ROLE OF SPIROMETRY IN EARLY DIAGNOSIS OF COPD AMONG SMOKERS

P. Thanasekaran

AIM OF THE STUDY:

To assess the role of Spirometry in early diagnosis of COPD among asymptomatic male smokers.

IMPACT OF COPD ON PATIENTS:

* COPD is costlier disease than asthma
* COPD is usually not diagnosed until it is clinically apparent and moderately advanced
* COPD limits normal physical activities
* COPD has less attention both by patients and doctors

HOW TO DIAGNOSE?

COPD is diagnosed by clinical signs and symptoms/X-Ray and CT scan chest/Spirometry and other lung functions tests. Spirometry detects the presence of mild airflow obstruction 5 to 10 years before the symptoms become suspicion of COPD in smokers.

BACKGROUND OF THE STUDY

* We did spirometry test for all the asymptomatic participants in our respiration care centre- Pudukkottai-Tamilnadu state
As per guidelines, we did pre and Post bronchodilator Spirometry test for all participants with short acting inhaled b2 agonist 400 mcg after 15 minutes

Results were Analysed according to the gold guidelines of classification of severity of COPD

CONCLUSION:

* Spirometry **should be included in all complete health checkups** especially for smokers to diagnose COPD even if they are asymptomatic

* Spirometry plays key role in early diagnosis/staging/prognosis of COPD

* these COPD diagnosed asymptomatic smokers should be counselled for quit smoking and to be **managed as per gold guidelines**

Treatment outcome of Multi Drug Resistant Tuberculosis patients in Modified DOTS-PLUS: A new strategy-two years experience

Prasad R, Singh A, Srivastava R, Kushwaha RAS, Garg R, Verma SK, Jain A

**Background:** Multi Drug Resistant Tuberculosis is a worldwide problem and growing hazard to human health with notoriously difficult and challenging treatment. The study has been framed to know the treatment outcome with second line drugs in patients of MDR-TB in modified DOTS-PLUS strategy.

**Methods:** A prospective cohort study analyzing 98 consecutive patients with MDR-TB attending the Dept of Pulmonary Medicine, CSMMU, between June 2009 to Feb 2010 with follow-up till February 2012. All the patients were given medications free of cost as per DOTS PLUS Protocol of Revised National Tuberculosis Control Programme (RNTCP). Treatment included monthly follow up, adherence check up, radiological and bacteriological assessment (sputum smear advised monthly till conversion then quarterly; culture for MTB at 0,4,6,12,18,24 months), intense health education and monitoring of adverse effects. Patients' outcome considered as 'cure' when at least 2 of the last 3 cultures were negative and as 'failure' when the same were positive.

**Results:** All the patients had resistance to at least Isoniazid and Rifampicin with mean no. of 3.02 drugs and were seronegative for HIV. Default rate at the end of 6 months and 24 months were observed to be 2.1%, and 7.1% respectively. 10 (10.2%) patients expired at the completion of 24 months of treatment. Mean smear and culture conversion time were 3.4 ± 2.1 months (1-11) and 4.6 ± 2.5 months (4-12) respectively. Sputum smear and culture conversion at the end of 24 months were 75/81 (92.5%) and 71/81 (87.7%) respectively. Only 10 (10.2%) patients remained culture positive at the end of treatment. 15 patients were considered to be XDR suspect (culture positive at the end of 6 months) of which only 2 of
them were proved to be XDR-TB bacteriologically. Major adverse reactions were experienced in 17.4% patients.

**Conclusions:** - Mean smear and culture conversion times were $3.4 \pm 2.1$ months and $4.6 \pm 2.5$ months respectively. Smear and Culture conversion rate at the end of 24 months was 92.5 and 87.7% respectively. Only 7.1% patients defaulted and 10.2% patients expired at the end of 24 months. 17.4% experience significant adverse drug reaction.

**Clinical Implications:** - MDR TB can be cured successfully with appropriate combination of drugs for an adequate duration and requires much effort from both the patients and health care workers. There was no significant difference between smear and culture conversion rate at 24 month. Modified DOTS-PLUS strategy can be model for treatment of MDR-TB in private sector.

**ISOLATED HEPATIC TUBERCULOSIS : A CASE REPORT**

Jai Kishan, Vishal Chopra, Parul Mrigpuri

**INTRODUCTION**

Tuberculosis (TB) is one of the most wide spread diseases worldwide. Hepatic involvement has been described in 90% of miliary TB, 75% of extra-hepatic TB and 25% of pulmonary TB. However, isolated hepatic TB without disseminated disease is rare. We report a case of isolated hepatic TB that was otherwise asymptomatic and incidentally diagnosed on liver biopsy taken during elective cholecystectomy.

**CASE REPORT**

A 50 year old female was referred to us with no complaint. An elective cholecystectomy was done in the patient a few days back and the operating surgeon while performing the surgery noted unhealthy areas of the liver and took the biopsy from the same. The histopathology report showed it to be a granulomatous pathology with presence of caseation. There was no history of fever, night sweats, loss of appetite or weight loss. She was however a known diabetic and on treatment for five years. On the basis of histological features, diagnosis of hepatic TB was made and the patient was treated with anti-tubercular therapy (DOTS) Cat I regimen. Patient tolerated it well and is on follow up.

**DISCUSSION**

Involvement of liver in tuberculosis can occur in a variety of forms. Tuberculosis is well-known for its ability to present with myriads of manifestations, sometimes challenging acumen of astute physicians. But seedling of liver tissue with TB without producing any notable symptom can occur without any clinical feature; the pathological significance of which should be explored.
The incidence of tuberculosis is sharply rising in developing and developed countries and rare extrapulmonary manifestations pose challenges in clinical practice. Breast tuberculosis is a rare clinical entity with incidence ranging from 0.1% in developed countries, to 0.3 – 5% in endemic regions. Clinical examination usually fails to differentiate breast tuberculosis from breast carcinoma. Mammography is of limited use since the findings are often indistinguishable from a malignancy. Histopathological features and a high index of clinical suspicion are necessary to confirm a diagnosis.

We report the case of a 28-year-old woman with tuberculosis of the left breast who presented to us with painless swelling and redness in the subareolar area. Nipple retraction and nipple discharge were seen. A firm lump was palpable in the same region on clinical examination. Mammography revealed a diffuse dense appearance due to edema. Acute inflammatory exudates dominated in FNAC. Her clinical diagnosis was confirmed by molecular detection of *Mycobacterium tuberculosis* complex by polymerase chain reaction and she was started on category – I treatment under RNTCP to which she responded well. Thus, concluding that although the presence of an acid-fast stain or culture is essential to confirm diagnosis, it does not give a positive result in most patients. Molecular detection of *Mycobacterium tuberculosis* by polymerase chain reaction can be useful in the validation of a diagnosis particularly in clinical settings where the diagnosis is uncertain.

