterium tuberculosis has always been a significant cause of morbidity and mortality due to an infectious agent. The accurate diagnosis of tuberculosis is essential for the appropriate disease management. CBNAAT (Cartridge Based Nucleic Acid Amplification Test), also known as Gene Xpert MTB/RIF assay is a highly sensitive and specific diagnostic tool designed to extract, amplify and identify the rpoB nucleic acid sequences in MTB. This helps in diagnosis of tuberculosis and detection of rifampicin resistance in the clinical specimens. We determined the performance of CBNAAT in confirmation of tuberculosis and detection of rifampicin resistance in smear negative sputum specimens obtained from suspected cases of MDR-TB. Aim of study- To assess usefulness of CBNAAT in confirmation of tuberculosis in patients with negative sputum smear. Material and methods- This is an observational study conducted in the department of Microbiology, Institute of Medical Sciences, BHU, Varanasi. The study was done for the sputum samples received between January 2015 and December 2015.

PREDICTORS OF SUCCESS OF NIV IN COPD EXACERBATION AND HYPERCAPNEIC RESPIRATORY FAILURE

Milan Malik Thaha, V. Achuthan, Manoj DK, Rajani M

OBJECTIVES OF THE STUDY:

To determine the outcome and predictors of success of NIV in acute exacerbations of COPD with hypercapneic respiratory failure .

METHODOLOGY:

A hospital based descriptive study conducted in the Department of Respiratory Medicine, Pariyaram Medical college, Kannur during the study period June 1, 2014 to August 31, 2015. All patients with COPD exacerbation who satisfied the inclusion criteria (RR of > 25 breaths per minute, $PaCO_2 > 45$ mmHg and arterial pH < 7.35) were included in the study. NIV was instituted with a full face mask . The IPAP and EPAP values were adjusted according to the

tolerance of the patient, achievement of effortless breathing and improvement in oxygen saturation levels. Clinical parameters like HR,RR,SP02 and ABG values were recorded at the time of admission,2 hours and at 24 hours of initiating NIV. Statistical Analysis were done using SPSS software.

RESULTS:

Out of 70 patients enrolled in the study ,58 patients (82.8%) were successfully managed with NIV. There was a significant improvement in HR ,RR , pH ,PaCO₂ and PaO₂ after 2 hours of initiating NIV which was maintained at the end of 24 hours in the success group .A high baseline PaCO₂ and low baseline pH were associated with poor outcome.

DISCUSSION AND CONCLUSION:

Non Invasive ventilator support has emerged as an excellent modality in the treatment of patients with COPD exacerbation and respiratory failure. An improvement in the HR,RR,pH,PaCO₂ and PaO₂ 2 hours after initiating NIV can predict the success of NIV .A high baseline PaCO₂ and low baseline pH value has a bearing on the poor outcome with NIV .

SCREENING FOR TUBERCULOSIS IN RESIDENT DOCTORS IN A TERTIARY CARE RURAL HOSPITAL IN GUJARAT

Shriram Shenoy, Stani Francis, Arti Shah

Introduction: Tuberculosis is a disease of great antiquity. Today, tuberculosis has become the most important communicable disease in the world, with over 8 million cases of pulmonary tuberculosis occurring each year, 95% of which are in developing countries. Systematic screening for active TB is the systematic identification of people with suspected active TB, in a predetermined target group, using tests, examinations or other procedures that can be applied rapidly. The TB screening approach should be developed and implemented in a way that optimizes synergies with the delivery of other health services and social services.

There is a chance of spreading tuberculosis via resident doctors. It is therefore an issue of great social importance. It is thus, important to adopt strategies to prevent and control tuberculosis in resident doctors. Early diagnosis and treatment of active tuberculosis is the first step. It is common observation that doctors greatly rely on self administered symptomatic treatment before seeking appropriate medical advice. This is more common in developing countries where Anti – TB medicines are relatively widely available in hospitals.

Aims:

1. To effectively screen resident doctors for evidence of tuberculosis.
2. To help affected doctors take appropriate action for their treatment and prevention of transmission to other unaffected staff and patients

3. To know prevalence of Tuberculosis in this subset of high risk population.

Method:

- It was a cross sectional study.
- All the residents from Dhiraj hospital were included.
- Written informed consent was taken from all participants.
- All participants were screened by preformed questionnaire along with CXR & sputum –AFB. Further investigations were done as required.

Results: Out of the proposed 330 residents to be screened, only 100 attended screening. Out of which a chest X-ray and sputum (AFB) was done in all. further, USG abdomen in 2 residents and in one resident the need for CT- Thorax was felt. One resident had pleural effusion, two were positive for abdominal Koch's on USG & one had rib cage tuberculosis. All were fortunately, sputum negative. Study was conducted over a period of 4 months.

TUBERCULAR DISSEMINATED LYMPHADENOPATHY- A RARE CASE

Adesh Kumar, Aditya Kumar Gautam, Ashish Kumar Gupta, PrasantYadav, Bal Krishna Kushwaha

Background

Lymphadenitis is the most common extra-pulmonary manifestation of tuberculosis. It remains both diagnostic and therapeutic challenge because it mimics other pathologic processes and yields inconsistent physical and laboratory findings. TB lymphadenitis is seen in nearly 35 per cent of extrapulmonary TB which constituted about 15 to 20 per cent of all cases of TB. A high index of suspicion is needed for the diagnosis of mycobacterial lymphadenitis.

Case report

A 60-year-old male patient was presented to pulmonary medicine out door of our institute with complain of fever, cough with expectoration, dyspnoea on exertion, bilateral chest pain and swelling over neck. On further clinical assessment patient was febrile with bilateral cervical, axillary and inguinal lymphadenopathy. Lymph nodes were matted, mobile and non tender. Respiratory examination showed bilateral diminished breath sound. Chest X-ray showed bilateral hilar lymphadenopathy with bilateral pleural effusion. Laboratory investigations showed haemoglobin - 10 g/dl , white blood cell count of 12000 cells/mm³ and a platelet count of 45000 cells/mm³. Mantoux test was found to be positive (18 mm).Viral markers are non reactive.An ultrasonography of the abdomen revealed hepatomegaly. Sputum for Acid fast bacilli was found to be negative. Pleural fluid analysis shows exudative etiology but ADA was low (9.2 u/l). Fine needle aspiration cytology of cervical lymph node was performed which favours tubercular etiology.

Conclusion

If a patient presented with disseminated lymphadenopathy, the mycobacterial aetiology should be kept in mind along with other differentials. Early diagnosis and treatment should be done as delay in the treatment may lead to ulceration of lymph node, which may further complicate as non healing sinus and fistula formation.

DIAGNOSIS OF MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) PATIENTS AT TERTIARY CARE CENTRE IN INDIA

Raj N. Yadav, Surendra K. Sharma, Vishnubhatla Sreenivas, Vithal P. Myneedu, Binit K Singh

Background: Multidrug-resistant tuberculosis (MDR-TB) poses a major threat to control tuberculosis (TB) worldwide. This situation is further challenged by lack of early and accurate diagnostic test.

Objectives: The objectives of the study were to assess the prevalence of MDR-TB among previously treated pulmonary tuberculosis patients (PTB); and to study the performance of recent version of LPA (GenoTypeMTBDR*plus* version2) for early diagnosis of MDR-TB patients. In this cross-sectional study, 1206 previously treated multidrug-resistance pulmonary tuberculosis (MDR-PTB) suspected patients were enrolled from April, 2011 to February, 2015 at the All India Institute of Medical Sciences (AIIMS), New Delhi, India. Sputum sample from all patients were subjected to acid-fast bacilli (AFB) smear, solid culture & drug susceptibility testing (DST) using Lowenstein-Jensen (L-J) media to assess the prevalence of MDR-TB. Among these, line probe assay (LPA) ver.2 assay was performed directly from sputum samples on 570 samples. Performance of LPA ver.2 was determined with considering solid culture and DST as gold standard method. Samples with discordant rifampicin susceptibility results were subjected to DNA sequencing of *rpoB* gene.

Results: A total 796 phenotypic DST results were available in the study for analysis of MDR-PTB. Of these, 169 (21%) were MDR-TB, 27 (3%) were resistant to rifampicin but sensitive to isoniazid, 73 (9%) were resistant to isoniazid but sensitive to rifampicin and remaining 527 (67%) were sensitive to both rifampicin and isoniazid. Among AFB smear positive samples, LPA correctly identified *Mtb* in 93% (319/343) of culture positive samples and 64% (32/50) of culture negative samples. In AFB smear-negative samples, LPA detected *Mtb* in 53% (9/17) and 5% (6/124) with culture positive samples and culture negative samples respectively. DST results of L-J (phenotypic) and LPA ver.2 were compared in 283 samples. Sensitivity and specificity of LPA ver.2 were 96% and 98% respectively for detection of rifampicin resistance; 86% and 98% respectively for detection of isoniazid resistance; and 97% and 99% respectively for detection of MDR-TB.

Conclusion: Present study demonstrated slightly high prevalence of MDR-TB as compared to world health organization 2015 reported data. It may be due to inclusion of more referred patients. The LPA (MTBDR*plus* version 2) test is highly sensitive and specific for rapid

diagnosis of AFB sputum smear-positive tuberculosis patients. However, test may need further improvement before recommending it for patients with AFB smear negative results.

A STUDY OF RADIOLOGICAL PRESENTATION, COMPLICATIONS AND CORRELATION WITH DURATION OF EXPOSURE TO DUST IN PATIENTS WITH SILICOSIS

Amit Kumar Sharma, Neeraj Gupta, Reena Mathur, K.C. Agarwal, R.K. Dixit

AIMS AND OBJECTIVES:

To assess the radiological presentation, complications and correlation with duration of exposure to dust in patients with silicosis.

MATERIAL AND METHODS:

The study was conducted in Department of Respiratory Medicine J.L.N. Medical College, Ajmer. A total of 258 patients were screened radiologically who had exposure to dust in stone Mining areas.

RESULTS:

Among these 258 patients, 55 patients had Radiological evidence of Silicosis, another 100 patients had Silico-Tuberculosis. Among these 155 patients who had features of Silicosis /Silico-tuberculosis 18 patients were having associated features like Progressive massive fibrosis, Hilar enlargement and Lymphadenopathy(egg shell calcification) and other complications like Pleural effusion, Pneumothorax.

Duration of exposure(in years)	Nodular opacities	Silico-Tuberculosis	Progressive massive fibrosis	Hilar enlargement& lymphadenopathy(egg shell calcification)	Complications
0-5	2	5	-	1	1
6-10	5	14	1	2	1
11-15	8	19	-	1	1
16-20	9	12	-	2	1
>20	31	50	-	5	2
Total	55	100	1	11	6

CONCLUSION:

Analysis of radiological presentation with duration of exposure revealed that more number of patients with Silico-Tuberculosis were found with increasing duration of exposure to Silica dust, While Progressive massive fibrosis, Lymphadenopathy and Pleural complications had no correlation with duration of dust exposure.

MORTALITY AMONG DRUG-RESISTANT TB PATIENTS WITH AND WITHOUT HIV CO-INFECTION IN MUMBAI: A 5-YEAR COHORT ANALYSIS

Mrinalini Das, Chinmay Laxmeshwar, Sylvie Jonckheere, Homa Mansoor, Petros Isaakidis

Background

Treatment outcomes in patients with drug-resistant TB (DR-TB) under programmatic conditions remain suboptimal worldwide, with high loss-to-follow-up and high mortality, especially among patients with complex resistance patterns and HIV-co-infection. This study aimed to document early mortality among DR-TB patients on treatment in a Médecins Sans Frontières (MSF) programme in Mumbai, India.

Methods

This was a retrospective cohort study reporting deaths in DR-TB patients who initiated treatment between January 2009 and December 2013. ‘Early death’ was defined as ‘death within 30-days from treatment initiation’. Descriptive statistics and Kaplan-Meier curves were used for analysis.

Results

Of 129 DR-TB patients started on treatment 79% were HIV-co-infected, and one-third had Pre-XDR-TB (MDR-TB plus resistance to fluoroquinolones). A decrease in overall mortality was recorded over time; from 45% in 2009 to 31% in 2013. Kaplan-Meier curves showed higher probability of death the first 90-days after treatment initiation and especially the first 30-days. The proportion of ‘early deaths’ among total deaths reduced by half; from 50% in 2009 to 27% in 2013. The great majority (88%) patients who died early were HIV-co-infected.

Conclusion

Even though a decreasing trend in mortality among DR-TB patients has been observed over time in a programmatic setting In Mumbai, the overall and early mortality remain unacceptably high. Earlier diagnosis and treatment initiation, stronger treatment regimens, including newer drugs, and patient-centred support are urgently needed to safeguard the survival of DR-TB patients, especially the HIV-co-infected. Detailed death audit may assist in understanding better the causes of death over time.

PERFORMANCE OF PARTICIPATING LABS IN THE EXTERNAL QUALITY ASSURANCE PROGRAMME FOR DETECTION OF FIRST LINE ANTI-TUBERCULOSIS DRUG RESISTANCE FOR THE YEAR OF 2014-15 CONDUCTED BY NIRT, CHENNAI

S. Prabu Seenivasan, R. Radhakrishnan, Y. Samson Moses, S. Hannah, V. Senthil Devi, R. Suchithra, M. Balamurugan, C. Ponnuraja, Soumya Swaminathan, K. R. Uma Devi

BACKGROUND

The External quality assurance (EQA) programme conducted by the supra national Reference laboratories (SRLs) or National reference laboratories (NRLs) is effective in improving the competency of clinical laboratories in performing drug susceptibility test (DST) for tuberculosis.

OBJECTIVE

To evaluate the first line drug susceptibility testing of Revised National Tuberculosis Control Programme (RNTCP) accredited laboratories by conducting the proficiency testing for the years 2014 and 2015.

MATERIAL AND METHODS

A total of 20 labs, including 4 NRLs, 7 IRLs and 9 Medical College/ private labs from 8 different states participated in 2014 and 2015. Each panel consisted of randomized sets of 30 cultures which included 10 pairs of duplicate strains. The strains were selected from the panel set of SRL Antwerp, Belgium. For analysis, Resistance pattern based on judicial results with 80% concordance was used to finalise the panel report in each lab and compared with RNTCP bench mark values.

RESULTS

Out of the 20 participated laboratories, 10 participated in both years. Among these, 8 labs participated for First line drugs by both genotypic and phenotypic methods. The concordance of results by phenotypic method for Streptomycin(S), Isoniazid (H), Rifampicin(R) and Ethambutol (E) within the participating labs was 91.06, 97.56, 99.32 and 90.84% respectively and no discordance was observed for H and R by the genotypic method (LPA).

CONCLUSION

In both rounds, the degree of concordance of H and R among all participating labs by the genotypic methodology was observed to be high (100%) compared to phenotypic method.

PEFR- SCREENING TOOL IN WOMEN EXPOSED TO BIOMASS FUEL IN RURAL MAHARASHTRA, INDIA

S. Singh, M.D. Bargaje, R.B. Deoskar, A.T. Anokar, S. Sane

Background

About 3 billion people are exposed to smoke from biomass fuel compared with 1.01 billion people who smoke tobacco, which suggests that exposure to biomass smoke might be the biggest risk factor for COPD globally.

PEFR measurement is an inexpensive and portable tool which can be used for screening .

Rationale

Objective of this study was to screen the lung function of non smoking women exposed to biomass fuel for cooking in Western rural India using Wright's Peak Flow Meter.

Methods

324 rural women were randomly selected within the age group of 18-60 years from 3 different villages of Pune and Satara District of Maharashtra in Western India.

These subjects were interviewed with a standard respiratory questionnaire based on multi- centre study “Indian study on Epidemiology of Asthma, Respiratory symptoms and Chronic Bronchitis (INSEARCH)”.

Pulmonary function of these subjects was estimated using portable hand held Wright's Peak Flow meter.

Results

Our study related the PEFR with various parameters obtained from INSEARCH questionnaire.

1. Around 70 % of population studied had no respiratory symptoms even though their PEFR was abnormal.
2. Around 77 % of population had abnormal PEFR even in spite of having windows in their house. The limitation here was that we couldn't estimate the size of windows providing adequate ventilation.
3. PEFR was found to be abnormal in 73% of those who used biomass fuel in a separate kitchen.
4. Atopy and Family history, Environmental Tobacco exposure and Non smoking tobacco were not related to PEFR values.

Conclusion

PEFR is an important tool to screen population at risk at an early stage from the population exposed to biomass fuel. Biomass fuel exposure is an important risk factor for poor lung functions. In rural areas, non-standardized windows and kitchen designs leading to poor ventilation adds to risk.

ETHAMBUTOL INDUCED PAPILLITIS, ISONIAZID INDUCED PSYCHOSIS –A RARE CASE

**Bal Krishna Kushwaha, Adesh Kumar, Ashish Kumar Gupta, Aditya Kumar
Gautam, Prashant Yadav**

Background

Tuberculosis (TB) is a bacterial infection caused Mycobacterium tuberculosis. "DOTS" (directly observed treatment, short course) strategy is one of the most important initiatives which have been taken to combat TB. The key component of DOTS therapy is the standard anti-TB short course chemotherapy regimen. Despite the positive therapeutic effects, studies have shown that utilization of multidrug regimens can cause undesirable adverse drug reactions (ADRs). Studies suggest that more than 5% of the patients on anti-tubercular drugs develop ADRs. Here we report a case of psychosis and papillitis due first line antitubercular drug.