Prevalence of Diabetes-Type-2 & Pulmonary Tuberculosis in Filipinos and Treatment Out Comes: A surveillance study in Eastern Saudi Arabia.

Liaqat Ali Chaudhry

Objective

To study prevalence of diabetes type-2 and pulmonary tuberculosis among Filipino patients and treatment out comes. Tuberculosis centre of Dammam medical complex (MOH) is a referral centre for the Eastern Saudi Arabia where patients from all government and private hospitals having open pulmonary tuberculosis are admitted for isolation till they are rendered noninfectious. All patients are treated for 6 months under DOTS strategy with 4 drugs (2HRZE) for 2 months as initial intensive phase and 2 drugs (HR) for 4 months as continuation phase.

Material and Methods

We retrospectively reviewed clinical records of 1388 patients admitted with open pulmonary tuberculosis between Jan- 2003 and June-2010.
Results
Among 1388 patients, 39% \((n = 542)\) were Saudis and 61% \((n = 846)\) were non-Saudis. Among these 12.39% \((n = 172)\) were Filipinos, 153 males and 19 females respectively. Out of 1388 patients, 114 \((7.17\%)\) were found to have diabetes type-2. Among these diabetics, majority \(n = 91\) \((79.82\%)\) were Filipinos. Sputum conversion was late in diabetic patients resulting in relatively longer hospital stay compared to fellow patients having only tuberculosis.

Conclusion
Our study has shown that one possible risk factor for tuberculosis is diabetes. Majority of TB patients having diabetes type-2, \(n = 91\) \((79.82\%)\) were Filipinos. Their sputum conversion was relatively late and their hospital stay was longer than their fellow patients having only tuberculosis. Our findings are in agreement with the current literature on the correlation of diabetes and tuberculosis.

Three fascinating cases of disseminated tuberculosis in my 30 years practice
Liaqat Ali Chaudhry

a-Miliary tuberculosis with unusuall paradoxical response at 3 weeks of antiTB treatment.

b-clinical consequences of non-compliance to directly observed therapy short course (DOTS): Story of a recurrent defaulter.

c-Paraplegia is not a diagnosis: spinal tuberculosis deserves a place on the clinical radar screen:Awakening call to clinicians.

Method of Controlling TB through Human Rights as a Tool
Raj Kumar

Tuberculosis is believed to be an ancient disease. Evidence from history revealed that various tools have been used as a method of Controlling Tuberculosis. Touching the king’s feet was very famous and widely prevalent tool for the cure of the ‘King’s evil’. The quackery was also prevalent for the treatment of the ‘King’s evil’. Sanatorium system was started in mid 19th century for tuberculosis treatment. The use of medicines was started as a
very effective tool for controlling tuberculosis after discovering anti-tuberculosis treatment in 5th decade of 20th century. Number of countries are using only medical approach for controlling tuberculosis but only few of them have made the law for the same purpose so far. This paper starts with the nature and scope of the tuberculosis problem and goes on the methods of tuberculosis control which have been used in the past to combat against tuberculosis. The principle objective of this paper is to explore the importance and role of human rights in controlling tuberculosis. Finally, paper concludes with the emphasis that Human Rights may be used as a supportive new tool for controlling tuberculosis.

BACTERIOLOGICAL PREVALENCE OF PULMONARY TUBERCULOSIS BY SYMPTOMS & MMR SCREENING IN DISTRICT WARDHA, MAHARASHTRA.


Background: A door to door survey was conducted to find out the bacteriological prevalence of Pulmonary TB from April 2007 to April 2009.

Methods: Total registered population from fifty four clusters was screened by symptoms and MMR. Persons symptomatic for PTB or with history of anti-TB treatment or abnormal shadow on x-ray were eligible for sputum examination for MTB by microscopy and culture. Two sputum samples were collected from each eligible person. Persons with one or both sputum specimen positive on microscopy and/or culture were labeled as case of PTB.

Results: Out of the total registered 55,033 population of ≥15 years of age, 50,350 (91.5%) were screened by MMR and sputum collection was 82.26%. A total of 95 cases were detected as bacteriologically positive either by smear, culture or both, out of which, 64 (67.36) cases were detected by the symptom screening and additional 31(32.6%) cases were picked up only on the basis of X-ray shadow. Out of these, total smear positive were 63 (66.3%) and culture positive 67 (70.52 %). Culture detected 37.2% cases that were smear negative.

The prevalence of bacillary tuberculosis based on symptoms alone was 219/100000 population, being 225 in rural and 172 in urban areas. However, the overall prevalence of bacillary tuberculosis corrected for sputum and X-ray coverage was of the order of 221/100,000, with 225/100,000 in rural and 172/100,000 in urban area.

Conclusion: For bacillary tuberculosis, x-ray along with the symptoms is a better determinant as compared to symptoms alone as extra bacillary yield from X-ray positives alone was 32.6%.
KNOWLEDGE, AWARENESS AND PRACTICE OF SCHOOL STUDENTS IN PUNJAB AND IMPACT OF BRIEF LECTURE ON TUBERCULOSIS IN THE SCHOOL OF DISTRICT PATIALA

SHANDHRA, JAI KISHAN

OBJECTIVE:
To assess the knowledge, awareness and practice (KAP) about Tuberculosis in school children and to see impact of brief lecture on tuberculosis on KAP

MATERIAL AND METHODS: 680 students of age 12-18 years and class 8th to 12th were included in the study. 251 and 429 were from rural and urban schools respectively. All the students were given a questionnaire to assess their KAP of tuberculosis and their performance was marked in numbers. After initial assessment a brief lecture regarding the symptoms, diagnosis, management, spread and prevention tuberculosis was given. They were asked to attempt the same questionnaire again. Initial and later scores were compared.

RESULTS: The initial scores and improvement in score after brief lecture in rural and urban schools and as per their gender is as per table given below-

<table>
<thead>
<tr>
<th>SEX</th>
<th>DEMOGRAPHY AND MEAN SCORE</th>
<th>RURAL</th>
<th>MEAN SCORE</th>
<th>URBAN</th>
<th>MEAN SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALES</td>
<td></td>
<td>116</td>
<td>24.5/100</td>
<td>190</td>
<td>29.6/100</td>
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<tr>
<td>FEMALE</td>
<td></td>
<td>135</td>
<td>17.4/100</td>
<td>239</td>
<td>20.66/100</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>251</td>
<td>20.95/100</td>
<td>429</td>
<td>25.13/100</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SEX</th>
<th>IMPROVEMENT IN MEAN SCORE AFTER LECTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RURAL</td>
<td>URBAN</td>
</tr>
<tr>
<td>MALES</td>
<td>30.62/100</td>
</tr>
<tr>
<td>FEMALE</td>
<td>26.97/100</td>
</tr>
<tr>
<td>TOTAL</td>
<td>28.79/100</td>
</tr>
</tbody>
</table>

From the above table it is clear that initial score as well as final score was lower in rural schools as well as in females but their scores improved remarkably after lecture.