Case study

We report a case of 25 year male patient presented to pulmonary medicine out door as a follow up case of pulmonary tuberculosis. He was taking CAT- 1 under DOTS for last four month. He complains painful bilateral diminished visual acuity, sudden in onset along with altered behaviour. On fundus examination, there was hazy media, optic disc was hyperaemic, oedematous with blurred margin. Diagnosis of papillitis was made. On stopping ethambutol visual acuity got improved. On further psychiatric evaluation patient was confused, incoherent, occasional violent behaviour, irrelevant talking, and lack of interest in activities. Patient further evaluated for organicity but there were no signs of any focal neurological deficit. CT head was normal. Arterial blood gas analysis, kidney function tests, and liver function tests all were within normal limits. Diagnosis of psychosis was confirmed by Psychiatrist. On stopping isoniazid, psychotic symptom got improved.

Conclusion

Currently available anti-TB drugs are effective for treatment of TB disease and latent TB infection. However, these drugs may cause serious adverse effects at any time during treatment.

THE ROLE OF TRAINING IN *MYCOBACTERIUM TUBERCULOSIS* (*M.TB*) CULTURE AND DRUG SENSITIVITY (C&DST) USING LOWENSTEIN JENSEN (LJ) MEDIUM IN IMPROVING THE KNOWLEDGE OF LABORATORY PROFESSIONALS

**Radhakrishnan R, Prabu Seenivasan S, Balaji S, Nagarajan P, Devi Sangamithirai M,
Ponnuraja C, Selvakumar N, Sowmya Swaminathan, Uma Devi K.R**

BACKGROUND

National reference laboratory (NRL) provides training on DST (Drug susceptibility testing) of Solid & Liquid for first and second line TB drugs to State program managers, Microbiologists, Senior tuberculosis laboratory supervisors (STLSs) and laboratory technicians (LT) from accredited Intermediate reference laboratories (IRLs) and Medical college laboratories as support to the Revised National Tuberculosis Control Program.

AIM

To evaluate the improvement in knowledge gained by laboratory professionals on conducting pre and post training programs pertaining to conventional Lowenstein Jensen (LJ) medium, *M.tb* culture & drug sensitivity testing (C & DST).

METHODS

A-10 day-schedule on Solid LJ (C & DST) training program was conducted between July 2009 and February 2015 at National Institute for Research in TB, Chennai. Data from 26 rounds for 131 trainees on C & DST was obtained. Difference in knowledge gained during the training program was analysed using “t” test.

RESULTS

A total of 131 trainees were trained from 10 medical colleges, 15 IRLs, 6 private laboratories and 4 international laboratories. A significant difference between pre test (1.27) and post test (1.75) score was observed regarding *M.tb* C & DST technique ($p < 0.01$). The knowledge regarding C & DST of *M.tb* was higher among Ph.D holders than those with degree holders ($p < 0.001$). Training improved the score of the participants on their knowledge of maintenance of biological safety cabinets (BSC) among Ph.D holders, clinicians and experienced (>3 years) professionals compared to degree holders and less experienced professionals (< 3 years) (mean pre test score: 8.075, post test score: 11.47 $p < 0.01$).

CONCLUSION

Training showed significant improvement in the knowledge of *M.tb* C & DST among the trainees. This increased knowledge gained on Laboratory bio-safety and maintenance of BSC would help participants in providing quality results for C & DST under the program.

COMMUNITY STAKEHOLDERS AND EARLY CASE DETECTION- EXPERIENCES FROM DIVINE PROJECT, NEW DELHI

Vikas Panibatla, Khasim Sayyad, Sunita Prasad

Background of the Project: TB Alert India with funding support from UWW/ Lilly MDR TB Partnership is implementing a slum intervention project in Burari area in North Delhi, India.

Project runs five Designated Microscopy Centres (DMCs) and five DOTS centres across the slum.

Idea/Hypothesis: Local community stakeholders and community centric strategies are best tools for early case detection.

Intervention/Methodology: Community stakeholders like cured TB patients, Local health care providers who are not qualified doctors (LHCPs), active community members and chemists were trained on TB for early case detection. Strategies like testing close contacts of TB patients, Sputum collection and transport for testing and peer counselling by cured patients were taken up.

Discussion/Results: From Oct '14 to Sept '15 community stakeholders helped in identify 548 people were diagnosed with TB at project run DMCs. More than 1/4th of them 28% (151 of 548) were referred by Chemists/LHPS. They were sent for testing in 1st visit to their facility for help. Community volunteer's sputum collection & transported activity facilitated identification of 141 people with TB, in routine visits. Around 40 close contract of TB patients were diagnosed with TB, they were referred by Cured patients while counselling. All these people are put on treatment with 15 day after onset of symptoms.

Conclusion: Community stakeholders and community centric strategies proved very useful in identifying TB cases in early stages.

PHARMACISTS AS AGENTS OF EARLY CASE DETECTION – CLIENT SATISFACTORY STUDY

Vikas Panibatla, Sunita Prasad

Background of the Project: TB Alert India (TBAI) with funding support from Lilly MDR TB is implementing a project to engage pharmacists for early case detection. Pharmacists from Feb '13 to Sept '15 facilitated testing of 2940 people with TB symptoms and 329 are diagnosed with TB.

Objective of the Study: Objective of the study was to understand the diagnostic delay of TB if pharmacist would have not referred for testing. Reference period for study was from Feb'14 to Feb '15.

Methodology: An independent consultant Interviewed 42 TB patients who were diagnosed due to project referral. Study was taken up in 2 Tuberculosis Units among four implementing TUs. Sample was selected randomly and TB patients willingness to participate in the study.

Results: Around 26 out of 42 interviewed (62%) reported that they reached pharmacy shop for cough and fever medication first. Majority have reached within 3-4 days after onset of symptoms. About 61% (26/42) of referred people reached for TB testing next day of pharmacist referral and with no out of pocket expenditure. Major chunk (70%) reported that they would have waited for another 7-10 days before going to any doctor if pharmacist did not refer them. About 74% (31/42) of respondents expressed satisfaction with services of pharmacists.

Conclusion: Engaging pharmacists proved very useful in early identification and early treatment initiation. Pharmacists could facilitate early testing by 10-15 days.

WHY WE SHOULD INCLUDE PHARMACISTS AND RHCPs IN TB CARE?

Eleesha Babu, Vikas Panibatla, Sunita Prasad

Background: Pharmacists and Rural Health Care Providers (RHCPs) are the first point of contact for most people facing any health concern in India. They have an important role in TB care and control. But they carry a taboo that they are business oriented & will not show interest in social activities. TB Alert India with support of Lilly MDR TB Partnership started working with them in Oct '12. This project aims at engaging Pharmacists and RHCPs for referring TB symptomatic persons visiting them for medicine.

Intervention: Pharmacists/RHCPs were explained the problem of TB, need for their engagement. All interested were trained in identifying, referring TB symptomatic persons to RNTCP for testing and treatment. Performance tracking is done on indicators like referrals made for TB testing, quality of referrals and ensuring treatment adherence.

Results: From Feb '13 to Sept '15, 90% (2940/3263) of the referrals by Pharmacists reached for testing. Around 11% (329/2940) of the people tested are diagnosed with TB. On other hand 85% (2218/2610) of the referrals by RHCPs have reached for testing. About 14% (307/2218) of the tested people are diagnosed with TB.

Conclusion: Pharmacists/RHCPs prove important stakeholders, contributing 8% to total people diagnosed with TB in interventional Tuberculosis Unit. These people reached Pharmacists/RHCPs for medicine for cough and fever. They are linked to treatment in early stages of the infection.

BEDAQUILINE FOR TUBERCULOSIS PATIENTS WITH COMPLEX RESISTANCE PATTERNS IN MUMBAI

Sylvie Jonckheere, Mrinalini Das, Chinmay Laxmeshwar, Homa Mansoor, Petros Isaakidis

Background

Mumbai has a large burden of pre-extensively, extensively and extremely drug-resistant tuberculosis (pre-XDR-TB, XDR-TB and XXDR-TB). Treatment outcomes among those patients are reportedly poor. New drugs such as bedaquiline (BDQ) are urgently needed to improve outcomes among patients with complex resistance patterns and/or toxicity to standard regimens. However their use is limited in programmatic settings. This study aimed at documenting first experiences with BDQ from a Médecins Sans Frontières (MSF) programme in Mumbai, India.

Methods

This was a retrospective cohort study among drug-resistant TB patients on BDQ between February 2013 and September 2015.

Results

Eleven patients started on BDQ treatment during the study period; seven of them were female, two were HIV-co-infected. The age ranged from 18 to 38 years. Three patients had pre-XDR-TB and eight XXDR-TB. Seven patients had a previous exposure of Clofazimine, of them three had an additional resistance to Linezolid. Of the seven patients with 6 months follow-up, five (71%) had either culture-converted or remained culture-negative after initiation of BDQ. QTcF was monitored monthly and exceeded 500 ms in two patients.

Conclusion

The interim effectiveness, as measured by culture conversion and the overall safety of BDQ-based treatment in a programmatic setting in Mumbai were overall satisfactory, including HIV-infected patients. Considering the suboptimal efficacy and safety of the current regimens, expanded access to BDQ should be guaranteed for all patients who need it.

SCREENING OF MDR-TB : IS IT HELPFUL ?

Abhinav Chaudhry, Amitabh Das Shukla, Tariq Mahmood, Alok Chandra, Rajneesh Kumar Srivastava, Ravindra Kumar

Background & objectives

India has the highest burden of tuberculosis in the world. Multidrug-resistant tuberculosis (MDR-TB) has emerged as a significant global health concern. Globally, 5% of TB cases were estimated to have MDR-TB (3.3% of new and 20.0% of previously treated TB cases). The aim of this study was to evaluate proportion of MDR-TB, in patients enrolled for retreatment in DOTS under RNTCP.

Methods

This was an observational cross sectional study conducted, between Feb.2014 and Oct.2015 in our hospital which is a tertiary care centre. All patients registered in DOTS retreatment category were included in the study. Further they were subjected to Cartridge Based Nucleic Acid Amplification Test, under RNTCP certified laboratory. Rifampicin resistant patients were diagnosed as cases of MDR-TB.

Results

Out of 120 pulmonary TB patients, 25%(n=30) were found to be suffering from MDR-TB. Proportion of MDR-TB was higher in female patients (35.29%) than male patients (20.93%). Mean age of MDR-TB patients was 39.11±15.27 in males and 33.83±14.98 in females. We found the trend of increasing proportion of MDR-TB, as age advanced. Proportion of MDR-TB also increased along with increase in sputum bacillary load.

Conclusion

The proportion of MDR-TB in retreatment category of TB patients was high, particularly in female or older age patients and in those who had high bacillary load. It is implied that all patients of pulmonary tuberculosis should be evaluated for possibility of drug resistance that can facilitate the diagnosis of MDR-TB at an early stage and will minimize transmission of the disease.

COST EFFECTIVENESS AND SUSTAINABILITY OF RESOURCES DEVELOPED UNDER PROJECT

Asha Tandon, Archana Trivedi

Objective: The main objective is to assess the cost effectiveness and future sustainability of resources developed under project.

Methodology: The Union with collaborative support from the Lilly Foundation currently implements a project addressing private sector engagement concerns. The Rural Health Care Provider (RHCP) is usually an unqualified person serving as the first point of contact for healthcare services for majority of the rural population especially in tribal and remote geographic areas with limited availability of public health services. The project did this intervention by involving 4 partners in 2 districts of four states of India. The partners are Gravis in Rajasthan, Safe Society in Uttar Pradesh, Madhya Pradesh Samaj Seva Sanshthan in Madhya Pradesh and Sankal Jyoti in Jharkhand.

The total expenses of 4 partners and total referred Tuberculosis (TB) patient and diagnosed TB patient data is compiled for the period October 2012 to September 2014.

Results: The total TB symptomatic referred through this program is 2,757 and TB positive cases are 334. The average cost for referring 1 TB symptomatic is close to USD 15 and average cost for diagnosing 1 TB patient is USD 118. Out of 635 RHCPs trained under the project 231 (36%) are continued to be engaged with project activities.

Conclusion: For future sustainability, per TB patient, approximately 15 USD for TB symptomatic and 118 USD for TB patient diagnosis are required.

TO STUDY PREVALANCE OF MDR TB IN MMIMSR MULLANA

Mohammad Zaeem Khan, Sameer Singhal

Aim & Objective:

To study prevalence of MDR TB in tertiary care hospital in Haryana, To study the clinical profile of the patients and to study pattern of drug resistance.

Material/Methods:

The study will be conducted in the department of Respiratory Medicine, MMIMS&R 100 patients of PTB who will be admitted in the Respiratory Medicine ward or report in OPD and who fulfill the criteria, that is they are relapses, failure or default cases. The patients fulfilling the inclusion criteria and after verifying the exclusion criteria will be finally taken up for the study. Inclusion criteria includes all sputum positive or negative relapses, defaulter and failure cases. The only exclusion criteria is patient not willing for participation in study. The samples of patient meeting inclusion criteria will be sent to IRL KARNAL for MDR testing via line probe assay, which would check resistance to isoniazid and rifampicin, the MDR patients will then be compared to non-MDR patients in study with reference to smoking habits, x-ray findings, clinical features.

Results:

There is 9 per cent prevalence of MDR TB among patient who were taken up for study. Two patients were resistant to Isoniazid alone hence not MDR TB cases almost 70 per cent patients of MDR TB had chest x-ray finding of bilateral infiltrates or fibro-cavitary lesions. 60 per cent of patients in MDR group are smokers as compared to 40 per cent in non-MDR-group.

Conclusion

There is a high prevalence of 9 percent MDR TB in patients. Since such patients have higher rates of mortality, they should be treated and diagnosed early and more studies involving sputum negative patients should be carried out.

SUBSTANTIAL CONTRIBUTION BY RURAL HEALTH CARE PROVIDERS IN REFERRALS AND DIAGNOSING SMEAR POSITIVE TB PATIENTS IN EASTERN UTTAR PRADESH, INDIA

Archana Trivedi, Vaibhav Sharma, Sunita Prasad

Objective: To engage Rural Health Care Providers (RHCPs), enhance their capacity to do quality referrals of TB symptomatics to DMCs. Suboptimal engagement of private sector and lack of involvement of informal rural health care providers in TB care and control remains perceived challenge in the country. To address this, rural health care providers were sensitised in TB care and control at Ghazipur in Uttar Pradesh which was selected based on low TB symptomatic referrals and notification rates. Rural Health Care Providers (RHCPs) are most

often the first contact for curative services in many villages with limited availability of public health services.

Methodology: The intervention is being implemented through local NGO partner Safe Society. 151 RHCPs were trained on TB control using standardized materials. These trained providers refer TB symptomatics to DMCs. Where possible with the involvement of DTCs, these RHCPs act as DOT providers to ensure treatment compliance and subsequent improvement in patient holding. Proportion of referral increase at DMCs is monitored (using before and after analysis) and referrals by RHCPs is in lab records.

Results: Baseline data of referrals at 4 implementing DMCs in 2012 at Ghazipur was taken to assess increase in referrals in 2014. There was around 34% (n= 1265) referral increase in 2014 in comparison to 2012 with project contribution of 11% (n=552). In 2014, 814 sputum positive patients were diagnosed, project contribution 11% (87) with respect to 724 in 2012.

Conclusion: Trained RHCPs have become good linkages between national TB control programme and community with early gains in programme outcomes.

TECHNOLOGY ENABLES NOTIFICATION AND ADHERENCE TO TREATMENT OF TUBERCULOSIS PATIENTS TREATED IN PRIVATE SECTOR: PILOT STUDY FROM INDIA

Archana Trivedi, Suneetha Nareddy, Sunita Prasad, J Suresh, Sarabjit Chadha

Objective: To enable TB notification and improve outcome of TB patients being treated in private sector through innovative E-technology. In India annually 1 million cases are missed, either not notified or diagnosed (WHO Global TB Report 2014) despite TB being a notifiable disease. Treatment adherence remains a challenge in the private sector resulting in poor treatment outcomes and promoting drug resistance.

Methodology: Web-based software developed to facilitate notification directly into National TB Programme (NTP) portal 'Nikshay' and provide treatment adherence support to willing patients through daily reminder SMS (short message service) and twice a week IVRC (interactive voice response calls) which recorded patients' response on treatment regularity. Option was taken from patients for preferred language for reminders - English, Hindi or Telugu. This is being piloted at a large private hospital Apollo Hospital, Hyderabad in India.

Main Findings: During June-Dec2015, 166TB patients were registered in the software all of whom were notified to the NTP. Majority were extra-pulmonary (71%) and of male sex (55%). 80% (n= 133) agreed for receiving SMS and IVRC. Of these 55% (n=91) responded to IVRCs. 95% reported to have taken all doses, 3% missed one/two doses and 2 % missed all doses. Patients who missed doses or did not respond to IVRS were counseled telephonically.

Conclusion: Intervention demonstrates effective model to facilitate notification and treatment adherence of TB patients in the private sector using ICT.