CONCLUSION: A brief lecture of tuberculosis had a great impact on knowledge and awareness of the students. Lecture on tuberculosis can improve KAP of students. It will be worthwhile to include tuberculosis in curriculum of school children.
BACKGROUND

Interstitial lung diseases (ILDs) are a group of disorders characterized by varying degrees of fibrosis and inflammation of lung parenchyma or interstitium. The near accurate diagnosis of ILD can be made by combining clinical, radiological and pathological findings.

METHOD

The present study was conducted to determine the clinical and radiological profile of ILDs in 22 patients attending the outdoor or indoor setting in Department of Chest and Tuberculosis, Govt. Medical College Patiala. The diagnosis of ILD was based on history, clinical findings, high resolution computerized tomogram (HRCT), pulmonary function tests (PFT) and other relevant investigations.

RESULTS

16 patients were female and 6 were male. Cough(86%) and dyspnea(68%) were the most common complaints among these patients followed by fever(50%) and chest pain(14%). 17 patients gave history of exposure to some organic or inorganic material either at home or at work place. On clinical examination 77% patients were having Velcro type crepitations on auscultation and 50% patients showed clubbing. The chief findings on chest X-ray were reticulonodular shadows seen in 13 patients followed by consolidation(4), nodular shadows(3) and mediastinal widening(2). Collagen profile was abnormal in 6 patients.

HRCT showed honey combing(36%) as the predominant pattern followed by UIP(27%), GGO’s(18%) and septal thickening(5%).

CONCLUSION

A good clinical history, HRCT and serological investigations based on clinical suspicion may help us to reach at the diagnosis of ILD and its cause even without undergoing any invasive procedure for histopathological diagnosis.

OCCUPATIONAL LUNG DISEASE MIMICKING ASTHMA – A CASE REPORT

A.P.Kansal, Komaldeep Kaur, Gopal Chawla, Kamal Deep

INTRODUCTION
Hypersensitivity pneumonitis or extrinsic allergic alveolitis can be defined as a lung disease caused by a wide group of antigens that reach the lung by inhalation of organic and/or inorganic dust of various sources. Early diagnosis of Hypersensitivity pneumonitis is important because the cornerstone of therapy is antigen avoidance and depends upon the extent of lung damage at the time of diagnosis.

CASE REPORT

A 70-year-old non-smoker male, came to us with 2 months history of exertional dyspnea, dry cough, fever, weight loss and malaise. He was a farmer by occupation and was on inhalational therapy for asthma. Chest auscultation revealed bilateral basal fine crepitations. CXR showed fine reticular shadows in all zones. Spirometry denoted an obstructive pattern. HRCT revealed patchy areas of GGOs, intralobular septal thickening, traction bronchiectasis and interstitial nodules. Bronchoscopy showed a lymphocytic predominant BAL fluid. Histopathological findings on TBLB were suggestive of chronic hypersensitivity pneumonitis. A diagnosis of chronic hypersensitivity pneumonitis – Farmers lung was made and patient was started on corticosteroids and bronchodilators and was advised avoidance of the provoking factors. After 2 months of follow up, breathlessness decreased but still persisted.

DISCUSSION

A careful environmental and occupational history and establishment of exposure to a known inciting antigen are key factors in making the diagnosis of HP. Continued exposure to the unidentifiable antigens or prolonged exposure to antigens, or both, lead to chronic hypersensitivity pneumonitis and irreversible fibrosis that may not respond to any treatment regimen.

RADIOLOGICAL MANIFESTATIONS OF IMMUNOCOMPROMISED PATIENTS IN PULMONARY TUBERCULOSIS

A.P. Kansal, Amitesh Gupta, Naresh Kumar

BACKGROUND

Diabetic and HIV positive patients are considered as a high-risk population for the development of pulmonary tuberculosis. Chest radiography is the corner stone of the
diagnostic evaluation of tuberculosis and the disease can present with a variety of chest radiographic findings.

AIM

To assess the various radiological patterns of pulmonary tuberculosis in HIV positive and diabetes mellitus patients with tuberculosis.

MATERIAL AND METHODS

The present study was conducted on 60 patients with HIV and TB and 60 patients with diabetes and TB attending the department of TB and chest, Government medical college, Patiala. The chest radiograph was taken for all the patients and detailed evaluation of the radiograph was done. Sputum AFB stain was carried out to look for pulmonary tuberculosis.

RESULTS

Among the diabetes and tuberculosis group 10% had minimal lesion, 75% had moderately advanced lesion and 15 % had far advanced lesion. In the HIV and TB group 25% had minimal lesion, 25% had moderately advanced and 50% had far advanced lesion. Lower lobe involvement was predominant chest radiography finding in both group of patients.

CONCLUSION

We conclude that HIV positive and diabetic patients with tuberculosis are more likely to present with atypical radiological images hence a high index of suspicion is necessary for the accurate and timely diagnosis of tuberculosis in these patients.

PATTERN OF RESISTANCE TO FIRST LINE ANTI T.B DRUGS AND ADVERSE EFFECT PROFILE OF RNTCP CAT IV REGIMEN IN A RECENTLY SET UP DOTS PLUS SITE

A.P.Kansal, Parul Mrigpuri, Bidhi Chand, Sudesh Kumari

BACKGROUND

Multi-Drug Resistant Tuberculosis (MDR-TB) is a growing hazard to human health world wide and threat to control of tuberculosis. Current estimates report the prevalence of primary and acquired MDR-TB in India as 3.4% and 25% respectively. In1999, WHO and its partners launched the DOTS Plus for MDR-TB initiative to develop global policy on the management of MDR-TB and to enable access to second-line drugs under rational use.

METHOD
Adherence to treatment is a critical factor in the management of MDR-TB, and adverse events associated with second line drugs could have a severe impact on adherence. This study was undertaken to assess the various patterns of resistance among confirmed drug resistant pulmonary tubercular patients and to report the frequency of noted side effects and need to alter the regimen in patients receiving MDR-TB treatment.

MDR-TB patients admitted at DOTS plus site Patiala, Punjab who were put on RNTCP Cat 4 regimen were studied. Out of 60 patients who were enrolled in the study, 40 showed combined resistance to ‘R’ and ‘H’, 17 were resistant to ‘R’ alone whereas only one patient showed resistance to ‘H’ alone. Side effects were noted in 10 patients, however there was a need for treatment alteration in 3(0.05%) patients.

CONCLUSION

Adverse effects do not have a major bearing on adherence to the MDR regimen and if such patients are managed properly, patient’s compliance to these drugs can be better.

Where do people come to know about TB? : A Situational Analysis of TB Patients in the World Vision India led Districts covered under GFATM Round 9 TB Project in the States of Bihar, Chhattisgarh, Jharkhand and Madhya Pradesh

Abhay Kudale, Prashant Kulkarni, Vidula Purohit and Sheela Rangan

Objectives: World Vision India (WVI) and its partners have been implementing Project Axshya in selected districts of West Bengal, Bihar, Jharkhand, Chhattisgarh, Orissa, Madhya Pradesh and Andhra Pradesh with the assistance of Global Fund Round 9 grant to enhance community engagement in Revised National Tuberculosis Control Program (RNTCP) of India. A situation assessment study was conducted among TB patients under Project Axshya with the following objectives:-(1) to document their sources of information on TB and (2) to elicit best ways according to them to provide TB-related information.

Methods: A cross-sectional survey was conducted in 15 selected TB Units in 8 districts of Bihar, Chhattisgarh, Jharkhand and Madhya Pradesh. 419 TB patients registered under RNTCP were interviewed using pilot-tested semi-structured interview schedule.

Findings: 46% TB patients identified public healthcare facilities as their key source of information on TB. Peripheral health workers (18%), television and radio (17%), networks of family, friends and colleagues (13%) were other sources. 17% of respondents had no source of information. 243 out of 419 TB patients suggested the best way to provide TB-related information to the TB patients which is as below: 34%: group meetings in the villages, 6%: patient-doctor meetings and 5%: interactive meetings between patients, DOT providers and people.
Conclusions: To design effective communication activities it is critical to understand the ways in which people receive and desire to receive TB-related information. The findings from this study would hence, contribute to strategic planning of TB communication activities.

A situational assessment study of World Vision India and partners to know about the Tuberculosis (TB) related stigma among TB patients and their communities in difficult to reach and low TB case detection districts of India

Blesson Samuel, Sugata Mukhopadhyay, Sushma Cornelius and Vijay Edward

Objective: Tuberculosis (TB) related stigma continues to remain a serious issue in India. However, documentary evidence on TB stigma is scarcely available. World Vision India along with partners conducted a situational assessment to know about stigma in TB patients including community perspective among those enrolled for treatment in Revised National Tuberculosis Control Program/RNTCP of India.

Methodology of investigation: A cross-sectional study was conducted among 419 registered TB patients in 15 TB units in 8 difficult-to-reach and low TB case detection districts of Bihar, Chhattisgarh, Jharkhand and Madhya Pradesh states of India.

Main Findings: 71% respondents were males. More than 50% of respondents belonged to underprivileged section. 60% respondents did not like others to know about their disease. Similarly there were other issues viz. low self-esteem (47%), loss of respect from the community (26%), avoided by community (15%), stigmatization even while on TB treatment (11%), community having low opinion about the affected families (16%), found difficulties in marriages (47%) and feared problems for their children (19%). However, a majority (87%) felt their spouses were supportive during the course of their TB treatment.

Conclusions and recommendations: These findings call for focused ACSM activities among the TB affected people, their families, communities, leaders and all other stakeholders. Anti-stigma toolkits which are culturally appropriate need to be developed in the local languages. Along with strong political will and advocacy we can foresee a change.

ROLE OF SPUTUM CONCENTRATION TECHNIQUE IN DIAGNOSIS OF SUSPECTED CASES OF SMEAR NEGATIVE PULMONARY TUBERCULOSIS

Urvinder Pal Singh, Pooja Aneja, Kalpesh Patel, Sunil Kumar

Background

Diagnosis of sputum smear-negative pulmonary tuberculosis(TB) patients can be both challenging and time consuming and has become a major clinical problem in developing countries like India. Microscopy of smears made directly from sputum though rapid and inexpensive has a low sensitivity especially among immune-compromised host and there is an urgent need for improved methods geared towards improving yield of the bacilli in the
sputum in resource limited settings. This study was aimed at evaluating the sputum smear concentration technique in the laboratory diagnosis of smear negative pulmonary TB.

Methods

The study was conducted on 100 clinico-radiologically suspected pulmonary TB cases attending Pulmonary Medicine Department of Government Medical College, Patiala. Patients whose sputum for AFB was negative by direct microscopy with on the spot and early morning sample using Ziehl-Neelsen’s method were subjected for sputum concentration technique using Petroff’s method.

Results

A final diagnosis of sputum smear-negative pulmonary tuberculosis was made in 45 patients. Total yield of sputum by concentration method in diagnosis of sputum smear negative pulmonary TB was 45% (45/100).

Conclusion

Hence concluded that sputum concentration significantly improves the laboratory diagnosis of smear negative pulmonary TB. Considering its low cost, decontamination and liquefaction properties with no specialized training and equipment required, this method is safe and can be of vital importance at least for smear negative cases where procedures like bronchoalveolar lavage, culture, etc. are not available.

COMPARISION OF FLUORESCENT MICROSCOPY AND ZIEHL – NEELSEN STAINING IN BRONCHOALVEOLAR LAVAGE, BRONCHIAL WASHINGS, BRONCHOSCOPIC BRUSHING AND POST BRONCHOSCOPIC SPUTUM IN SUSPECTED CASES OF PULMONARY TUBERCULOSIS

Surinder Pal Singh, Pooja Aneja, Aditi, Vidhu Mittal

BACKGROUND

Cases suspected of pulmonary tuberculosis on radiological findings with sputum smear negativity by direct microscopy or cases who are sputum non-producing, need bronchoscopy for obtaining the material for various diagnostic methods. The classical Ziehl-Neelsen staining technique though being rapid and inexpensive has poor overall sensitivity which is further decreased in the setting of HIV co-infection. The aim of this study was to compare the diagnostic value of fluorescent microscopy (FM) with Ziehl-Neelsen (ZN) staining in the diagnosis of tuberculosis (TB).

METHODS

Prospective study was conducted on 75 cases of suspected pulmonary TB with negative sputum smear for AFB who underwent fibreoptic bronchoscopy at GMC, Patiala in department of TB & Chest Diseases to evaluate FM and Z-N staining of bronchoalveolar
RESULTS

FM yielded maximum number of AFB positivity in all types of specimen as compared to Z-N staining. Cases positive with BAL, bronchial washing, bronchoscopic brushing and post bronchoscopic sputum were 38 (50.67%), 19 (25.33%), 19 (25.33%), 36 (48%) by FM as compared to only 6 (8%), 4 (5.33%), 12 (16%), 12 (16%) by ZN staining respectively.

CONCLUSION

It was concluded from comparative analysis that bronchoscopy is a useful diagnostic tool and FM being more effective than ZN leading to diagnosis of 38/75 (50.67%) cases in otherwise sputum smear negative hidden TB cases.