MONITORING THE ADVERSE DRUG REACTIONS OF DRUGS USED IN TREATMENT OF DRUG RESISTANT TUBERCULOSIS

Yusra Iqbal, Fahad Aleem, C.E. Prasad

BACKGROUND

MDR/XDR TB are an emerging problem in India. It is felt that the phenomenon of MDR TB is on rise and is bound to reach much more menacing proportions. MCI currently recommends each college to implement and follow up on patients of MDR/XDR TB.

According to the WHO, 3% of the TB patients are suffering from MDR TB.

Multi-drug resistant tuberculosis (MDR TB) is caused by the organisms that are resistant to the most effective anti-TB drugs (Rifampicin and Isoniazid). MDR TB results from either infection with organism resistant to drug or may develop resistance in the course of the patients treatment. .

AIM

To examine patients on DR TB treatment as well as TB treatment. Monitoring of the adverse effects was done accordingly and the side effects seen were documented throughout the course of treatment or in some cases is still being documented.

METHODS

Subjects and methods:

All the newly diagnosed MDR TB patients at the chest clinic of Shadan Institute of Medical Sciences were monitored for the ADR's by use of LFT's, serum biochemistry, Auditory and vestibular monitoring, ocular examination, RFT's (renal function test) psychiatric related problems, neurological examination, any other examinations and cross consultations if required on the basis of clinical manifestations.

The number DR TB subjects = 18

Number of TB subjects = 20

RESULTS

Adverse effects of DR TB Drugs

Hepatotoxicity	2/18 patients (11%)
Tingling of finger tips	1/18 patient (6%)
Headache	1/18 patient (6%)

Shortness of breath	1/18 patient (6%)
Left ear pain	1/18 patient (6%)
Knee joint pain	1/18 patient (6%)
Nausea and vomiting	4/18 patients (23%)
Ototoxicity	1/18 patient (6%)

Adverse effects of TB Drugs

Hepatotoxicity	1/20 patient (5%)
Tingling of finger tips	3/20 patients (15%)
Nausea and vomiting	3/15 patients (15%)

CONCLUSION:

A wider range of adverse effects were seen among DR TB patients as compared to the patients on the TB drug regimen.

Also a greater spectrum of adverse effects were seen among the DR TB drug users as compared to the TB drug users. This spectrum included greater inclination in hepatotoxicity in DR TB drug users as well as nausea and vomiting was seen.

Additional adverse effects such as ototoxicity (conductive deafness) was observed in DR TB patient.

Tingling of finger tips and nausea/vomiting was observed in both sets of patients.

Further more patients on DR TB will be worked up on till the conference.

HYPOVITAMINOSIS D IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ASTHMA

Fahad Aleem, C.E. Prasad, Mohammed Aasif Ahmed, Siddique Khan

BACKGROUND:

COPD and Asthma can no longer be considered a disease only of the lungs. It is associated with a wide variety of systemic consequences, most notably systemic inflammation. The association between COPD/Asthma and hypovitaminosis D is a cause for concern as the actual burden of disease due to the former would get amplified many-fold if, as the available epidemiological evidence suggests, COPD/Asthma is a risk factor for low vitamin D levels.

AIM:

The proposed study aims to assess the serum levels of vitamin D, serum calcium and ALP in Asthma and COPD patients.

MATERIAL AND METHODS:

The study group consisted of 108 subjects presenting to SIMS OPD/IP pulmonary services. All the subjects were interviewed and complete history was taken along with thorough clinical examination was done according to proforma that was predesigned. Informed consent was secured from the patients for participation in the study. Patients were investigated when their condition stabilized, before they were discharged. Spirometry (pre and post bronchodilator), vitamin D profile, serum Calcium, alkaline phosphatase, Chest X-ray PA view, ECG, 2 D Echo, Haemogram and other routine investigations were done.

RESULT:

36 control subjects showed mean vitamin D levels of 15.5 ng/ml
40.8% patients had Hypo-Vitaminosis i.e. Vitamin D <20ng/ml – the minimal level of vitamin of Vitamin D required to generate phagocytic capacity of the monocytes.
59.2% patients were deficient in vitamin D levels in COPD patients.
However in Asthmatics 62.5% were deficient, whereas 37.5% patients showed insufficient vitamin D levels.

CONCLUSION:

All Asthma/COPD subjects had low levels of vitamin D. Almost 60% of COPD subjects had very low Vitamin D levels <20ng/ml. Whereas 40% of Asthma subjects had very low vitamin D levels <20ng/ml. 20/32; Asthmatics and 45/76 COPD patients in the study group demonstrated hypo-Vitaminosis D i.e. Vitamin D less than 20 ng/ml. The mean Vit D was found to be 22.68 +/- 1.41 in the study group of COPD and 22.76 +/- 0.86 in the study group of Asthma

DOES E-TECHNOLOGY AIDS TO INCREASE REFERRALS, EARLY DIAGNOSIS AND TREATMENT INITIATION OF TB PATIENTS? PILOT STUDY FROM TRIBAL DISTRICT IN INDIA

Archana Trivedi, Sunita Prasad, Navneet Kumar Sinha, Sanjeev Kumar, Binay Kumar Sahu, Abhimanu Kumar, Sarabjit Chadha

Objective: To demonstrate effectiveness of E-technology for real time referrals, early diagnosis & treatment initiation of TB patients in a tribal district. In accordance with pillars of post 2015 global Tuberculosis strategy of WHO - Integrated patient centred care & prevention (early diagnosis & treatment), bold policies & supportive systems (engagement of private providers) and intensified research & innovation (promote innovations), Rural health care providers (RHCPs) "first point of contact" for curative services in remote geographic areas in India were trained on TB and use mobile application to refer presumptive TB patients.

Methodology: Two interoperable applications were developed. One application was used by 25 RHCPs and other by 3 LTs. 64 RHCPs referred through non-mobile. Mobile application developed is easily customizable, tracks referrals & creates real-time central database. The application is being piloted in three blocks of Khunti, a tribal district in India.

Main Findings: 57% (n=96) of diagnosed TB patients were diagnosed within 1 day of referral through mobile compared to 31% (n=52) through non-mobile. 56% (n=94) were initiated on treatment within 7 days of diagnosis whereas 33% (n=56) through non-mobile. Successful referrals per RHCP through mobile were 28 & 6 through non-mobile. 4 TB patients were diagnosed per RHCP through mobile & 1 through non-mobile.

Conclusion: Targeted intervention in tribal district is benefitted by mobile application. E-Technology increases referrals, early diagnosis & treatment initiation of TB patients.

SIGNIFICANCE OF YOGA IN BRONCHIAL ASTHMA

Surya Kant, Shruti Agnihotri, S. K. Mishra

BACKGROUND- Asthma is a chronic inflammatory disorder of the airways. The chronic inflammation causes an associated increase in airway hyper-responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing at night or in the early morning.

OBJECTIVE - To evaluate the role of yoga in pulmonary functions and quality of life in the patients of bronchial asthma.

MATERIAL AND METHODS - A total of 276 subjects of mild-to-moderate persistent asthma ($FEV_1 > 60\%$) aged between 12 to 60 years were recruited from the Department of Pulmonary Medicine, King George's Medical University, U.P., Lucknow, India. They were randomly divided into two groups, 'the yoga group' (with standard medical treatment along with yogic intervention) and 'the control group' that received standard medical treatment (without yogic intervention). At completion of 6 months of the study period 35 subjects were dropped out, so out of 276 subjects, only 241 subjects completed the study (121 subjects from yoga group and 120 subjects from control group). Both groups were assessed at 0th, 3rd and 6th month with the help of pulmonary function test and asthma quality of life questionnaire (Elizabeth Juniper, England).

RESULTS- There was a steady and progressive improvement found in the subjects of the yoga group during the same period. 'Between group differences' were found to be highly significant with better improvements in FVC, FEV_1 , and FEV_1/FVC and PEF. In the yoga group, there was significant improvement found in the variables of AQLQ. The number needed to treat (NNT) was found to be 2.67 for total AQLQ.

CONCLUSION- The yoga group got significantly better improvement in pulmonary functions and in Asthma Quality of Life scores than control group. The improvement was achieved relatively earlier by the yoga group.

HOUSEHOLD CONTACT SCREENING AND YIELD OF TUBERCULOSIS CASES - A CLINIC BASED STUDY IN CHENNAI, SOUTH INDIA

Dina Nair, Nandita Rajshekhar, Joel Shyam Klinton, Basilea Watson , Banu Rekha Velayutham, Jaya Prasad Tripathy, Mohideen Shaheed Jawahar, Soumya Swaminathan

Background - Contact investigation is an active case finding strategy to increase detection in Tuberculosis (TB) and a key component of TB control programs. The household contacts are at a higher risk of exposure to the causative organism than members of the general population. The information on the value and yield of household contact screening and the approaches used in high incidence settings like India is limited.

Objective - To evaluate the yield of active case finding in household contacts of newly diagnosed smear positive TB patients and the factors associated with increased yield.

Method: Retrospective record review of the household contacts of newly diagnosed sputum smear positive patients (index case) enrolled in a clinical trial at National Institute of Research in Tuberculosis, Chennai during the period 2007-2014.

Results - 643 household contacts of 280 index TB patients were identified out of which 544 (85%) consented for screening. 71 (13%) patients had an abnormal chest radiograph out of which 50 (70%) were symptomatic. A total of 29 (5.3%) contacts were initiated on treatment and 23(79%) were sputum smear positive. The number needed to screen (NNS) to identify a new TB case among all household contacts was 19 and among those with an abnormal CXR was 02. Age group > 44 years, male gender and siblings of the index case was associated with abnormal chest radiograph whereas age group between 15-44 was a significant risk factor for developing TB disease among household contacts.

Conclusion- Active screening among household contacts is an effective way to improve TB case detection. Targeted screening and systematic contact investigations should be prioritised by national programmes to prevent and control TB transmission. Since the yield of cases depend on the screening modality used, evidence based cost effective tests appropriate for different settings should also be identified.

BACTERIOLOGICAL POSITIVE TUBERCULOSIS AND DRUG RESISTANCE PATTERN OF MYCOBACTERIUM TUBERCULOSIS AMONG PEDIATRIC PATIENTS SUSPECTED FOR PULMONARY AND EXTRA-PULMONARY TUBERCULOSIS IN NORTH INDIA

Ajay Vir Singh, Devendra Singh Chauhan, Praveen Kumar Pachouri, Dilip Kumar Shakya, Priyanka Yadav, Partha Sarathi Mohanty, Virendra Singh Yadav

Present study was aimed to investigate the status and drug resistance pattern of *Mycobacterium tuberculosis* (MTB) among pediatric patients of North India. A total of 228 clinical samples (pulmonary- 195; extra-pulmonary-33) of suspected tuberculosis patients of pediatric age group (below 14 years) were screened for the presence of MTB using acid fast staining and culture on Lowenstein-Jensen (LJ) medium. The growth recovered on LJ medium were characterized by biochemical methods and subjected for drug susceptibility testing. Of the 228 clinical samples, 89 (39.0%) and 102 (44.7%) samples were positive for the presence of MTB using smear microscopy and culture method, respectively. The prevalence of MTB was higher in pulmonary samples (AFB-43.0%; culture-47.1%) as compare to extra-pulmonary samples (AFB-15.1%; culture-30.3%). Of the 228 clinical samples, MDR-MTB isolates were observed in 45 (19.7%) samples. The prevalence of MDR-TB was higher (30.3%) in previously treated patients as compare to newly diagnosed patients (5.2%). The highest proportion of mono-resistance was observed against isoniazid (7.8%) followed by rifampicin (4.9%). Sex- wise, the prevalence of bacteriological positive tuberculosis and MRD-TB was higher in female (AFB-47.5%; culture-49.6%, MDR-TB-22.7%) as compare to male (AFB-24.1%; culture-36.1%, MDR-TB-15.6%). Age -wise, prevalence of MDR-TB was higher (24.0%) in 10-14 years age group as compare to 5-9 years (5.2%) and 1-4 years (9.0%). Present study reported the status of mono drug resistance and MDR-TB in pediatric population of North India and highlights the need to formulate adequate strategies in order to contain the transmission of tuberculosis in pediatric population of the country.

VITAMIN-D LEVEL IN TUBERCULOSIS- A CASE CONTROL STUDY

Neethu Thambi, Achuthan V, Manoj DK, Rajani M, Padmanabhan KV

OBJECTIVE

To measure the serum Vitamin D levels in newly diagnosed cases of tuberculosis and controls in ACME, Pariyaram and explore the association between low Vitamin D levels and active TB

METHODOLOGY

25 new cases of Tuberculosis and 25 age and sex matched controls were chosen. Both cases and controls were interviewed for clinical history; those with pre-existing renal disease, bone disease, recent surgery were excluded. 5mL of venous blood was collected in a serum tube and sent to lab. Serum is separated by centrifugation and 25(OH)D3 levels measured by ID-LC-MS/MS. For the purpose of study a value of <20 ng/mL is considered deficient, <10 severely deficient, 20-30 insufficient and >30 sufficient

RESULTS

25 patients of age ranging from 16-70, sex ratio of 7:1 and matched controls were analysed. 63.1% of the cases and 47.3% of controls were found to be deficient in Vitamin D3. 26.3% cases and 26.3 % controls had insufficient D3 and only 10% of cases and 15 % of controls had adequate Vitamin D. Matched pair analysis showed an odds ratio of 0.5 (95% CI 0.0809, 2.3412)

CONCLUSION

The results show no significant correlation between Vitamin D Deficiency and Tuberculosis.

ETHAMBUTOL INDUCED ERYTHRODERMA --A CASE REPORT

C.Sashi Bharath Kumar Reddy, K.Sailaja

Background:

Ethambutol is a widely used and well tolerated anti tubercular drug. We are reporting Ethambutol induced erythroderma case because of its rarity.

Case Report:

A 69 old male patient developed pruritic erythematous scaly rash after 2 weeks of anti tubercular treatment(ATT) with isoniazid, rifampicin, pyrazinamide,ethambutol in standard doses. All ATT drugs are withdrawn and treated with anti histaminics and steroids. After resolving of the lesions, ATT drugs are re-challenged one at a time starting with low doses as per WHO guidelines. As ethambutol is considered the least common offending drug, it is introduced first. The lesions reappeared with introduction of Ethambutol within 48 hours and subsided after stopping. So, ethambutol is considered as the causative agent of erythroderma. Patient is kept on regimen containing isoniazid,rifampicin,pyrazinamide as he tolerated these drugs well.

Conclusion:

Erythroderma is a severe cutaneous adverse drug reaction needing to be recognised early and managed by stopping the offending drug. Though cutaneous drug reactions with ethambutol are rare, ethambutol should also be considered in dermatological drug reactions.

CHALLENGES IN TUBERCULOSIS DIAGNOSIS AND MANAGEMENT IN ONCOLOGY PATIENTS

Nandini Banerjee

The epidemiology, clinical features, management and outcome of patients with pulmonary tuberculosis in patients with haematological malignancies remains largely undetermined. Pulmonary TB can precede or exist simultaneously with a leukaemia and can also be associated as a side effect of chemotherapy. Both conditions share a range of common symptomatic and haematological parameters such as fever, fibro calcified parenchymal lung lesions, pleural effusion, mediastinal lymphadenopathy, neutropenia, leukemoid reaction, thrombocytopenia and pancytopenia. Prompt diagnosis and appropriate specialist management of each condition is required for a successful outcome in these immune-compromised subjects.

Our experience from a tertiary Oncology centre in Eastern India demonstrates that managing both conditions together is a challenging exercise and requires multidisciplinary input. Problems in diagnosis result from delayed presentation, atypical presentations and microbiological confirmation not achieved by routine non invasive sampling such as sputum. Treatment decisions cannot be made empirically without bacteriological or histological confirmation as incorrect decisions would be fatal from underlying haematological malignancy. Many of these patients undergo bone marrow transplant with curative intent and timely diagnosis and optimal management of tuberculosis is crucial in determining outcome.

ROLE OF INTERVENTIONAL PULMONOLOGY IN TUBERCULOSIS DIAGNOSIS/TREATMENT

Nandini Banerjee

The recent advances in diagnostic interventional pulmonary procedures have revolutionized the evaluation of abnormal radiology and chest symptoms. These include lung parenchymal, mediastinal and pleural abnormalities. The microbiological confirmation of Tuberculosis remains the gold standard of diagnostic confirmation relying on sampling from sputum, pleural fluid and lymph node aspiration. The yield from these is variable and often a combination of techniques achieves reliable sensitivity. Antigen-based assays offer rapid diagnosis of infection, but cannot confirm disease. Moreover, the clinical and imaging findings of Tuberculosis mimic other respiratory infections and more seriously lung cancer or metastatic disease.

Bronchoscopic procedures such as BAL, endobronchial and transbronchial biopsies, TBNA, EBUS –TBNA and Pleuroscopy (Medical thoracoscopy) are techniques that in our experience have been extremely useful in making early treatment decisions in appropriate patients. Samples obtained have been rapidly analysed by AAFB staining/culture on fluid and tissue, histological characterization and qualitative and quantitative PCR based assays. At our centre, non resolving pneumonia, atypical mycobacterial infections and cancer suspects have been safely and reliably ruled out using either of these procedures. Bronchoscopy and EBUS have been extremely effective in monitoring disease response for associated endobronchial TB and mediastinal LN TB. We conclude from the experience at our centre, that these endoscopic modalities should be considered as primary sampling tools of Tuberculosis diagnosis and management in appropriate patients where facilities are available.