ROLE OF PLEURAL FLUID CHOLESTROL IN DIFFERENTIATING TRANSUDATIVE FROM EXUDATIVE PLEURAL EFFUSION

B.K. Kapoor, Urvinder Pal Singh, Aditi, Kalpesh Patel

BACKGROUND

The Light’s criteria represents the most acceptable method to separate transudates and exudates. However, approximately 10% of patients with transudates, especially those with congestive heart disease, are misdiagnosed with these criteria. To improve diagnostic accuracy, many biochemical markers have been proposed as alternatives to differentiate transudates and exudates. Cholesterol has raised particular interest because only pleural fluid is needed, which makes blood samples unnecessary and simplifies the procedure. The aim of the study was to assess the value of cholesterol level to differentiate between exudate and transudate and to establish its utility as compared with light’s criterion.

METHODS

50 patients with pleural effusion were classified as transudate (10) and exudates (40) clinically and were evaluated. Light's criteria and cholesterol values in pleural fluid of all the patients were measured and compared. The cut off for cholesterol was taken as 45mg/dl.

RESULTS

A cholesterol level of 45 mg/dl or higher best separates exudates and transudates, with a sensitivity of 96% and a specificity of 92%. These results were superior to the criteria proposed by Light et al. (sensitivity 98% and specificity 80%).

CONCLUSION
The cholesterol level in pleural fluid is highly useful parameter to differentiate between exudates and transudates with an accuracy similar to the best that has been reported with the criteria of Light et al. It has the advantages that a contemporary blood sample is not required and that chemical tests are reduced from four to one, thereby, lowering the cost of the diagnostic procedure.

MDR TB : Drug Logistics
Shabna.D.S

Introduction
India accounts for 1/5th of Worlds MDR TB burden. WHO has estimated that 99000 MDR TB cases emerging in India in 2008, largest number of any country globally after China. According to studies 1 to 3% of new cases and 15 to 17% of retreatment cases will be resistant.

A National PMDT committee established in 2005 to develop National guidelines. RNTCP PMDT guidelines published in March 2006.

Procurement mechanism of 2nd line drugs, technical specification, systems of storage, distribution of quality assured drugs etc. developed.

Medicine procured by Govt. of India.

Guidelines for storage of 2nd line drugs have been developed in 2011.

MDR TB diagnostic and treatment services began in 2007 in Gujarat and Maharashtra.

PMDT Vision
By 2011 basic PMDT service in all States.
By 2013 access to laboratories based C&DST and treatment. Atleast 30000 MDR cases on treatment annually.

Guidelines for storage of 2nd line Anti-TB drugs.

Drug store
Storage space based on estimated number of MDR TB patients for whom maximum quantity of drugs stock are to be maintained.

Specification of store.

Large room.
Separate space for storage handling and repacking.
Ceiling with height of 3 mtrs.
A lockable door.
Proper lighting.
Even level VDF floor (Vacuum de watered flooring).
Plastered wall.
Signage board.

Shelves, Rack and Storage arrangements.
5 Rows of shelves one on top of other.

Stacking arrangements.

Name of drugs along with their expiry be indicated on stickers.

Same drug at a single location.

Expired drugs segregated and sealed separately.

Bincards should be there.

Control of Humidity and Temperature.

Monitoring of humidity and temperature by Hydro thermometer.

Control of humidity (< 60%) (a) ventilation by air vent (b) packaging (c) circulation using Fans (d) installation of de humidifiers.

Protection from sunlight by shade windows.

Control of temperature ie., 20 to 25°C by Air conditioners.

Power supply regular by UPS, Solar panel, fuel based generator.

Packaging instructions

Monthly packing, better care for Cycloserine and ethambutol.

Boxes made from weather resistant insulated corrugated material.

Quality Assurance of drugs

Pick up drugs on random basis and ensure quality.

Training of all staff concerned.

Waste disposal as per rules Drugs and Cosmetics act.

Fire safety measures.

Conclusion

The purpose of information provided is to emphasize that the drugs should be stored in cool and dark place for proper efficacy. Experimental data / literature review also reveals that these drugs loose their efficacy beyond 6 months if exposed to stressful storage conditions of 40° ± 2°C temperature and humidity of 75% ± 5% RH.

Management of difficult cases of Cutaneous Tuberculosis

Amar Kant Jha

Among extra pulmonary tuberculosis, cutaneous tuberculosis is common. Usually, it responds to traditional ATT. DOT is not very effective in these cases. Of late, many cases of cutaneous tuberculosis are presenting with atypical manifestations like segmental distribution, associated ulceration and lymphatic involvement. They dont respond to traditional treatment. About 25% of these cases are associated with HIV positivity and low CD4 count. They require higher doses of Rifampicin for longer period (1 to 2 years) along with 3 other drugs for 1 year.
Addition of Clarithromycin, Ofloxacin has additional advantage (they respond more quickly) in cases with CD4 count below 200 respond on ATT along with ART but duration of treatment is again longer (up to 2 years of ATT and prolonged ART).

A total of 60 cases of difficult cutaneous tuberculosis were randomised into 4 treatment groups:
Group A (15 cases): Traditional ATT for 1 year
Group B (15 cases): Traditional ATT for 2 years
Group C (15 cases): Traditional ATT for 1 year with 400mg of Ofloxacin/500mg of Clarithromycin BD for first 3 months
Group A (15 cases): (with HIV +ve & CD4 count below 200) Traditional ATT for 2 years with prolonged ART

Cases were evaluated at months 3, 6, 9, 12, 15, 18, 21 & 24 at the parameter of clinical improvement & laboratory findings.

It was found that response in different groups was as follows:

Cure rate Group A: 52% B: 78% C: 86% D: 78%
Relapse rate in different groups at 2 years of follow-up were
Group A: 36% B: 24% C: 12% D: 30%

Conclusion: In difficult cases of cutaneous tuberculosis, additional drugs and longer therapy are required

Epidemiological studies in cutaneous tuberculosis in Patna

Abhishek Kumar Jha

An epidemiological study was done at Patna in A K Jha Amar Skin Institute from January 2007 to December 2011 and data are being presented.

Total no of cases: 1,28,698
Total no of cutaneous tuberculosis: 644 (0.5%)

Male Female ratio 230 : 414 = 1: 1.8

Age distribution
Upto 10 years - 20
11-20 years - 219
21-30 years - 262
31-40 years - 113
Above 40 years - 30

Religion wise:
Hindu 71%
Musim 25%
Sikhs 02%
Christian 02%
Educational status
Illetrate - 40%
Upto matriculation - 28%
Graduate - 19%
Postgraduate - 13%

Economic status
Very poor 41%
Poor 29%
Avarage 20%
Above average 10%

Married -61%
Unmarried 49%

Association of pulmonary tuberculosis 20%
Association of AIV & AIDS 8%
Association of malignancies 5%

Typewise breakup:
Lupus vulgaris 42%
Scrofuloderma 28%
Warty Lupus 12%
Other types 18%

Effect of Nutritional Support to Drug Resistant TB Patients in Kasaragod District,Kerala

K.Raviprasada

Objectives

The study makes an attempt to analysis the effect of nutrition support provided to the Drug resistant TB patients in the district and to find out the gap in Revised National Tuberculosis Control Programme. The following are the primary objectives of the study.

1. To study the socio – Economic back ground Drug Resistant TB patients
2. To study the gap in RNTCP programme that needs to address for Drug Resistant TB patients
3. To analyse effect of nutrition support provided to the Drug Resistant TB patients

Methodology of investigation

Study settings: The study was conducted in Kasaragod District, Kerala.

Study Design: Cross sectional study
Patients Sample: All the DRTB patients reported in the period of 2009-2012 were included in the study (54).

Tools of data Collection

The investigator made use of Interview Schedule Method, because of the reason that of lower Educational Standard of the respondents. The interview schedule consist of two parts, The first part otherwise called as introductory part contains the question on the personal details of the respondent and the second part contain the question relating to the respondent TB treatment details.

Data Collection

The investigator visited the house holds and respondents’ residence and explained the purpose and nature of the study to them. All the respondents were met in their residence. The secondary data have also been collected from treatment records kept at District TB Centre.

Data Processing and Analysis

The data collected through interview schedule was checked thoroughly. Then data was classified and tabulated for further analysis. The variants were analyzed with the help of percentage.

Main findings:

In Kasaragod district total 54 DR TB patients were identified so far. Among them two patients is Extensively Drug Resistant TB (XDR). Among the MDR patients (76%) of MDRTB patients are below 50 years of age, which is an economically productive age group. Rests 24% are under the age group of above 50. 83% of the MDRTB patients were male. The socio economic conditions of all the MDR patients are poor and pathetic. 90% of them are the main earning members of the family. They are not able to do their regular work because the total treatment duration of the MDR treatment is two year and high dose seven combination of Medicines with injection. The nutrition support with the help of Local NGOs and PRI helps to strengthen Patient’s adherence to the treatment. It helps to reduce the default and death rate.

Conclusions:

The drug resistant of TB is not only a health issue but a social problem also. It affects the socio economic condition of entire family. The welfare government should seriously think about for providing nutrition support along with ATT for the Drug resistant TB patients.

STUDY REPORT ON PUBLIC PRIVATE MIX- KANNUR DIST.

Umesh M K
Objectives

- To assess the outcome of Public Private Mix in the District
- To assess the quality of sputum microscopy in private sector

Study area

Kannur District (6 TUs & 27 Lakhs population)

Institutions

Govt DMCs: 25, Private DMCs: 13

(Details will be presented in the conference)

Methodology

- Referring Lab. Registers, TB registers and Quarterly reports 2001 – 2010 and EQA Reports.
- Interview with private Managements and Private practitioners and private Lab. Technicians.
- Interview with Patients.

(The details of all will be presented in the conference)

Main findings

- The detection of positive cases in the district increased up to 40% after PPM.
- Only 60% of positive cases from private sector are registered for DOTS.
- The rests are referred for buying private ATT
- About 12% of positive patients are not willing for DOTS due to stigma and other reasons.
- Average 23% of increase (Registered) in Case detection (NSP) in the District after implementing PPM.
- About 32% of patients taking private ATT are found remains +ve after few months.
- 30% of sp. +ve patients from private DMCs were unaware of RNTCP and DOTS.
- About 40% of MDR cases of the district were previously taken private ATT.
- Even though all the DMCs are cooperating with EQA, some DMCs are not using quality reagents.
- Need more training for staff of private institutions and ACSM activities among public.
  
  *(Details of each finding will be presented in the conference)*

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**STUDY REPORT ON PROGRAMMATIC MANAGEMENT OF DRUG RESISTANT TB IN KANNUR DISTRICT**

Thomas T Mathew

**Objectives**

- To analyze the gender wise pattern of drug resistant TB in the district.
- To analyze the success or effectiveness of Cat IV Treatment in the district.
- To analyze the impediments in cat IV treatment.

**Study area**

- Kannur district (27 Lakhs population)

**Study Methodology**

- Tool of data collection: Interview.
- Population of the study: Drug resistant TB diagnosed from 3rd quarter 2008 to 3rd quarter 2012 (Registered in PMDT and non registered).

**Hypothesis**

- Failure of ATT Cat & II is the main cause of emergence of drug resistant TB.

**Statistical tool applied**

- For the processing and analysis of the study statistical tools percentage is applied.

**Main findings**

- 54 cases studied.
- Among 37 males (69%)
- 76% were alcoholic and smoker.
- Private medication (32%), diabetes mellitus (27%)
- History of contact (14%) and HIV infected (8%) and also became as supportive elements for being a drug resistant TB patients.
Among 17 females (31%) reported, two reasons almost equally shared the primary cause of drug resistant TB. They were private medication (53%) and history of contact (47%).

Out of 46 cases registered for Cat IV treatment, 11 persons (24%) were declared as cured, 4 patients (9%) were completed treatment, 11 patients are in intensive phase and 10 patients are in continuation phase.

Poor socio-economic conditions, side effects of the medicines, often prompt them to make treatment interruption, in spite of counseling and retrieval action 3 defaulted, 2 patients were not willing for Cat IV ATT and opted for private ATT.

Tobacco-related Diseases

O.A.Sarma


Pulmonary tickles

O.A.Sarma
CHANCES FOR DEVELOPING LOW COST PCR BASED LATERAL FLOW ASSAYS IN TB DIAGNOSTICS

Thulasi Krishna Haridas, S. Thiruvengadam, Neethu Sambashivamoorthy, V. I. Bishor, N. Parthasarathy

Tuberculosis is one of the most alarming diseases especially in the developing world which needs an immediate control. Tuberculosis is a treatable airborne infectious disease that kills almost 2 million people every year. The key point in the control of the disease lies in its prevention and also early detection of the disease. Despite all the advances made in the treatment and management, tuberculosis (TB) still remains as one of the main public health problems, particularly in the developing countries. India accounts for nearly 30 per cent of the global TB burden. Therefore it is essential to develop a very simple and useful device for the easy and early detection of TB. PCR has brought new opportunities for the rapid, sensitive, and specific detection of Mycobacteria. This technique can be used to amplify DNA of Mycobacteria specifically in a given sample. These PCR products can be used as samples for Lateral Flow Assays. There has been a lot of improved and modified LFA’s which uses molecular detection and chromatographic principles. This review focuses on analyzing chances for developing Lateral Flow Assay for detection of Mycobacterium tuberculosis by using the amplified PCR product of the genomic DNA from the organism.
Impact of one versus two sputum samples for follow-up sputum smear AFB examination

Jigna Dave, Amit Patel, Jilan Mehta

Objective: To test the use of one versus two samples in sputum smear microscopy in the follow-up of smear positive TB patients at the end of Intensive Phase in both category I & II regimen under RNTCP.

Methodology: A retrospective study of 1st Follow Up sputum smear examination by Ziehl-Neelsen staining reports in 150 patients with sputum smear positive Pulmonary Tuberculosis was done. Each 50 patients selected from TU- Bhavnagar Urban, Sihor & Palitana. Data collected and analyzed for percentage of discordant results; estimated effect of based actions on the either smear; estimate of impact on workload and costs.