RIGHT MIDDLE LOBE SYNDROME: A CASE SERIES

Saurabh Karmakar, Sarim Ahsan, Kashif Raza, Rajendra Prasad

Background

Although pulmonary tuberculosis is a common disease in India, tuberculosis of right middle lobe is infrequent. Tuberculosis of the right middle lobe, leading to chronic collapse is known as Right Middle Lobe syndrome.

Cases

The patients attended Pulmonary Medicine Outdoor at Era's Lucknow Medical College, Lucknow from November 2013 to October 2015. We herein, report 8 patients of right middle lobe syndrome.

Patient profile: Out of 8 patients, 3 (37.5%) were males and 5 (62.5%) were females. The age of patients ranged from 25 years to 79 years and the mean age was 56 years. 2 of the 3 males were smokers and none of the females were smokers.

All patients presented with cough with or without expectoration, fever, chest pain, haemoptysis and constitutional symptoms like loss of appetite and weight. Chest X-ray PA view revealed ill-defined opacity abutting the right cardiac border. HRCT thorax was done in each case. The diagnosis of tuberculous aetiology was based on (1) history of chronic cough and fever, not responding to antibiotic therapy and constitutional symptoms, (2) a positive tuberculin test using 2 TU of PPD RT 23 and (3) detection of acid fast bacilli by direct smear or Mycobacterium tuberculosis by polymerase chain reaction in bronchoalveolar lavage.

Results

Right middle lobe syndrome predominantly affects the older population and the female gender.

Conclusion / Clinical Relevance

Due to non specific symptoms and usually normal chest x ray PA view in Right Middle Lobe Syndrome, we should keep a high index of suspicion to diagnose the condition.

STUDY OF ADVERSE DRUG REACTION OF ANTI TUBERCULAR DRUGS IN A MEDICAL COLLEGE, 3 YEARS PROSPECTIVE STUDY

Bahl Shruti, Arora V.K, Karim Azmat , Gupta Sonisha

Objective: A prospective observational study was carried out in the department of TB and chest in Santosh Medical College at Ghaziabad from May 2013 to Jan 2016.

Material and Method: Observational study was conducted in the department of TB and chest in Santosh Medical College and Hospital at Ghaziabad. Both in-patient and out patients who received the prescription of Anti tubercular drugs aged between 12- 75 years were included in the study. An adverse drug reaction form was designed based on the recommendation of pharmacopoeia commission guidelines as and when the adverse reaction was noted which was the core tool for this study .The seriousness of the reactions were evaluated on the parameters such as death, life threatening, hospitalization, disability, congenital anomaly, fatal , recovering with sequelae and unknown.

Results: The Adverse Drug reaction assessment was carried out by using WHO – UMC scale (Uppsala monitoring centre) and the same was reported to the regional pharmaco vigilance Adverse Drug reaction centre.

Conclusion:

While noting the adverse drug reaction patient initials, age at onset of reaction, reaction terms, suspected medication and reporter information were noted. In our Medical college, total adverse reactions reported were 92, out of which 13.04 % attributed to anti tubercular drugs.

EVALUATION OF DIAGNOSTIC ACCURACY OF GENEXPERT MTB/RIF ASSAY IN DIAGNOSIS TUBERCULAR MENINGITIS AMONG ADULTS IN A TERTIARY CARE CENTRE IN INDIA – PRELIMINARY RESULTS

Sandeep Dogra, Akash Sharma, Rekha Harish, Bella Mahajan

Objective: To evaluate the diagnostic accuracy of Xpert MTB/RIF assay in rapid diagnosis of extra-pulmonary tuberculosis (EPTB) in pediatric population attending a tertiary care hospital in north India.

Methodology: This Cross-sectional, prospective study was done at Departments of Microbiology & Pediatrics, Govt. Medical College, Jammu in which pediatric patients with a clinical suspicion of EPTB were recruited after taking informed consent. Clinical examination and laboratory investigations to rule out non-tubercular etiologies were performed followed by conventional and rapid molecular Xpert MTB/RIF assay for diagnosis of EPTB.

Findings: A total of 46 pediatric extra-pulmonary specimens were received and investigated by conventional and rapid molecular methods. The samples included CSF 7 (15.2 %), Gastric lavage 35 (76 %), Pleural fluid 2 (4.3 %) and pus 2 (4.3 %). Overall, 5 (10.8 %) of the 46 specimens tested were positive for *M. tuberculosis* by Xpert MTB/RIF assay and 3 (6.5 %) were positive by conventional LJ culture. The GeneXPERT gave 4 (8.6%) indeterminate results. Out of five positive samples, 3 (6.5 %) were smear positive for AFB. None of the samples were resistant to Rifampicin.

Conclusion: Our preliminary results one conclude that the Xpert MTB/RIF assay can be applied on EPTB specimens, which coupled with its speed and simplicity, make this technique a very useful tool for the diagnosis of EPTB in pediatric setting.

STUDY OF MICROALBUMINURIA IN PATIENTS OF STABLE COPD

Mehrotra Achal, Kumar Anand, Chaudhri Sudhir, Kumar Avdhesh, Verma Sanjay

INTRODUCTION: Alveolar hypoxia is an important factor leading to the development of pulmonary hypertension in patients with Chronic Obstructive Pulmonary Disease. Hypoxia also appears to lead to the development of endothelial dysfunction. Microalbuminuria (MAB) is a surrogate marker of endothelial dysfunction and may be seen in patients with COPD with hypoxemia. It is also an important risk factor for cardiovascular diseases.

MATERIAL AND METHODS: 51 patients with COPD (Study group) and 40 smokers with normal spirometry (controls) were included. Patients with known hypertension and other comorbidities were not included. The Urinary Albumin Creatinine ratio (UACR) was evaluated with spectrophotometry. Presence of microalbuminuria was defined as UACR being $\geq 20\text{mg/gm}$ in men and $\geq 30\text{mg/gm}$ in women.

OBSERVATION AND RESULTS: Presence of microalbuminuria was higher in COPD patients in study group than smokers with normal spirometry (Controls). On applying statistical analysis using pearson correlation analysis, an increasing trend in UACR levels with decreasing PaO₂ ($r = -0.938$), FEV₁% ($r = -0.834$), 6MWD ($r = -0.910$) and increasing BODE index ($r = 0.921$), mMRC grading ($r = 0.224$) was seen. The UACR levels were highest ($>200\text{mg/gm}$) in COPD patients with associated cor-pulmonale. Only 10% smokers with normal spirometry had microalbuminuria and that too of low level.

CONCLUSION: Microalbuminuria was found in all patients with COPD; the levels were inversely proportional to FEV₁% and paO₂ levels.

SITE PROCLIVITY OF EXTRAPULMONARY TUBERCULOSIS: STUDY FROM A TERTIARY CARE CENTRE, ROHILKHAND REGION, BAREILLY (U.P)

Rishi Kumar Saini, V.K.Tiwari, Rajesh Agarwal, Amit Kumar, Ganesh.C.Mahapatra

Background: Extrapulmonary tuberculosis (EPTB) still constitutes an important clinical problem. We aimed to evaluate the site prevalence of extrapulmonary tuberculosis.

Methods: We evaluated 108 extrapulmonary tuberculosis patients diagnosed between 1st may 2014 and 1st nov 2014 in a tertiary care hospital, Rohilkhand region Bareilly(U.P).

Results: Among the extra pulmonary tuberculosis 62 (57.4%) were males. About 96 (88.8%) patients received CAT1 treatment and 12 (11.1%) patients received CAT2 treatment. Overall, the total number of different types of EPTB cases included Lymph node ($n=44$, 40.7%), GIT ($n=18$, 16.6%), Pleura ($n=34$, 31.4%), Skeletal ($n=5$, 4.6%), CNS ($n=3$, 2.7%) EPTB cases other site included mainly breast (2), skin (1) and Psoas (1).

Conclusions: EPTB still constitutes an important clinical problem. In the current study, we assessed the site of predilection of EPTB patients. In this study, EPTB cases constituted 32.8%

of all tuberculosis cases presented to our centre in the study period. Lymph node tuberculosis is the most common type.

BARRIERS IN REFERRING THE TB CASES FROM PRIVATE PRACTITIONER TO PRIVATE MEDICAL COLLEGE IN PRIVATE – PRIVATE MIX MODEL

Parvez Ahmad, Azmat Karim

Public private mix (PPM) has been recognised as an important component in the Revised National Tuberculosis Control Programme (RNTCP). The aim of this coordination is to effectively link the national tuberculosis (TB) programme, so as to provide standardised treatment to all TB patients in the country. In the present study, Private Private Mix involves the private medical college and the coordination of health care across all private practitioners working in that area and is regarded as an important strategy for TB control in India.

Methodology: A cross-sectional study was conducted in the year 2015 in Ghaziabad city (UP) and Dehradun city (UK) amongst Private Practitioners (PPs) who are registered with Ghaziabad and Dehradun Medical Association and practising within 5 km of radius of medical Colleges. Set of standard Questionnaire was used as a study tool, based on personnel interview and discussion with the private practitioner after explaining the scope of study and taking them in confidence followed by obtaining an informed consent.

Results: Although all PPs are aware about RNTCP but 50% PPs does not have faith in RNTCP and 30% PPs are not satisfy with the treatment guideline of DOTS and also not aware that DOTS facilities are available at medical college. Generally all TB patients are managed by the PPs except MDR TB/complicated cases and poor patients with TB are sent to DOTS for treatment. 40% PPs think that they might loss follow up of their patients if they send/refer TB patients to medical college because they lose the patients and also loosing the financial revenue& some patients can underestimate their knowledge/treatment skills because they are referring to DOTS. Although 100% PPs are aware that TB is a notifiable disease but only less than 40% PPs notify the disease (TB) to the health authority.

PPs are founding the barriers referring/sending of TB patients to DOTS centre in medical college are fear to loosing the patients/follow up, Financials reasons and Old follow up patients & rich patients don't want to go to DOTS as they want to maintain confidentiality about their disease status. 80% PPs have replied that they know their counterpart in medical college with TB that are DOTS department & DOTS Medical Officer, Chest Department and Health Authority.

80% PPs has not received any information and/or training on TB/DOTS by Medical College or through health authority. 80% PPs responded that they have concern about the follow up/proper treatment of the TB patients in DOTS centre in Medical College.

30% PPs have infrastructural concern like poor attitude of Government health personnel, less manpower& poor management of patients to performance of public health tasks such as defaulter

tracing. 40% PPs think that it is difficult to liaison and interact with the medical college for TB patients.

In the view of why every patient should be put on DOTS as per government guidelines, 20% PPs responded to decrease the incidence of MDR TB, 20% PPs responded as this is a National guideline and 10% told respectively that every patient is not capable to afford TB treatment in India, Due to Poor compliance, Only benefit of DOTS is- its free, to decrease mortality and morbidity, as it is Govt order and to eradicate the disease.

PPs also expressed their opinion to make public/private model to work through Awareness / Awareness programme (20%), Better communication (20%), Coordination (20%), Cooperation (10%), Optimum use of finances (10%), Active involvement of public and private organisations/people (10%) and Sincere approach (10%).

PPs also responded and expressed their views to question to put all cases on DOTS are Involvement of private practitioner (20%), Authorisation to give DOTS by private practitioner (20%), Some incentive to private practitioner to refer the case to DOTS (10%), It should be made mandatory by the law to put all patients on DOTS (10%), All patients should be treated by DOTS (10%), All patients should be treated by public sector (10%), Online system of follow up of patients (10%) and Active surveillance (10%).

Conclusion: There was not any major statistical difference when results of two cities were compared. 50% PPs does not have faith in RNTCP and 30% PPs are not satisfied with the treatment guidelines of DOTS. Amongst 50% PPs think that TB patients are not appropriately managed at medical college as they are more busy in getting sophisticated investigations and lacks doctor patient relationship. Other barriers are that PPs have a fear that they might lose the patients/follow ups and incurred losing the financial revenue, upper medium & upper income group don't want to go to DOTS due to time constraints and to maintain their confidentiality. Majority of PPs think that they have a counterpart in medical college in form of DOTS/MO of DOTS, Chest & TB department and health authority.

Note: Project is approved & funded by TAI.

TO EVALUATE THE PRESENCE OF ANEMIA IN PATIENTS WITH PULMONARY TUBERCULOSIS AT A TERTIARY HEALTH CARE CENTRE

PushpenderSingh, Sanjay Bansal, V K Tiwari, Rajesh Agarwal, Amit Kumar

Introduction:

Sputum Smear positivity is the most important predictor of active TB infectiousness. When smear positive TB patients initiate TB there is a rapid multi-fold reduction in bacillary load expelled in sputum which minimizes the risk for transmission

Tuberculosis (TB) is the world's second most common cause of death from infectious diseases. As per the statistics in 2011, a total of 8.7 million new active TB cases and 1.4 million TB related deaths were estimated worldwide; 70% of these deaths were among HIV uninfected people.

Aim:

To evaluate the prevalence of anemia and of its types in hospitalized patients with pulmonary tuberculosis.

Material and Methods:

A prospective study on sputum positive pulmonary tuberculosis patients who were admitted to department of pulmonary medicine, Rohilkhand Medical College and Hospital, Bareilly. The enrolled patients were informed and proper consent was taken. We evaluated body mass index (BMI), mean corpuscular volume, and red blood cell distribution width (RDW), hemoglobin.

RESULTS:

We included 83 patients, 63 (75.9%) of whom were male. The mean age was 39.0 ± 10.7 years. The prevalence of anemia of chronic disease and iron deficiency anemia were, respectively, 75.9% and 2.4%; and 68.7% had low body weight (mean BMI = 18.21 kg/m^2). Anemia was found to be associated with the following: female gender ($p < 0.05$); low weight ($p < 0.05$); low mean corpuscular volume MCV ($p < 0.05$); high RDW ($p < 0.05$). We also found significant differences between anemic and non-anemic patients in terms of BMI ($p < 0.05$).

CONCLUSIONS:

In this study, high proportions of pulmonary tuberculosis patients were classified as underweight and malnourished on the basis of different parameters (BMI), and there was a high prevalence of anemia of chronic disease. In addition, the degree of malnutrition was higher in the patients with anemia than in those without.

**TO STUDY THE RISK FACTORS FOR POST PULMONARY TUBERCULOSIS
SEQUELAE IN PATIENTS PRESENTING TO TERTIARY CARE HOSPITAL IN
ROHILKHAND REGION**

Sahil Sood, V K Tiwari , Rajesh Agrawal , Amit Kumar

INTRODUCTION

Sequela of tuberculosis (TB sequela) is defined as the state with various secondary complications after healing of TB, such as chronic respiratory failure (CRF), cor pulmonale or chronic pulmonary inflammation. Among treated and cured TB patients, some may develop respiratory sequelae characterized by chronic respiratory symptoms which may persist and impact individuals quality of life.

OBJECTIVES

This study is aimed to assess the predictors of post-TB sequelae and determine the prevalence of respiratory symptoms which may help the health care workers in the proper management of patients during the course of treatment and patients living with tuberculosis sequelae.

MATERIAL AND METHODS

During the period between august 2015 to December 2015. A total of 55 patients with history of pulmonary tuberculosis (initially sputum positive) and respiratory complaints were included in the study and a detailed history, examination and all the relevant investigations were carried out. The subjects were included in the study only after 2 consecutive sputum examinations for AFB and culture were negative.

RESULTS

Results from the study showed that delay in the onset of treatment, irregular or non compliance with the treatment, continued smoking during and after treatment, old age, lower level of education and social stigma were the main predictors of the post pulmonary tuberculosis sequelae.

CONCLUSION

Patients diagnosed with pulmonary tuberculosis should be given treatment as early as possible and along with the relatives should be counselled about adverse outcomes for non adherence, continued smoking and ignoring symptoms.

CLINICAL PROFILE OF NEW SMEAR POSITIVE PULMONARY TUBERCULOSIS PATIENTS WITH DIABETES MELLITUS IN ROHILKHAND REGION

Rajan Shukla, V K Tiwari , Rajesh Agrawal , Amit Kumar

INTRODUCTION

Diabetes mellitus is a well known risk factor for TB in the past and is known to modify clinical and radiological manifestations of pulmonary TB but had conflicting results.

AIM

This study was conducted to evaluate the clinical and radiological presentation and in new smear positive cases with diabetes mellitus.

Methods

It was a prospective observational study carried out on all new smear positive pulmonary TB cases with diabetes mellitus presenting to the department of pulmonary medicine , Rohilkhand medical college & hospital between January 2015 to December 2015.

RESULTS

A total of 35 cases were included in the study. The male to female ratio was 2.5:1. The mean age was 52.5 (\pm 12.5). The majority of patients were between 45 to 60 years. Clinically the main presenting symptoms were breathlessness, cough with expectoration and chest pain. Radiologically, multilobar involvement with multiple cavities were the predominant findings. It was also found that diabetes mellitus is associated with low sputum positivity (scanty or 1+).