Main Findings: Out of 150 patients, in 139(92.66%) both (Spot, Early morning) sputum smear AFB reports were same. In 11(7.33%) patients discordant results were present. If actions taken on the based of Spot Sputum Sample, accurate results are found in 139(92.66%) patients while on the based of Early Morning Sample accurate results are found in 150(100%) patients. If either sputum sample is taken for sputum microscopy than 50% reduction occurs in workload and cost of DMC. Single early morning sputum can be used for follow up examination in place of two different samples.

DIAGNOSTIC UTILITY OF INDUCED SPUTUM AND BRONCHOSCOPY IN SMEAR NEGATIVE PULMONARY TUBERCULOSIS IN A PUBLIC SECTOR HOSPITAL

C. Mohan Rao, DRUMA Devi

OBJECTIVE-To find out if AFB positivity increases by bronchoscopy washings and / Induced sputum in smear negative pulmonary tuberculosis . To compare the yield of three induced sputum tests with bronchoscopy washings in smear negative pulmonary Tuberculosis.

METHODOLOGY OF INVESTIGATION -60 symptomatic subjects attending the chest clinic were included in the study. Detailed clinical history, complete blood count, x-ray chest p.a. view, sputum induction by nebulised 3% hypertonic saline performed for three consecutive days. The induced sputum samples were subjected to smear for Acid Fast Bacilli by Ziehl Neelsen staining. All patients were taken up for bronchoscopy after 24 hours of third induced sputum sample collection. Bronchial wash was performed and the sample collected
were subjected to smear microscopy.. Diagnosis of Tuberculosis was made if AFB was positive in the smear. Statistically data was analysed and compared between three induced sputum tests and brochoscopy

RESULTS-55% cases belonged to minimal radiological extent, moderate advanced 20% and far advanced 25%.. Yield of AFB positivity increased from 1.66% in first induced sputum to 16.66% in third consecutive sputum study. % positivity was higher (40%) in dry cough than with expectoration (5%),cavitary (33.33%) than only infiltrative lesion(15%), nil in miliary and effusion cases. % positivity with bronchial wash higher(83.33%)in moderate advanced than minimal (12.12%) and far advanced lesion(53.33%). % positivity with bronchial wash was higher (36.66%) than induced sputum(16.66%) which was statistically significant P value <0.05.

CONCLUSION-Induced sputum is a simple procedure , yield increases with repeat induction and has good diagnostic yield in patients with dry cough. If results are inconclusive, bronchoscopy can be recommended as a next diagnostic modality in this era of evidence based medicine.

Private Medical Practioners – Explanation of MDR & XDR TB

N.Prasanna Kumar

Objective: The role of Private medical practitioners in increase of MDR&XDR TB by studying the previous treatment history of MDR TB patients.

Methodology of Investigation:

In east Godavari District there are 53 MDR cases are under Treatment. The majority of the cases are treated previously by the private medical practitioners. If a person aware of the symptoms of Tuberculosis usually his/her first choice is to consulting the private Doctor. These doctors includes private and working under the Government are initiating anti tuberculosis treatment even though they well aware of the services available at RNTCP. The patient without any hesitation because of his fear and anxiety starting the course from the Doctor. After two or three months when the symptoms subsidised in a little , and also the economical burden in getting the treatment by the consultations and purchasing of medicines, it will be quite common to the patient to break the treatment and making interruption to the medication. After came to know of the services of RNTCP at a later period when this previously treated patient approached to RNTCP facility almost all her/him becoming resistant to drugs. They usually diagnosing as a MDR TB patients.
Personal and family interviews of the patient’s previous treatment history by these questionnaire of 53 MDR cases in east Godavari district is the present study

1. Name of the Patient, Age/ Sex:

2. Economical status of the patient (BPL/above BPL)

3. Community of the patient (OC/BC/SC/ST)

4. When did he aware of TB Symptoms (Months or Years):

5. To what health facility he approached (Pvt/Gvt):

6. Does the health facility aware of RNTCP Services? (Yes or No)

7. What is the duration of ATT Course he consumed fist time (Months/Years):

8. When did he approached to RNTCP first time/after previously treated:

9. Category entered in RTCP record(Cat I/Cat II/MDR Suspect):

10. Result of Sputum examination (Positive/Negative):

11. Result of Culture test (Positive/Negative):

12. Resistant TB Drugs (Yes or No):

STUDY OF RISK FACTORS FOR RELAPSE OF TUBERCULOSIS FROM SOUTH KERALA

K.Venugopal, Sreelatha.P.R, Jalajamony

INTRODUCTION

With the implementation of Revised National TB Control Programme, quality diagnosis of relapse of tuberculosis is possible at the field level. So there are ample opportunities for study of different causes of relapse in the field level.

AIM OF THE STUDY

To asses different risk factors for relapse of tuberculosis patients put on category II.

MATERIAL & METHOD

All sputum positive relapse patient in Alappuzha district for two quarter starting from January 2011 are included in the study. They are assessed as per a structured pre tested questionnaire about possible causes for relapse by the trained health worker.
FINDINGS

80 cases were included in the study satisfying inclusion criteria. They were in the age group of 20 – 85 years. Male predominated over female in the relapse cases in a ratio of 3.8 : 2. Hindus was in a higher ratio than Muslims and Christians. Majority of the patients were in the weight group of 41 – 50 years. 3+ grade was up to 40%. Associated disease was present with following distribution. Diabetic Mellitus - 24, Cardiac Disease – 12, Respiratory Disease – 12. Majority of patients had previous treatment of RNTCP regimen – 60 (75%). 48 (60%) were alcoholic and 56 (70%) were smokers. All were referred by the Govt. doctors. Majority are from cured in previous treatment.

CONCLUSION

Diabetics, alcoholism and smoking are important factor for relapse.

Consultation for TB with Govt. doctors is improved after RNTCP implementation.

IMPACT OF CHIKUNGUNIEA IN TB DETECTION IN ALAPPUZHA
A STUDY FROM KERALA

K.Venugopal, Sreelatha.P.R, P.Nisha

INTRODUCTION

Alappuzha district was the worst affected district of Kerala state in the outbreak of Chikunguniea in the year 2006. Upto 60% of the population was affected with the disease. Case detection of Tuberculosis is by Passive detection of patients attending the general OP. As general OP attendance has increased case detection has also to increase. So it would be advisable to have an evaluation of the impact of Chikunguniea in case detection of Tuberculosis.

METHOD OF STUDY

A retrospective analysis of case detection and TB suspects examined were analyzed for five years from 2005 from registers maintained at District TB Center, Alappuzha.