CONCLUSION

A diagnosis of TB should be considered in diabetics with an abnormal chest radiograph in the presence or absence of specific clinical symptoms. All patients of PTB above 40 years of age should be screened for diabetes mellitus.

GENOTYPE MTBDRPLUS ASSAY-- ASSESSMENT OF ITS USEFULNESS AND CLINICAL CORRELATION IN SUSPECTED PULMONARY MDR TUBERCULOSIS PATIENTS

Kavita Pal

Objective- To evaluate the performance of MTBDRplus assay for the rapid detection of Mycobacterium tuberculosis and also to asses their correlation with clinical scenario, according to their drug resistance pattern.

Material and Methods: A prospective study was conducted on 59 suspected cases of pulmonary MDR TB. Line probe assay for first line Drug Sensitivity Testing (Genotype MTBDR *plus* VER 2.0 by Hain Life sciences, Germany) was performed directly on respiratory samples (55 sputum and 4 BAL) and also on 42 positive culture isolates of the same patients. Results of LPA on samples were later compared to culture isolation/ LPA on positive culture isolates /clinical response of patients to ATT.

Results: On direct smear AFB examination of all 59 respiratory samples, 34(58%) were smear positive and 25(42%) smear negative. Identification culture results found MTC in 40 cases(68%)Out of total 59 specimens, culture was negative in 11(18.6%), contaminated in 6(10%).NTM was isolated in 16(27%) cases and 11 cases(19%) was proven MDR. Treatment was given according to LPA on direct smear and culture/drug sensitivity pattern. After more than

one year follow up, we assess the clinical response in 51(86.4%) cases. Both Rifampicin and INH sensitive 23 cases received cat I or cat II, in which 20 cases(87%) improved and 3 cases(14%) not. All 11 MDR cases received cat4 in which 8(72%) was improved and clinically correlated according to drug resistance pattern but 3 cases(28%) not improved. Out of 16 NTM cases, 6 cases received cat I, 8 cat II ATT and 2 no ATT. Clinical correlation seen in 15 cases(93%) .

All three INH mono resistance cases and one Rifampicin mono resistance case were clinically correlated.

Conclusion MTBDR plus assay showed good results and achieved a significant time-reduction. Resistance pattern by genotype assays are clinically compatible. Though these numbers are too small to draw any conclusion, this finding needs further evaluation on a larger scale.

COMPARISON OF DRUG RESISTANCE BETWEEN DIABETIC AND NON-DIABETIC CASES OF TUBERCULOSIS

Mriganka Madhab Misra, Ravi A. Dosi, Madhav Ch. Misra

Introduction: The phenomenon of drug resistance has been present since as early as 1944 but the emergence of multi drug and extensive drug resistance has been threatening to destabilize the control of tuberculosis. The growing prevalence of diabetes also poses a great challenge for TB control.

Aims and Objectives: A prospective study for comparison of drug resistance along with clinical and radiological presentation of tuberculosis between two groups of diabetic and non diabetic patients with the disease.

Material and methods:

The study was done on 136 sputum smear positive patients in Dept. of TB and Chest diseases, SAIMS over the past one and half year, of which 64 were diabetics and 72 were non-diabetics. Among the 64 patients with TB and diabetes mellitus, 24 were freshly detected cases while 40 were known cases of diabetes.

Sputum AFB c/s and/or line probe assay was done for all the patients.

Observation:

Drug resistance was seen in 12 of the 136 cases studied.

Of the 64 patients presenting with both diabetes and tuberculosis, 9 were found to have drug resistance to anti-tubercular drugs. Amongst these, 7 belonged to the category of known diabetics while the other 2 belonged to the group of new diabetics.

Of the 72 patients presenting with tuberculosis alone, 3 cases were found to have drug resistance. 2 out of these 3 cases had history of chronic alcohol intake and chronic smoking while 1 of these cases had a strong family history of tuberculosis.

51 of the 64 cases with both diabetes and tuberculosis presented with extensive disease while only 11 cases were found to have extensive disease in the other group.

Sputum conversion was also found to be delayed in the cases presenting with diabetes.

TUBERCULOUS PAROTID ABSCESS

Amit Dey, Ira Shah

Objective: To state the importance of fine needle aspiration cytology (FNAC) in diagnosing tuberculous abscess of parotid gland in a 2.5 years old girl.

Introduction: The diagnosis of parotid gland involvement with tuberculosis has traditionally been made after superficial parotidectomy. Here, we present a case of tuberculous abscess of parotid gland in a 2.5 years old girl diagnosed by fine needle aspiration cytology (FNAC).

Discussion: In TB, the salivary glands are rarely affected which may be due to inhibitory effects of saliva on mycobacteria. TB parotitis may develop primarily from oral cavity focus with spread via parotid duct or lymph nodes or it may develop secondarily through haematogenous or lymphatic route from a pulmonary focus. FNAC is the diagnostic tool for tuberculous parotid abscess. A sensitivity of 80 per cent and a specificity of 93 per cent have been reported for FNAC of the tuberculous lesions.

Conclusion: Here, we present a case of tuberculous abscess of parotid gland in a 2.5 years old girl diagnosed by fine needle aspiration cytology (FNAC).

NOVEL PHENOL-FREE AFB STAINING REAGENTS

Arjun Kalale, Kanakaprasad, Bharath B R, Pooja Murali, Chandra Kumar H P, Shruthi Rao, Avaneesh T, Sangeeta Kodkani, Hema Sundaram, Anil S, Prabhakar Kulkarni

Introduction: Sputum smear microscopy is the cornerstone for screening Tuberculosis. Conventionally it is achieved through the use of phenolic stains. Phenol drives the stain into otherwise stain resistant Acid Fast *Mycobacterium tuberculosis*. Phenol is corrosive, carcinogenic and poses health hazards to technicians requiring the innovation of phenol free staining reagents.

Objective: To demonstrate the performance of ReaMetrix’s novel Phenol-free AFB staining reagents “AFB Brite” and “AFB Spark” in comparison with conventional phenolic staining methods for Brightfield and Fluorescence microscopy.

Material and Methods: Replicate sputum smears were stained with ReaMetrix’s AFB Brite and AFB Spark Staining reagents and conventional-ZN and Phenolic Auramine O staining reagents for n=500 samples. They were observed and graded under brightfield and fluorescence microscopes respectively. The performance of the stains were compared based on various parameters including Stain Intensity, Non-specific artefacts, Background intensity, Ease of identification, Analytical sensitivity etc. The microscopic analysis of all smears was blinded to prevent operator bias.

Results: “AFB Brite” & “AFB Spark” showed equivalent performance compared to conventional phenolic stains. Additional to being phenol-free, Improved turnaround times, operator safety and easier staining protocols served as their major advantages.

Conclusion: ReaMetrix’s Novel phenol-free reagents perform equivalently to the conventional AFB staining reagents, while providing significant value additions of improved technician safety and ease of use. They are ready-to-use, room temperature stable and ideal for implementation in TB control programs.

REASLR- A NOVEL DRY FORMULATION FOR SPUTUM PROCESSING REAGENT

Kulkarni Prabhakar S, Avaneesh Thautam, Bharath B R, Pooja Murali, Chandrakumar H P, Shruthi Rao

The Need: Current methods of Sputum processing for TB diagnosis suffer from issues of lower sensitivity and reliability. Sputum processing involves digestion of sputum using NALC NaOH, an unstable reagent at room temperature. Being a liquid reagent, it dilutes the sample and decreases the sensitivity of downstream processes. Here we demonstrate the features of ReaMetrix’s ReaSLR and how it resolves the problems associated with NALC-NaOH.

Material and Methods: The features of ReaSLR are demonstrated and compared with NALC-NaOH. The study focused on parameters such as sputum liquefaction and homogenization, decontamination and user ergonomics. Staining and Inactivation of *Mycobacterium tuberculosis* by ReaSLR were also demonstrated on non-pathogenic lab isolates (H37Ra).

Results: Liquefaction was achieved within 15 minutes along with 100% decontamination of the oral microflora in both methods. Mycobacterial cells processed using ReaSLR were stable, inactive and morphologically intact for up to a month. ReaSLR being a dried reagent, did not increase the sample volume ensuring the effectiveness of downstream processes.

Conclusion:

ReaSLR is a dry, unitized, room temperature stable sputum processing reagent. It efficiently liquefies and decontaminates sputum within 15 minutes. ReaSLR also provides Fluorescent staining and inactivation of the released MTB cells, all in a single step. These features make ReaSLR an excellent choice as a reagent to facilitate rapid, bio-safe and efficient TB diagnostics.

MOLECULAR DIAGNOSTICS FOR STUDYING POLYMORPHISM IN *Mycobacterium tuberculosis* CLINICAL ISOLATES

Apoorva Narain, Kanchan Srivastava, Ajay Kumar Verma, Surya Kant

Tuberculosis (TB) is one of the leading causes of obliteration of people, especially in developing countries. According to the WHO World TB report 2015, approximately 9 million people developed the disease in which around 4% were HIV positive. Emergence of this co-infection of TB with HIV-AIDS and Diabetes has made it difficult to treat the disease. What has further worsened the scenario is the continuous evolution of sensitive strains into multi-drug resistant (MDR) and extensively drug resistant (XDR) strains. There are even few studies reporting total drug resistant (TDR) strains.

Old diagnostic techniques, though reliable, are slow and less precise. Hence the need of the hour is the use of newer, better molecular diagnostic techniques along with older techniques. One method includes the detection of *IS6110* via PCR. *IS6110* is considered a useful molecular marker and strain typing of *Mycobacterium tuberculosis*. It displays high number of polymorphism with respect to insertion sites and copy number. **(Tanmoy Roychowdhury1, Saurav Mandall & Alok Bhattacharya)**

There are many interspersed sequences, like direct repeats (DR) in DNA which are being studied for the differentiation in MTB isolates. Like in our study, earlier studies have also shown higher presence of DR (responsible for polymorphism) in *Mycobacterium tuberculosis*, which are useful for the epidemiological studies. Genetic diversity (polymorphism) seen in different MTB clinical isolates is one of the many reasons which hampers proper and timely treatment in economically poor sections of the society.

The disease dynamics in the host are affected by the relationship between the levels of gene expression and environmental factors. Since, most of the strains have polymorphism in *IS6110*; molecular diagnostic techniques will thus help in the identification of the specific MTB strain in the clinical isolates.

PRIMARY TUBERCULOSIS OF THE CHEEK: A COMMON DISEASE WITH A RARE PRESENTATION

K. B. Gupta, Vipul Kumar, Aashutosh Asati, Sandhya Nair, Pradeep Singh

Tuberculosis of the extra-oral region is uncommon and is rarely primary. Extra-oral involvement of the cheek in the absence of tuberculosis elsewhere in the body is rare. To the best of our knowledge, we report here the first case of primary tuberculosis of the cheek in a 2 1/2-year-old male child presenting as a nodular swelling of the cheek. His skiagram chest and ultrasound abdomen were normal. There was no lymphadenopathy. FNAC of the swelling showed necrotizing granulomatus inflammation and staining with H₂SO₄ was positive for acid fast bacilli. Patient was started DOTS anti tubercular drugs category I under RNTCP and is in regular follow up. Previous reported cases of extra-oral involvement of the cheek involved either fistula, sinus or ulceration of the cheek.

CONCLUSION

Primary tuberculosis of check, without involvement of any other organ or other body part is very rare presentation of T.B. In our case patient had nodular swelling of cheek, without any lymph node involvement. In such type of cases early diagnosis and treatment can stop the progression of disease. FNAC of nodular swelling & staining the slides with H₂SO₄ can be a useful diagnostic tool to confirm or rule out tuberculosis.

A RARE CAUSE OF BRONCHIECTASIS - ACHALASIA CARDIA

Gayathri Devi HJ, Yashawanth TL, SathyaPadmaja M.

Background- ACHALASIA cardia is characterized by the failure of the lower oesophageal sphincter to relax in response to swallowing. Repeated aspiration of oesophageal contents can cause pulmonary complications like pneumonia, bronchiectasis and lung abscess.

CASE REPORT- We report a case of achalasia cardia in a 17 year old male patient. He presented to the department of respiratory medicine with complaints of cough, fever and breathlessness of 1 year duration. He also had dysphagia of 3 months duration. Respiratory system examination was suggestive of bronchiectasis. Chest X-ray showed bilateral basal tramline shadows. CECT thorax showed dilated oesophagus with bronchiectatic changes. A provisional diagnosis of Achalasia cardia was made which was subsequently confirmed by upper GI endoscopy. Patient underwent pneumatic balloon dilatation with relief of symptoms.

Conclusion: Rare causes should be looked for while investigating cases of bronchiectasis. Awareness of the spectrum of symptoms of achalasia can avoid diagnostic delay.

INDEPENDENT PCR TARGETS FOR *MYCOBACTERIUM TUBERCULOSIS* IDENTIFICATION IN CLINICAL ISOLATES OF EXTRA-PULMONARY TUBERCULOSIS PATIENTS

Pooja Singh, Ajay Kumar Verma, Amita Jain, Anand Srivastava, Surya Kant

Tuberculosis, one of the most dreaded diseases in India, accounts for approximately 26% of total global burden. And now with the co-emergence of Tuberculosis with HIV it has now even started to establish its foothold in developed countries as well. Tuberculosis majorly effects the lungs (pulmonary tuberculosis), but in some cases infection moves to other organs as well, where it is known as extra-pulmonary tuberculosis (EPTB). Treating EPTB becomes a major problem because of difficulty in diagnosis.

Another major setback faced in TB treatment is the emergence of drug resistant strains of tuberculosis. Strains resistant to first line drugs are termed as Multi-drug resistant strains (MDR) and those resistant to second-line drugs are termed as extensively drug resistant strains (XDR). These strains when effect the organs other than lungs they cause severe treatment problems to the already existing difficulties; as dose of drugs given in EPTB is higher than those given in pulmonary TB.

DNA target considered for this study was 65kDa (heat shock protein) in the North-Indian population. Samples will be collected from the King George's Medical University, Lucknow and standard protocols for culturing & detection of MTB will be followed. Traditional methods though reliable are less sensitive and also time-consuming. Hence the need of the hour is to develop better and faster diagnostic techniques for EPTB.

With this study we aim to develop a PCR based study for faster diagnosis of EPTB via clinical samples, which will pave way for better treatment regimens.

A STUDY OF IL-8 AS INFLAMMATORY MARKERS IN COPD PATIENTS

Prashant Mani Tripathi, Surya Kant, Ravi Shanker Yadav, Abhishek Dubey, Priyanka Gaur

Chronic obstructive pulmonary disease (COPD) is characterized by local and systemic inflammation. The role of interleukins in the severity and clinical profile of chronic obstructive pulmonary disease (COPD) is not known, but evidence supports the contribution of systemic inflammation to disease pathophysiology. This study aimed to enlighten the relationship of serum biomarkers to the severity and clinical parameters of COPD. We enrolled 32 patients with stable COPD and in 28 healthy controls as per inclusion and exclusion criteria. The serum levels of interleukin-8 (IL-8) was measured by ELISA and levels of this biomarker was compared with parameters of severity, such as the grading of flow obstruction using the recommendations of the Global initiative for chronic Obstructive Lung Disease (GOLD), the BMI (body mass index), the number of exacerbations within the last year and with clinical parameters and the smoking burden. The mean value of serum IL-8 levels was significantly higher in COPD patients when compared with control participants; the serum level of this biomarker was also significantly higher in severe compared with mild and moderate COPD patients. The present study showed that increased level of serum IL-8 can be used as biomarkers of the systemic inflammatory response in COPD patients, and their levels are correlated with the severity of COPD.

DIAPHRAGMATIC HERNIA WITH GASTRIC VOLVULUS MIMICKING HYDROPNEUMOTHORAX

Aashutosh Asati, K.B. Gupta, Vipul Kumar, Sandhya Nair, Pradeep Singh

Diagnosis of diaphragmatic hernia is challenging especially when it is not associated with trauma and other previous history of gastrointestinal symptoms and respiratory insufficiency. We report a case of diaphragmatic hernia with gastric volvulus with no history of trauma mimicking as a case of hydropneumothorax in chest X ray with stable vitals. 18 year old male patient came in emergency department with complains of persistent vomiting and chest pain since one day. He had history of alcohol intake at pervious night. His ECG was normal, vitals were stable, and his X ray chest Posterio anterior view showed air fluid level on left side. On the basis of X ray diagnosis of left sided hydropneumothorax was made. As patient's vitals were stable, intercostals drain was not put since differential diagnosis of diaphragmatic hernia was also in our mind. CECT thorax revealed diaphragmatic hernia with gastric volvulus. The patient was transferred to surgery department for definitive management.

CONCLUSION: Diaphragmatic hernia without history of any trauma at this age is a diagnostic challenge. If patient presents with vomiting or any gastrointestinal symptoms with air fluid level in chest x ray, without any respiratory insufficiency we should go for CECT thorax to rule out diaphragmatic hernia.

ASSESSMENT OF ASTHMA IN RELATION TO VARIOUS PARAMETERS

Shuchi Shukla, Surya Kant, Ajay Kumar Verma, M. Kaleem Ahmad , Ved Prakash

Asthma is a complex chronic inflammatory disorder of the bronchial tree, with symptoms of cough, chest tightness, breathlessness, and wheezing. The occurrence, frequency and intensity may be varying over time and trigger through inhalation of allergens for example- house dust mite, pollen grain, smoke, cold etc. Sometime physical stress such as exercise, climbing stairs also worsen the symptoms. Two features can define asthma perfectly: 1-history of respiratory features and 2-variable expiratory airflow limitations. Once the treatment starts the diagnosis of asthma gets more difficult. Immunoglobulin IgE mediated sensitization to allergens is the most important risk factor for asthma. Sign of eosinophilia also found in asthma patients. In our observational study we recruited asthma patient's age between 20 to 40 years on the basis of clinical diagnosis followed by pulmonary function test and we found a graphical representation for certain parameters and those are serum IgE level, haemoglobin, total leucocyte count, differential leucocyte count, polymorphs, lymphocytes, monocytes, eosinophils, absolute eosinophil count.

READ-THROUGH OF SOCIO DEMOGRAPHIC CHARACTERISTICS AND DRUG RESISTANCE PATTERN AMONG CLINICAL ISOLATES OF *MYCOBACTERIUM TUBERCULOSIS* IN NEW PULMONARY CASES

Deepika Kalo, Surya Kant, Kanchan Srivastava, A. K. Sharma

Tuberculosis (TB) is recorded as one of the oldest and main causes of death of human beings. Worldwide, TB is the 2nd only infectious disease after Human Immunodeficiency Virus (HIV). Severity increases when *Mycobacterium tuberculosis* (MTB), becomes resistant to anti-tuberculosis drugs. A patient can be fully cured with a proper and continued 6-9 month TB treatment under DOTS. Out of a total of 159 sputum smear positive patients, male patients (76.10%) showed highest percentage of TB than females. Most of the patients showed the duration of illness for 1-5 months before their treatment (52.83%). Cough was observed in all the patients followed by expectoration, weight loss and Athralgia. Majority of patients used to live in pucca house (40.2%) and ventilation was seen in 149 patients. The percentage of married people (79.2 %) was recorded to be more than unmarried people. Mono drug resistant, Multi Drug Resistant and Totally Drug Resistant cases were calculated as 113.83%, 125.1% and 67.9%. Isoniazid showed the highest percentage of resistance among the patients. Any non-compliance to TB medications, lack of knowledge, and poor management in health centres etc results in the emergence of deadly DR forms of TB, which are further complicated and complex to treat.

ASSOCIATION OF IL-1B EXPRESSION WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A CASE CONTROL STUDY

Ravi Shanker Yadav, Surya Kant, Prashant Mani Tripathi, Abhishek Dubey

Chronic systemic inflammation is implicated in the systemic manifestations and probably with the excess mortality risk of chronic obstructive pulmonary disease (COPD). The identification and validation of biomarkers to support the diagnosis and prognosis for COPD continues to be an important area of research. Evaluation of systemic inflammation in COPD particularly when the disease is severe and during exacerbation can be measured either as increased circulating cytokines, chemokines and acute phase proteins, or as abnormalities in the circulating cells and markers. Interleukin-1beta (IL-1 β) is a pro-inflammatory cytokine, it is a potent activator of inflammation in COPD patients. This study aimed to assess the level of serum IL-1 β in chronic obstructive pulmonary disease patients, to determine if the changes in its level correlated with changes in the ventilatory functions. The serum level of interleukin-1 β (IL-1 β) was measured by ELISA in 65 patients with stable COPD and in 50 healthy controls. There was a significant difference in serum IL-1 β between control and cases. This study provides compelling evidence that IL-1 β is central to the initiation of smoke induced inflammation and suggests that IL-1 β targeted therapies may be relevant for limiting inflammation and exacerbations in COPD.

LUNG METASTASIS OF SYNOVIAL SARCOMA – A RARE PRESENTATION

Karnail Singh, K.B. Gupta, Vipul Kumar, AashutoshAsati

Synovial sarcoma (SS) represents malignant tumours of soft tissues, accounting for about 8% of all soft tissue sarcomas. The peak of incidence is in the 3rd decade (approximately 30% of cases occur in patients less than twenty years of age), and males are affected more often than females (male/female ratio around 1.2:1). The incidence of Synovial sarcoma has been estimated to be 2.75/1,00000. We report a case of 51 year male presented to our department with c/o- Cough, expectoration, hemoptysis and fever since 10 days. On examination vitals were stable, and a swelling measuring 4x4 cm on Right elbow since 6 months, which was progressive. Chest X-Ray Postero-Anterior view had multiple homogenous opacities in B/L lung fields with left sided pleural effusion. USG guided FNAC revealed Synovial Sarcoma. Patient refused for further biopsy or FNAC of swelling over right elbow. Thus a diagnosis of lung metastasis of synovial sarcoma from primary site of right elbow was made. Then patient was transferred to radiotherapy department for definitive management.

Conclusion

Synovial Sarcoma is rare malignant soft tissue cancer. It occurs mainly in extremities (L.L. > U.L.).Primary Pulmonary Synovial Sarcomas are extremely rare. The diagnosis is established only after sarcoma like primary lung malignancies and metastatic sarcoma have been excluded.

PULMONARY THROMBOEMBOLISM AND DEEP VEIN THROMBOSIS IN ACUTE EXACERBATION OF COPD- RARE PRESENTATION

K.B. Gupta, Vipul Kumar, Karnail Singh

Nearly 30% of all exacerbations of COPD do not have a clear etiology. Although pulmonary embolism (PE) can exacerbate respiratory symptoms such as dyspnea and chest pain and COPD patients are at a high risk for PE due to a variety of factors including limited mobility, inflammation, and co-morbidities, the prevalence of PE during exacerbations is uncertain. We present a case report of 45 years male COPD patient presented with complaints of pain in left lower chest, Dyspnea since three months, swelling over left lower limb since 20 days and cough with expectoration since 15 days. Venous Color Doppler Both lower limb showed thrombosis of Left External iliac vein, common femoral vein, superficial femoral vein and Left Popliteal vein. C.T. Pulmonary Angiography showed Right Pulmonary Artery Thrombus with Right lower lobe Infarct and Left Hydropneumothorax with I.C.D. in situ.

Conclusion-Exacerbations are characterized by increase in cough and dyspnea. Since thromboembolic events can lead to cough and dyspnea (just like infectious events), PE may be another common cause of COPD exacerbations. A diagnosis of PE should be considered in patients with exacerbation severe enough to warrant hospitalization, especially in those with an intermediate-to-high pre-test probability of PE.

ESTIMATION OF SERUM IMMUNOGLOBULIN E LEVELS IN BRONCHIAL ASTHMA

**Priyanka Gaur, Sandeep Bhattacharya, Surya Kant , Sarika Pandey, Prashant Mani
Tripathi**

Asthma is a chronic disease involving the airways in the lungs. Bronchial asthma is a major public health problem affecting 100-150 million people worldwide. Allergic diseases including asthma are characterized by an increase of serum Immunoglobulin E (IgE) levels. A hypersensitivity reaction initiated by immunologic mechanisms mediated by IgE antibodies occurs in allergic asthma. IgE plays a central role in the initiation and propagation of the inflammatory cascade and thus the allergic response. Increase in IgE is due to viral infections which is the commonest cause of exacerbation of symptoms in asthma or up-regulation of IgE production. Estimation of serum immunoglobulin E (IgE) level is a valuable diagnostic parameter in Allergic Asthma and allergic rhinitis. Elevated total serum immunoglobulin E (IgE) is considered as a marker of allergy and has been associated with a number of respiratory disorders. The aim of the study was to estimate serum IgE levels in asthmatics and healthy subjects and also to find the association of Serum IgE levels with asthma. This study enrolled 50 subjects with bronchial asthma and 45 healthy controls within age group of 15-50 years. The serum IgE levels were measured by the Elisa kit. It has been found that Serum Immunoglobulin E levels were high in asthmatics as compared to normal subjects.

**ASSOCIATION BETWEEN MYCOBACTERIUM TUBERCULOSIS BEIJING/NON
BEIJING STRAIN INFECTION AMONG MULTIDRUG-RESISTANT
TUBERCULOSIS FROM EXTRAPULMONARY TUBERCULOSIS CASES IN
NORTHERN INDIA**

A.K. Maurya, S Kant, V L Nag, RAS Kushwaha, T.N Dhole

Introduction: Beijing strains are significantly associated with drug resistance tuberculosis, where prevalence of MDR-TB is high. Beijing strain infections are spreading rapidly in large clonal clusters, and have been linked with extrapulmonary TB. Our objective in this paper is to investigate association between *Mycobacterium tuberculosis* Beijing/non Beijing strains infection among multidrug-resistant tuberculosis from extrapulmonary tuberculosis cases in Northern.

Methods: A total of 756 specimens from patients of EPTB cases with varied presentation. Specimens were processed by Ziehl Neelsen staining, culture, identification of *Mycobacterium tuberculosis* complex (MTBC) by IS6110-PCR. First line drug susceptibility was performed by 1% proportional method by BacT/ALERT 3D system. MDR-TB isolates were further characterized at genotypic level by GenoType® MTBDRplus assay for genotypic analysis. All MDR-TB strains were further processed by novel new multiplex polymerase chain reaction (M-PCR) for rapid identification of Beijing strains and non Beijing strains.

Results: Of these 164 *M. tuberculosis* complex isolates, 100(60.9%) strains were fully susceptible and 64(39.1%) strains were resistance. 21 (12.8%) strains were confirmed MDR-TB by genotypic method. The most prominent mutations in *rpoB*, *katG* and *inhA* genes were 78 % in S531L, 95% in S315T1, and 21% in C15T region respectively (p <0.05). Beijing strains was significantly higher among MDR-TB strains (72.7%, p < 0.05).

Conclusion: We found high prevalence (12.8%) of MDR-TB, and Beijing stains are significantly associated with MDR-TB among EPTB in northern India. M-PCR method is highly sensitive, specific, cost-effective and suitable for screening large numbers of samples.

DETECTION OF DIABETES MELLITUS BY GLYCOSYLATED HEMOGLOBIN IN THE NEWLY DIAGNOSED TB

Mir Ahsan Ali Quadri, Shahzad Hussain Arastu, C.E Prasad

BACKGROUND:

Tuberculosis has been a public health problem despite advances in treatment. Diabetes Mellitus (DM) is an important predisposing condition for TB and MDR TB. TB is 5-8 times more common among DM. 40% of MDR TB patients had DM in a Kerala study.

AIM:

To observe prevalence of DM in newly diagnosed TB patients in the state of Telangana where no data are available. Glycosylated Hemoglobin (HbA_{1C}) > 6.5% reflects DM(WHO). None had previous DM.

MATERIAL AND METHODS:

Tuberculous patients (Pulmonary and Extra Pulmonary), underwent tests namely HbA_{1C}, Fasting Blood Sugar

Procedure: HbA_{1C} – Calorimetric method.

FBG – Glucose Oxidase Peroxidase method.

RESULT:

Mean HbA_{1C} for total subjects (n=60) = 5.98 ± 0.744

Group 1 -HbA_{1C} for Sputum Positive (n=45) = 6.02 ± 0.751

Group 2 - HbA_{1C} for Sputum Negative (n=15) = 5.86 ± 0.734

Student T test “P” = 0.5628.

HbA1C for PTB (n=50) = 6.03 ± 0.753

HbA1C for EPTB (n=10) = 5.88 ± 0.670

Student T test "P" = 0.0243

CONCLUSION:

There was no statistically significant difference between the sputum positive and sputum negative groups (p=0.5628).

However significant difference between the PTB and EPTB groups (p = 0.0243) observed.

(Ongoing study funded by RNTCP)

A STUDY ON TREATMENT STATUS OF MDR-TB/PLHA IN DISTRICT TB CENTRE THANJAVUR

M.Murali

Introduction:

Tuberculosis is one of the earliest opportunistic diseases to develop amongst Person Living with HIV/AIDS. From 2009 District TB Centre, Thanjavur (TN) were started there successive race on Multi Drugs Resistant -TB treatment. The present study is a report on the treatment status of integrated MDR-TB/PLHA at Thanjavur from 2009 to 2015.

Objectives :

To find the treatment adherence status for the MDR-TB/PLHA patients. To find the inter-referral functions between the PITC to RNTCP. To find the causes of default on his/her treatment.

Methods:

This study took from all forms of peripheral health institutions running MDR-TB cases and implementation of the standardized RNTCP-DOTS strategy associated with Anti-Retroviral Treatment (ART) from Provider Initiated HIV Testing & Counselling centre (PITC) in Thanjavur. The researcher conducted descriptive research study method and used simple random sampling.

Result :

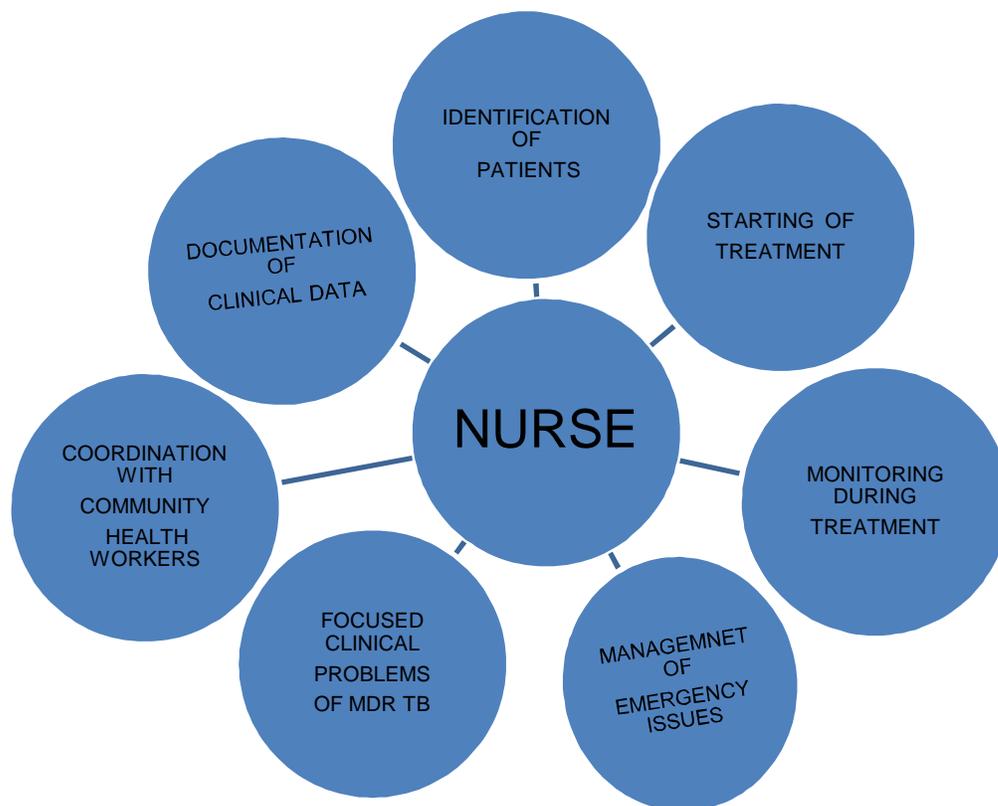
Totally 14 registered MDR-TB/PLHA cases out of 125 cases initiated on treatment were taken in this study. Of 42.8% are ongoing treatment from major two health administrations like PITC & RNTCP. And another 42.8% was expired on their treatment. Only 14.2 % are successively cured in the long treatment for MDR-TB(24 Moths) with ART.

Discussion:

The treatment status of MDR-TB/PLHA study finds the live stage in the particular district of Thanjavur in South India. As per criteria-C for MDR suspects, it is very essential to initiate the treatment for PLHA. This particular co-infected cases treatment will take a long travel in our RNTCP duties.

ROLE OF NURSES IN THE MANAGEMENT OF MDR- TB CLIENTS IN THE COMMUNITY

Shakila Shankar, A.Komathi



Reference:

E. Palacios et al, " The role of the nurse in the community-based treatment of multidrug-resistant tuberculosis (MDR-TB)"INT J TUBERC LUNG DIS; 2003;7(4):343–346.

NURSES' POLITICAL, ECONOMIC AND HEALTH ROLES FOR TUBERCULOSIS PREVENTION

Shakila Shankar, A Gunasundari

	LOCAL		NATIONAL	INTERNATIONAL
	INDIVIDUAL	COLLECTIVE		
POLITICAL	Empowerment, Respect for Human Rights and support to participatory actions		National Agreement, Human Rights,	Millennium Development Goals
ECONOMIC	Better use of Individual and Family Spending, Community income generation programs		Health Budget	Technical-Financial Cooperation
HEALTH	Knowledge and application of TB prevention and control measures, comprehensive care		Health Strategy for TB Prevention and Control	DOTS strategy
PROFESSIONAL INSTITUTION	Nurses Nursing team Head nurses Researchers Nursing Faculty		Indian Nursing Council, Scientific Societies, TNAI, GFATM Nodal Centres, TB Association of India,	ICN, International Associations, Disease, WHO etc.

References:-

1. Rev. Latino-Am. Enfermagem, Jan-Feb 2010; 18(1):130-8 available at www.eerp.usp.br/rlae.

LINEZOLID INDUCED OPTIC NEUROPATHY: A CASE SERIES

Background

Linezolid is a class 5 anti-tubercular drug used in the treatment of extensively drug resistant tuberculosis for durations which may last up to 30 months. Long term use of linezolid has been reported as a rare cause of optic neuropathy.

Cases

Case 1: A 35 years old male patient with XDR TB presented with painless progressive loss of vision for 1 week. He was receiving treatment with Capreomycin (750mg/day), Amoxyclav (2g/day), Moxifloxacin (400mg/day), Linezolid (600mg/day), PAS (12g/day), Terizidone (500mg/day), Clofazamine (200mg/day) and Isoniazid (900mg/day) for the past 10 months. On examination, his visual acuity was 6/24 in the right eye and 6/36 in the left eye. Colour vision was defective in both eyes. Rest of the ophthalmic examination was within normal limits. On stopping linezolid, patient was symptomatically improved after one week and free of all visual symptoms by the end of two weeks.

Case 2: A 26 years old male patient with XDR pulmonary tuberculosis, presented with complaints of diminution of vision for 10 days. He was on treatment with a regimen comprising of Imipenem (1g/day), Isoniazid (700mg/day), Pyrazinamide (1200mg/day), Terizidone (750mg/day), PAS (12g/day), Clofazamine (200mg/day) and Linezolid (600mg/day) and had completed 5 months of therapy. On examination visual acuity was reduced and colour vision was defective. On stopping linezolid, patient's visual symptoms improved within 1 week.

Conclusion

Linezolid is one of the lesser known anti-tubercular drug causing optic neuropathy. Physicians must be aware of the optic toxicity of linezolid and remain vigilant with regular ophthalmic evaluation for patients on long term treatment with this drug.

PULMONARY AV MALFORMATION- A CASE REPORT

Archana Andhavarapu

Pulmonary arteriovenous malformations (PAVMs) are abnormal communications between the arteries and veins of the pulmonary vascular bed. Although AV malformations in general are frequently associated with hereditary hemorrhagic telangiectasia (HHT), this is not the case with pulmonary AV malformations. Most PAVMs do not present with significant symptoms and lie dormant until detection is made. This case report describes the incidental discovery of PAVM in a female patient who was posted for cholecystectomy. On the surgical table her oxygen saturation dropped significantly (88%) and BP was 180/120; as a result her surgery was postponed. The reason was not known and to rule out a chest CT was advised. Large malformations were noted in the left and right lower lobes. Although there is a link between

liver disease and this condition, the connection between PAVMs and cholelithiasis is currently unknown. We recommend clinicians to look for PAVMs even in the absence of its presenting symptoms such as clubbing, cyanosis, dyspnea, hemoptysis and others.

HODGKIN'S LYMPHOMA MISDIAGNOSED AS LYMPH NODE TUBERCULOSIS BASED ON FNAC ALONE

Sajit Kishan G, Sundar Raj G, Satya Sri , Uday mskn , Ramanjula Reddy C

Hodgkin's lymphoma frequently mimics lymph node tuberculosis in its clinical presentation, the latter being a common cause of lymphadenopathy.

We present a case report of a 31 year old female patient with cervical and mediastinal lymphadenopathy. Initial FNAC done at an outside health care setup was suggestive of TB granulomatous lymphadenitis, for which she was started on Anti TB Therapy (H/R/Z/E). But she had no resolution of symptoms even after 6 months of ATT. So, she underwent FNAC again at another outside health care setup, which was again suggestive of granulomatous lymphadenitis, for which she was made to extend Anti TB regimen. Patient was referred to ASRAM Hospital, where she was thoroughly evaluated, Excision Biopsy was done, which confirmed the diagnosis of Hodgkin's lymphoma - mixed cellularity type.

Thus, patients with lymphadenopathy started on Anti TB Treatment, based on FNAC alone, need to be closely monitored during follow up and any lack of improvement or non-resolution of symptoms should prompt for thorough search of any alternate diagnosis. Moreover in such cases, diagnosis should be re- established by definitive Biopsy as FNAC alone may not suffice and may be misleading.

LUNG CANCER ASSOCIATED WITH NEUROFIBROMATOSIS TYPE I

Aashutosh Asati, K.B. Gupta, Vipul Kumar, Sandhya Nair, Karnail Singh, Pradeep Singh

The NF-1 gene has been localized to chromosome 17q11 and functions as tumor suppressor gene, and its respective gene product has been named as neurofibromin. It has been speculated that the mutation of tumor suppressor NF-1 gene increases the patient's risk for the development of various malignancies mainly derived from the neural crest such as malignant schwannoma, neurofibrosarcoma, intracranial glioma, and pheochromocytoma optic gliomas, other gliomas, and leukemias. Lung cancer associated with neurofibromatosis type I is considered very rare, and only a few case reports have been described in the literature. There is some evidence that a genetic linkage between neurofibromatosis and carcinogenesis in the lung may exist. We present a 68 year-old male, chronic ex-smoker with a known history of neurofibromatosis type I, had breathlessness, since 2 months, on X ray chest Postero anterior view showed homogenous consolidation of entire right lung associated with mediastinal shift towards the right side. CECT thorax revealed right lung mass, with complete collapse and massive pleural effusion on right

side. Right bronchus cut of sign was there, and mass invades superior vena cava and right pulmonary artery. Cytological analysis of pleural fluid showed malignant cells possibly adenocarcinoma of lung. His CECT head was normal.

CONCLUSION

Since Neurofibromatosis type 1 (NF1) represents a major risk factor for development of malignancies, screening of such patients for malignancies can be helpful to diagnose the malignancy in early stages. For diagnosing the lung malignancies in suspected patients, CECT thorax is gold standard, and should be recommended in every neurofibromatosis type I patients.

A STUDY OF PRESENTATIONS OF PULMONARY TUBERCULOSIS PATIENTS WITH DIABETES MELLITUS

Anand Siddharth, Kumar Avdhesh, Chaudhri Sudhir, Kumar Anand, Verma Sanjay, Varma Punit

Background: The association between pulmonary tuberculosis and diabetes mellitus has been known since long time. Diabetes modifies the presenting features of pulmonary tuberculosis, bacteriological load and radiographic findings.

Objectives: To study the various clinical and radiological presentations in pulmonary tuberculosis patients with diabetes mellitus at present time.

Material and Methods: In this prospective study 55 patients of sputum positive pulmonary tuberculosis with diabetes mellitus and 50 without any co-morbidity were included. The severity of symptoms, bacteriologic burden and radiographic findings of the two groups were compared. All sputum positive tuberculosis patients who were diagnosed by sputum microscopy, were screened for diabetes mellitus by evaluating fasting and post prandial blood sugar and HbA1c.

Observation and Results: Mean age of pulmonary tuberculosis with diabetes mellitus was 51.2 ± 8.05 which was higher than the mean age (39.5 ± 9.2 years) of controls. Male gender predominated in both the group (78.1% VS 60%).

There was significant increase in hemoptysis event in diabetes with pulmonary tuberculosis patients. Weight loss was less in number of pulmonary tuberculosis patients with diabetes mellitus (20% VS 46%).

Cavity presentation is more common in diabetics than in non diabetics (34.4% vs 14.6%). 15 % patients from study group had thick walled cavity with ragged internal margin as compared to 4.4% controls and it was statistically significant. Cavity/consolidation lesion merging with the hilum, were also found more in diabetic patient (16.6%) as compared to controls (4.4%). Study group had predominantly lower lung field lesion (40% vs 11.2%) as compared to controls.

Conclusions: Clinical and radiological features in diabetic patients had some specific findings in large number of patients which were different from non diabetics. Clinical symptoms were more severe in diabetics. Lower lung field disease and cavitary disease were common presentations.

PROFILE OF PATIENTS OF INTERSTITIAL LUNG DISEASES ATTENDING CHEST HOSPITAL

Roshan Lal, Verma Sanjay, Chaudhari Sudhir, Kumar Anand, Kumar Avdhesh, Verma Ashok

Introduction- Interstitial lung disease (ILD) also known as *diffuse parenchymal lung disease (DPLD)* refers to a group of lung diseases affecting the interstitium (the tissue and space around the air sacs of the lungs). The group of interstitial lung diseases includes a wide spectrum.

MATERIAL AND METHODS: 73 patients of ILD were included in the study. They were subjected to detailed clinical history (including environmental, occupational and medical history) and physical examination. Complete blood count, liver function test, kidney function test, serum electrolyte, fasting and PP blood sugar, urinalysis, sputum for AFB and Fungal element, chest X ray- PA view, Spirometry, 2D Echo, HRCT Thorax and 6 minute walk test were done. Wherever required ANA, dsDNA, Rheumatoid Factor and connective tissue serology were done.

OBSERVATION AND RESULTS: Majority of patients of the study were of IPF (39.7%), followed by Sarcoidosis (17.9%), Hypersensitivity pneumonitis (15.1%), Non Specific Interstitial Pneumonia (9.6%), Connective tissue associated disorder (6.8%), Cryptogenic Organizing Pneumonia (4.1%). Prevalence of IPF was more in males (72.5%). Sarcoidosis (84.6%), Hypersensitive pneumonitis (91.1%), Non Specific Interstitial Pneumonia (NSIP) (85.7%) was more in females. Mean age of presentation was 54.4 year (male 58.6 years and Female 52.3 year). Mean age of the patients was 61.9 years in IPF, 61.5 yrs in Hypersensitivity Pneumonitis, 43.7 years in sarcoidosis and 39.2 years in Connective tissue associated disorder. Symptoms were breathlessness (100%), dry cough (56.2%), chest pain (35.6%), weight loss (34.2%), joint pain (28.7%). gastric regurgitation and heart burn (GERD) was present in 17.8% patients. Indoor pollution was present in 53% cases. Bibasilar crepitations (95.9%) was the most consistent sign. Clubbing was present in 67.1% cases.

CONCLUSION: IPF was the commonest ILD followed by sarcoidosis, hypersensitive pneumonitis, non-specific interstitial pneumonia, connective tissue associated ILD, cryptogenic organizing pneumonia.

EFFECT OF INHALED ANTICHOLINERGIC DRUG ON INTRAOCULAR PRESSURE IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Pandey Amit Kumar, Chaudhri Sudhir, Kumar Anand, Verma Sanjay, Kumar Avdhesh, Khan Pervez and Mohan Shalini

Introduction: Anticholinergic drugs are known to precipitate acute attacks in patients at high risks or established glaucoma. Whether inhaled anticholinergic drugs are also risky to precipitate glaucoma is not mentioned in literature.

Material and Methods: In this prospective study, 138 patients of chronic obstructive pulmonary disease (COPD) were selected, 28 patients were excluded because of having Pseudoaphakia, Aphakia, or hypermature senile cataract. Remaining 110 patients were grouped in study group, 70 pts and study group of 40 patients. Study Group were prescribed combination of formoterol and fluticasone twice daily and Long Acting Anti muscarinic agent Tiotropium (LAMA) 18 micrograms once in a day. The controls were prescribed Formoterol (LABA) and fluticasone only. Both eye general ophthalmic examination, Gonioscopy and baseline Intraocular pressure (IOP) measurements were done in all patients before start of therapy. Intraocular pressure was recorded 2 hours after first dose of Tiotropium and thereafter, weekly for four weeks.

Observation and Results: Mean Increase in intra ocular pressure (IOP) in study group patients at the end of 28th day in right and left eyes respectively were 1.770 ± 2.186 mmHg and 1.823 ± 2.262 mmHg while in control group it was 0.530 ± 1.452 1.414mmHg and 0.438 ± 1.749 mmHg. Among study group, 13 patients had narrow angle and 57 patients had open angle at gonioscopy. Among 13 patients with narrow angle, mean rise of IOP was maximum at 28th day and values were 3.25 ± 2.3 and 3.52 ± 2.2 mmHg in right and left eyes respectively and in 57 patients with open angle the mean rise of IOP was maximum at 28th day, was 1.445 ± 1.31 and 1.465 ± 1.25 mmHg respectively.

Mean change in intraocular pressure (IOP) was more in female population (2.18 ± 1.76 right eye and 2.21 ± 1.46 left eye) than in male population (1.60 ± 1.71 right eye , 1.66 ± 1.72 left eye) in study group .

Conclusions: Inhaled anticholinergic drug tiotropium may lead to small increase in IOP which is more prominent in patients with narrow angle. Gonioscopy and IOP should be mandatory before prescribing Tiotropium.

PREVALENCE OF PULMONARY TUBERCULOSIS AMONG RESPIRATORY SYMPTOMATIC SUBJECTS IN PATIENTS PRESENTING IN THE OUT PATIENT CLINIC AT A TERTIARY HEALTH CARE CENTRE IN ROHILKHAND REGION

Pushpender Singh, Sanjay Bansal, V K Tiwari, Rajat Agarwal

Introduction:

India has the highest burden of TB in the world, an estimated 2 million cases annually. This accounts for approximately one fifth of the global incidence of TB. It is estimated that about

40% of the Indian population is infected with TB bacteria. It is also estimated by the World Health Organisation (WHO) that 300,000 people die from TB each year in India.

Aims and objectives:

To determine the prevalence of pulmonary tuberculosis among respiratory symptomatic subjects in an out-patient primary health unit.

Methods

A prospective study was conducted in the department of pulmonary medicine, Rohilkhand Medical College and Hospital, Bareilly. The suspected patients were subjected to a complete set of detailed history and examination. Socio-demographic data were collected during the history examination. The RSI (respiratory symptomatic individuals) provided sputum specimens for detection of acid fast bacilli. The patients' sputum was examined under a fluorescent microscope using an auraminerothamine stain in the RNTCP certified designated microscopy centre (DMC) laboratory by the experienced lab technicians.

Results

Among the 110 patients with reported respiratory symptoms studied for more than two weeks were enrolled into the study from November 2014 to November 2015. Amongst the cases studied 30 individuals reported positive for AFB(acid fast bacilli) on sputum smear microscopy.

Conclusions

The prevalence of pulmonary tuberculosis is high in the Rohilkhand region. The patients who present with the respiratory symptoms esp. with the cough with expectoration for more than 2 weeks with lesions on the chest x ray should be considered for pulmonary tuberculosis on priority basis so as to initiate the treatment as soon as possible and to minimize the risk of spread of the infection.

TUBERCULAR SUBMANDIBULAR ABSCESS : A RARE PRESENTATION IN 2 YEAR OLD GIRL

Jyoti Bajpai ,Surya Kant, Ved Prakash, Ajai Verma, Anand Srivastava, DK Bajaj

Tuberculosis is still a grave problem in developing countries. There is a slight reduction in incidence in developed countries owing to increased awareness towards hygiene and nutrition. Incidence of tubercular submandibular abscess is low. Only few cases of tubercular submandibular abscess in children reported in literature. In majority of cases of tubercular salivary gland, the parotid is the commonest to be affected. Here we report a case of two year

old a baby girl with non healing multiple submandibular abscess as a primary tuberculosis that proved diagnostically challenging. Baby responded well to five drug antitubercular therapy

TUBERCULOSIS OF THE AZYGIOUS LOBE: A RARE CASE

Saurabh Karmakar, Ahbab Hussain, Kashif Raza, Rajendra Prasad

Background

The azygous lobe is located at the apicomedial portion of the right lung and is separated from the remainder of the upper lobe by a fissure. The azygos lobe is usually an incidental finding in chest x ray PA. Although pulmonary tuberculosis is common in India, involvement of the azygous lobe has never been reported in literature to the best of our knowledge.

Case

A 71 year old man was admitted with history of fever for 3 months, loss of appetite and weight for 2 months and hemoptysis since 3 days. He was an ex smoker and rest of history was insignificant. Chest X Ray PA view showed an azygous lobe, otherwise was normal. To determine the cause of hemoptysis, an HRCT thorax was done and it revealed an azygous lobe with nodular opacities and ground glass appearance with thickening of the lobe. Fibreoptic bronchoscopy was done and bronchoalveolar lavage was done, which revealed Acid Fast Bacilli on smear.

Results

The patient was started on 4 drug ATT and hemoptysis and constitutional symptoms resolved, on follow up.

Conclusion/Clinical Relevance

This is a rare case of pulmonary tuberculosis affecting the azygous lobe. The patient presented with a normal chest x-ray PA view. Chest x-ray is normal in 15% patients of pulmonary tuberculosis. The involvement of the azygous lobe was evident on CT thorax. CT thorax is a sensitive modality of investigation for pulmonary tuberculosis when chest x-ray is normal.

STUDY OF DRUG RESISTANCE IN PATIENTS OF TUBERCULOSIS WITH TYPE II DIABETES MELLITUS

Mriganka Madhab Misra, Ravi A. Dosi, Madhav Ch. Misra

Introduction: The growing prevalence of diabetes in India poses a challenge for tuberculosis control as uncontrolled diabetes leads to a great problem in treatment of tubercular patients.

Aims and Objectives:

A prospective study of the prevalence of drug resistance in patients of tuberculosis with diabetes.

Material and methods:

The study was done on 77 subjects in Dept. of TB and Chest diseases, SAIMS over the past one and half year, who were diagnosed tuberculosis and were also known or newly diagnosed cases of diabetes.

Sputum AFB c/s and/or line probe assay was done for all the patients.

Observation:

Amongst the 77 cases, we had 40 known cases of diabetes who were on medications and 37 cases newly diagnosed with T2dm after doing fasting, post prandial blood sugars and glycosylated hemoglobin.

Out of the 40 known cases of diabetes, 22 were on OHA's alone, 11 were on insulin alone and 7 cases were on both OHA's and regular insulin. All the 40 cases were sputum smear positive for AFB.

Of the remaining 37 cases who were recently diagnosed with diabetes, 24 were sputum smear positive for AFB while the rest 13 were sputum negative.

Drug resistance was seen in 9 out of the 77 cases of TB, of which 7 belonged to the category of known diabetics and 2 belonged to the group of newly diagnosed diabetics. 6 of the cases with drug resistance were on OHA alone and 1 of them was on regular insulin but not taking properly.

34 of the 40 known cases of diabetes had extensive disease while the disease was extensive in only 18 of the 37 newly diagnosed diabetics. Secondary infection was seen in 56 cases with wbc counts ranging from 16,000 to 29,000.

MALE BREAST CANCER: AN UNCOMMON CAUSE OF DYSPNEA

Ankit Mishra

Like other "Orphan" diseases, Male Breast Cancer is understudied, compared to its female counterpart, though its incidence is increasing.

A 60-year-old farmer presented with gradually progressive breathlessness of six months duration. The patient also had bouts and cough with mucoid/watery sputum of a similar duration. Weakness and loss of weight was noticed by the relatives of the patient. Attention of examiner was drawn to blood spots on clothes worn over the chest. The patient was a bidi smoker for last 40 years (80 pack-years) and also consumed country liquor. Clinical examination revealed mild pallor and right axillary lymphadenopathy. A non-tender hard indurated ulcer with everted edges surrounding right nipple was seen with puckering of skin in the right axillary area. Bilateral patchy crackles and expiratory wheeze was present. Chest roentgenogram showed features consistent with lymphangitis carcinomatosa. The cytological smear from ulcer margin showed highly atypical epithelial cells, at some places arranged in gland like structures. Cell showed increased nuclear/cytoplasmic ratio, hyperchromatism, pleomorphism and prominent nucleoli. FNAC of the lymph node showed malignant cells. A diagnosis of carcinoma male breast (Right) with carcinomatous deposits in Axillary LN was established.

This report establishes the utility of a thorough clinical examination and more awareness for timely detection of a rare disease like MBC, offering the possibility of a cure by early surgical intervention/hormonal manipulation.

National initiatives are increasingly needed to improve information and support for male breast cancer patients.

PREVALENCE OF TUBERCULOSIS DISEASE AND INFECTION AMONG HOUSEHOLD CHILDREN OF ADULT MDR TB PATIENTS

Farzana K Beig, Rufaida Mazahir, Zuber Ahmad

Background:

There are no valid estimates of how many children are sick with drug resistant TB (DR-TB). One readily identifiable population of children is the household contacts of an adult with MDR-TB. With a limited access to MDR TB treatment, a large population of children experience chronic exposure to infectious adult cases. This study is therefore undertaken for estimating the burden of tuberculosis in household child contacts of adult MDR patients.

Objective:

To find out the prevalence of tuberculosis disease and infection among household children of adult MDR TB patients.

Methods:

We conducted a hospital based prospective observational cohort study, at Pulmonology & Infectious disease clinic, Department of Paediatrics Jawaharlal Nehru Medical College and Hospital, Aligarh Muslim University, Aligarh over a period of 1 and 1/2year (from January 2014 to August 2015). We estimated the prevalence of tuberculosis disease and infection at the time of enrolment of index case.

Results:

Among 80 child contacts of 21 adult MDR patients, 9 were found to be diseased at the time of initial screening, and 19 were infected but not diseased. The prevalence of disease was 11.3% (11,250 per 100,000 child contacts) which was higher in ≥ 6 year age group, 15.7% (15,686 per 100000 child contacts) compared to 3.4% (3,448 per 100000 child contacts) in under 6 year age group, difference being insignificant. Prevalence of infection was 23.8% (23,750 per 100,000 child contacts) which was significantly higher in ≥ 6 year age group. (P value-0.027) Disease was found to be significantly higher among first degree relatives (P value-0.023) and those who were severely malnourished (P value-0.013).

Conclusion

Household children are at an increased risk of developing tuberculosis. These results highlight the need for early detection of TB in household contacts of MDR-TB with a high risk group.

A CASE OF FUNGATING GROWTH PRESENTING WITH HEMOPTYSIS & DYSPNEA

Ankit Mishra

This is a case of 40 year old chronic smoker and alcoholic male presented with one year of progressively increasing swelling on right side of neck followed by progressive dyspnea, dysphagia and another swelling below first one after about six months and hemoptysis since one month. To start with both the swellings were painless but later became painful. Dysphagia was more with solids. Hemoptysis increased in right recumbent position.

He was treated case of pulmonary tuberculosis, took treatment for 9 months 5 years back. He belongs to low socioeconomic status, carpenter by profession.

On examination, first cervical swelling was 7X4cm & another 6X3cm, tender, smooth, hard and fixed to underlying structures, without any fluctuation, in right anterior triangle. It was not mobile with swallowing, breathing or protrusion of tongue. Patient had poor oro-dental hygiene. Respiratory system examination was unremarkable except left tracheal shift. IDL revealed growth involving aryepiglottic folds, arytenoids. FOB also revealed fungating irregular growth in the hypopharynx more on right side involving both aryepiglottic folds. It could not be advanced beyond the growth because of narrowing. Biopsy was taken which turned out to be squamous

cell carcinoma. CECT was done to ascertain extent and local spread of growth. FNAC-cervical lymph node confirmed the presence of deposits of squamous cell carcinoma.

To conclude the patients presenting with hemoptysis having H/O ATT in the past are usually labelled to be of pulmonary origin but a vigilant mind, meticulous history, systematic examination & appropriate investigations can clinch the diagnosis.

ECG AND ECHO CORRELATION IN COPD PATIENTS IN TERTIARY HEALTH CARE CENTRE

Mriganka Madhab Misra, Ravi A. Dosi, Madhab Ch. Misra

Objective - To observe correlation in ECG and ECHO findings with COPD severity.

Methods- A prospective study of 80 patients over a period of 7 months Jan 2014 to July 2014 are recruited at Sri Aurobindo Institute of Medical Sciences, Indore in Dept of Pulmonary Medicine and detailed history, clinical evaluation, spirometry, 2D Echo & ECG obtained.

COPD severity is categorized based on GOLD Guidelines and data were analysed by Fisher's Exact Test and $p < 0.05$ considered significant.

Results-We found that maximum number of patient was of grade 2 (42.50%) among which significant association between presence of P pulmonale and COPD grading was observed. ECG changes (P pulmonale) were observed.

Grade 1 COPD 0% of patients was having P pulmonale while in

Grade 4 91.66% of patients were having the same. ($P < 0.001$)

Significant association with echo findings were observed that maximum Grade 4 COPD pts were having moderate PAH. ($P < 0.007$) while Cor pulmonale was present in 50% of cases in grade 4 COPD ($p < 0.005$)

Conclusion-Stages of COPD are significantly proportional to ECG changes & Echo findings in COPD pts. & consider as a non invasive and easily available screening tool.

EXTRAPULMONARY MULTIDRUG RESISTANT TUBERCULOSIS PRESENTING AS PSOAS ABSCESS –A RARE CASE REPORT

Vipul Kumar, K B Gupta, Ritu Aggarwal

Even though the prevalence of pulmonary drug resistant tuberculosis is showing an increasing trend globally, only a few case reports of extra-pulmonary tuberculosis caused by drug resistant mycobacteria have been documented over the last decade. Extra-pulmonary tuberculosis is not infrequent and may cause considerable morbidity and mortality. Psoas abscess is an important disease with subtle and often non-specific presentation that frequently provides a diagnostic challenge. We report a case of tuberculous psoas abscess caused by multidrug-resistant *Mycobacterium tuberculosis* in an immunocompetent host. Ten year old female child presented to the hospital with swelling on back just above the buttocks on left side. The swelling was gradually increasing in size over last two months. Patient had history of anti- TB treatment twice in the past. Ultrasound revealed psoas abscess which was drained and pus was sent for AFB culture and Drug Sensitivity testing by Cartridge Based Nucleic Acid amplification Test (CBNAAT). Pus was found to be resistant to Isoniazid and Rifampicin making the diagnosis of MDR psoas abscess. Patient was registered under PMDT program and started on Cat IV regimen.

Conclusion: This case stresses on the need for proper investigations, not only routine bacterial culture of Pus but mycobacterial culture and sensitivity of aspirate, especially when patient had past history of anti-tubercular chemotherapy, keeping in mind the chance of MDRTB.

FACTORS AFFECTING THE TREATMENT OUTCOMES AMONGST ISONIAZID RESISTANT PATIENTS UNDER RNTCP

Ankita Rastogi, Aanchal Singh, Anuj K. Bhatnagar

Objectives – To study the factors affecting treatment outcomes in Isoniazid resistance pulmonary tuberculosis patients treated under the RNTCP

Methodology – A retrospective plus prospective study was conducted at RBIPMTDR TB Centre, Delhi and its feeder chest clinics in 65 MDR- PTB suspect patients testing Isoniazid resistance by LPA, from 1st October 2012 to 30th September 2013 who were treated and followed up till their outcomes. Patients were grouped into successful (cured or treatment completed) and unsuccessful outcome group (failure, switched to MDR or died)

Findings – Out of 65 patients, 69.2% (45) had unsuccessful outcomes [13.8% (9) switched to MDR treatment, 47.7% (31) failure and 7.7% (5) died] and 30.8% (20) had successful outcomes [29.2% (19) cured and 1.5% (1) treatment completed]. Prior history of tuberculosis [present in 75% (15) successful, 70% (28) failure and 80% (4) death outcomes], family history of tuberculosis [present in 30% (6) successful, 22.5% (9) failure, 80% (4) death outcomes {p value = 0.029}], low mean BMI [at diagnosis 18.60 ± 1.91 in failure group reduced to 17.56 ± 2.14 at the outcome {p value = 0.001} and 19.96 ± 1.33 in successful outcome group increased to 20.72 ± 1.56 at the outcome {p value = 0.001}] and high sputum AFB smear grade (2+ and 3+) [present in 30% (6) of successful, 67.5% (27) failure and 80% (4) of death outcomes {p value = 0.012}] significantly increase the risk of unsuccessful outcomes in this subgroup of patients. Age,

gender, smoking status and history of alcohol intake made no significant difference in the treatment outcome.

PREVALENCE OF HIV INFECTION AMONG NEWLY DIAGNOSED TUBERCULOSIS CASES -A STUDY FROM A NORTH INDIAN TERTIARY CARE HOSPITAL

Ritu Aggarwal, Priyanka Yadav, Uma Chaudhary, Vipul Kumar

Newly diagnosed TB cases are approximately 19 times more likely to be co-infected with HIV than those without TB. Together TB and HIV infection form a very grave public hazard. Tuberculosis is curable in HIV but mortality rate is high among co-infected cases. Globally 14.8% of TB cases have HIV co-infection, in India 5% of newly diagnosed TB cases are HIV co-infected. Both infections have negative impact on each other. Therefore, retrospective analysis of the one year data (Jan-Dec 2014) was done at ICTC, Microbiology Department PGIMS, Rohtak to detect HIV infection among confirmed TB cases. Testing for HIV infection was done as per NACO guidelines. Total number of samples tested at ICTC in the year 2014 was 26,277 and of which 1020 were newly confirmed TB cases. Forty (3.92%) TB cases were found to be TB reactive. Co-infection rate was higher among males (4.12%) than females (3.59%). The high preponderance of HIV TB co-infection i.e. 7.45% was found among patients aged 25-34 yrs. Though our study shows low prevalence of HIV infection among TB patients, still a strong coordination between the national TB and AIDS control programs is required for the early detection and effective management of HIV –TB patients.

PULMONARY EMBOLISM FOLLOWING VARICELLA INFECTION

A S Sandhya, K B Gupta, Brijesh Prajapat, Pradeep Kumar, Aashutosh Asati, Deepak Tayal

A 20 year old immunocompetent male patient presented with breathlessness, cough and hemoptysis. Patient was being treated for varicella zoster infection before presentation. On examination patient was hypoxic, hypotensive and in respiratory distress and was managed with oxygen, vasopressor support and antibiotics. Chest Xray revealed right lower zone homogenous opacity, cardiomegaly and bilateral hilar prominence. ECG revealed tachycardia with right axis deviation. There was swelling over left leg. Venous Doppler showed thrombus in left common femoral, superficial femoral, deep femoral and popliteal vein. CT pulmonary angiography showed thrombus in bilateral pulmonary artery. Patient was immediately thrombolysed following which there was improvement in his oxygenation and hemodynamic status.

Discussion: Pulmonary embolism is a rare but serious complication of varicella infection. Endothelial damage and atherosclerosis resulting from varicella infection seems to be the cause of venous thromboembolism in these patients. The varicella virus has specifically been associated with vascular damage in various organs including the lungs, pleura, and brain. Varicella infected endothelium shows enhanced thrombin generation and platelet binding.

Thromboembolic events could also be secondary to transient protein-S deficiency, which has been documented after varicella infection, caused by antiprotein- S antibodies. Due to underdiagnosis epidemiological data regarding the incidence of thromboembolism in Varicella Zoster infection are lacking. Most of the cases have been reported in children till now. High index of suspicion is needed for the diagnosis

Conclusion: Embolic phenomenon should be considered in the differential diagnosis of pulmonary symptoms associated with varicella infection since their early diagnosis and treatment is necessary in preventing mortality.

DILEMMA IN MANAGEMENT OF LUNG CANCER AND PULMONARY TUBERCULOSIS AND THEIR CO-EXISTENCE IN A STUDY IN TERTIARY CARE INSTITUTE

Abhishek Agarwal

Setting:

Lung cancer clinic, Tertiary care hospital, Delhi, India

Objectives:

To determine i) dilemma in the diagnosis and treatment of lung cancer and PTB and ii) Co-existence of Lung cancer and Pulmonary Tuberculosis.

Design:

A retro-prospective cross-sectional study based on detailed interview and review of treatment records of patients consecutively diagnosed with lung cancer which has been confirmed on cytology and/or histology.

Results:

Many patients were illiterate, of lower socio-economic status, with high prevalence of current bidi /cigarette smoking and chronic obstructive pulmonary disease. Less than 20% of patients presented with early stage disease.

Out of total 956 patients 65.5% were misdiagnosed as PTB on initial visit to physician and were started on ATT empirically based on CXR. The total median delay from symptoms to treatment was 124 days, with the highest delay being at the level of general practitioner (median 80 days). 95% of these were in stage IIIB and above (non-surgical stage) and rest were in stage IIIA at the time of presentation.

The co-existence of PTB- lung cancer was only 1.8% (17 of 956 patients). 3 of these patients developed PTB during the course of chemotherapy.

Conclusion:

There are unacceptable delays from symptom onset to initiation of treatment in lung cancer patients in India. Misdiagnosis of PTB is an important contributing factor. These delays need to be shortened to improve the detection of lung cancer at earlier stages. High degree of suspicion of lung cancer should be kept in chronic smokers presenting with respiratory complains. Moreover, in a lung cancer patient presenting with new opacity in chest X-ray, PTB should be ruled out as it may lead to disseminated Tb.

STUDY ON THE PROFILE OF PULMONARY TB AMONG HOUSEHOLD CONTACTS OF MULTIDRUG-RESISTANT TB (MDR-TB) PATIENTS

RAS Kushwaha, Amita Jain, Rajiv Garg, Rajeev Kumar

Introduction: Tuberculosis (TB) - an infectious airborne disease, causing agent of this disease is *Mycobacterium tuberculosis* which is a gram positive bacteria - is a major global health problem. Multi-drug resistant TB is defined as *M.tuberculosis* resistant to Isoniazid and Rifampicin with or without resistance to other drugs.

Methods: In a cross-sectional study, contacts of MDR-TB patients, admitted at DOTS-PLUS, King George Medical University, Lucknow, Uttar Pradesh were traced and clinical, radiological, bacteriological and pulmonary function tests were performed for evidence of TB infection and active disease.

Results: Between December 2013 and December 2014, *100 index MDR-TB patients could be traced. Of 180 contacts who could be studied, 20 developed TB: 10 had pulmonary and 8 had extra pulmonary disease; 2 had MDR-TB. Of the 180 contacts, The most common symptoms observed were cough, chest pain and fever.*

Conclusion: The most of contacts of MDR-TB patients had drug-susceptible TB and the rate of MDRTB was very low. Evaluation of contacts of MDR-TB cases may lead to early diagnosis and prevention of TB.

SITUS INVERSUS - A CASE SERIES

Satish

Background :

Situs Inversus is an autosomal recessive condition affecting one in 10000 live birth. Most of the cases of situs inversus are asymptomatic. Being a congenital disorder it is also associated with other congenital abnormalities in many cases

Case :

We are presenting a series of three cases of situs inversus. Two of these cases are having associated Kartagener's syndrome and the third case has an abnormal association of post axial polydactyly, short digits, short and wide nails along with right sided pleural effusion.

Conclusion :

Kartagener's syndrome with complete situs inversus is rare association. The presence of polydactyly and short digits with situs inversus is also a very rare presentation. A comparative analysis of these 3 cases with situs inversus will be performed in this presentation.