FINDINGS

A gross deduction in NSP (New Smear Positive) case detection of 101 cases (4%of NSP cases/lakh population) was noticed compared to previous years. A gradual increase in new case detection was observed in subsequent years. TB suspects examined showed a gradual increase from 186/lakh population to 253/lakh population in 2009. Conversion and Cure rates showed a gradual increase during the study period. A reduction in patients put on DOTS and a high increase in defaulter rate (3% increase) was also noticed in the affected period. A 12% increase of NSN (New Smear Negative) cases was also noticed in the period of study compared to the previous year and 10% in the preceding year 2007.

CONCLUSION
Chikunguniea epidemic has got an impact in case detection rates a reduction in NSP case detection rate and an increase in NSN case detection rates have to be studied further.

Involvement of Rural Health Care Providers in TB Suspects Referrals to RNTCP: Promising Practices from Underserved Areas of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, West Bengal and Andhra Pradesh

Blesson Samuel, Mejo Jose, Seema Sahu, Sugata Mukhopadhyay, Sushma Cornelius and Vijay Edward

**Objectives:** World Vision India and partner organizations have been implementing Project Axshya in 74 districts of seven States with an objective to engage community stakeholders with RNTCP to contribute to TB case detection. For community members living in hard to reach areas rural health care providers (RHCPs) are the preferred providers. There are reports of RHCPs not following RNTCP guidelines for TB diagnosis and treatment. To correct these mismanagement; interventions were initiated with RHCPs in project districts by which they were encouraged to refer TB suspects to RNTCP and the process of referrals was documented.

**Methods:** Initially mapping of RHCPs practicing in 493 blocks of 74 districts were undertaken with the help of grass-root NGOs. RHCPs were then invited to attend the trainings during October 2011 to March 2012 in which they were oriented about TB and RNTCP and were encouraged to refer TB suspects to nearby DMCs.

**Findings:** Total of 2128 RHCPs were oriented and encouraged to refer TB suspects. During six months of the intervention the RHCPs referred 3086 TB suspects to nearby DMCs. Out of these 394 were found to be sputum smear positive and were enrolled for treatment in RNTCP. This shows promising trend and besides referral of TB suspects, training of RHCPs in RNTCP guidelines yielded sustained benefits like positive relations and engagement of RHCPs with RNTCP staff.

**Conclusions:** In view of the recent mandatory notification of TB cases this promising practice of involving RHCPs in RNTCP need to be developed further to pave way to increased TB case notifications in underserved areas.

Standardization and validation of *in vitro* nutrient starvation model for evaluating potential compounds/NCEs against latent *Mycobacterium tuberculosis* H37Rv

S. S. Jhamb, Kamlesh Patel and P. P. Singh

**Objective:** World Health Organization estimates that about one-third of world population is infected with latent tuberculosis infection. Approximately eight million cases of active tuberculosis are pulled out from these infected individuals annually. *Mycobacterium tuberculosis* undergoes latency to survive under various adverse conditions like nutrient
starvation, hypoxia, free oxidative radicals, pH etc. There are various models to study latency like hypoxia, nutrient starvation, multiple stresses etc. Therefore, it is necessary to develop and validate models to evaluate drugs/NCEs against latent mycobacteria.

**Method:** The present study was carried out to standardize and validate nutrient starvation model to test anti-TB activity against nutrient starved *M. tuberculosis* H37Rv. Nutrient starvation conditions were established by inoculating log phase culture of *M. tuberculosis* H37Rv in phosphate buffer saline and incubated for 6 weeks at 37°C. Latency of nutrient starved mycobacteria was confirmed by respiration test and Ziehl-Neelsen staining. Standard drugs Isoniazid (INH) and clotrimazole were tested by BACTEC 460 method to validate the model.

**Result:** In respiration test, the nutrient starved bacilli did not decolorize methylene blue which confirmed latent conditions even after 17 days of incubation; whereas the tube containing log phase culture decolorized the dye. In ZN staining, nutrient starved bacilli were colorless which further confirmed latency. Standard drugs clotrimazole and INH were evaluated against latent bacilli by using BACTEC 460 method. Nutrient starved bacilli were found to be resistant to INH and sensitive to clotrimazole.

**Conclusion:** *M. tuberculosis* H37Rv, when exposed to nutrient starvation conditions for 6 weeks undergoes latency resulting in changed metabolic pathways due to cessation of nutrients/respiration. This validated model was successfully validated for evaluating prospective compounds/NCEs acting against nutrient starved bacilli.

Study of Multi – drug resistant tuberculosis in East Godavari District, Andhra Pradesh 2011-12

Baburao Eruku

**Objectives:** the study has been conducted with following objectives (i) to know the incidence of MDR-TB in any CAT – I who remain smear positive at 5th month or later (ii) To know the incidence of MDR-TB in any CAT-II who remain smear positive at 4th month or later (iii) To know the incidence of MDR-TB who are initially smear negative PTB, found to be positive at later (iii) To know the incidence of MDR-TB in close contacts of smear positive MDR-TB according to criteria – A MDR-TB suspect of RNTCP guidelines from 1st Aug 2011 to 31st July 2012. **Methodology:** In this study the smear positive patients with above criteria are taken, and their early morning and spot sputa samples are sent to STATE TUBERCULOSIS DEMONSTRATION CENTRE, HYDERABAD AND CULTURE & DRUG SENSITIVITY LABORATORY, VISHAKAPATNAM. Falcon’s tube is for transport of sputa sample, LINE PROBE ASSAY for rapid Drug sensitivity test. **Results:** out of the total 90 suspects CAT-I are 31 in this 1 positive with 3.2%, CAT-II are 54 in this 14 positive with 25.9%, and no cases noted from initially smear negative later positive, and close contacts as well. But incidentally 5 MDR-TB suspects noted who taken ATT by private practitioners, found 3 positive, one DST report was not received with 75%. **Conclusion:** With this study, we noted the highest number of MDR-TB cases found from old history of exposure to primary anti-
tuberculosis drugs and who had taken ATT by private practitioners. We believe that RNTCP programmatic diagnosis and treatment is the best approach.

The association between tuberculosis and malnutrition: A disturbing picture of Melghat villages in tribal region of Maharashtra, India

Rajpal Singh Kashyap, Ashish Satav, Girdhar M Taori, and Hatim F Daginawala

**Objective:** The association between TB and malnutrition is well recognized; The objective of our study were to estimate the burden of active and latent TB cases in tribal villages of malnourished population in Melghat.

**Methodology:** Blood samples were collected from the participants of sixteen Melghat villages. Quantiferron in tube gold (QFT) assay and tuberculin skin testing (TST) was performed in the selected samples. Comparison of the tests was performed with respect to their association with risk factors.

**Main findings:** A large proportion of participants from these villages were latently infected. Under nutrition and non-BCG vaccinated population were significant risk factors for both tests.

**Conclusion:** Our study showed high latent tuberculosis infection prevalence in this population. Our data provides vital information that non-BCG and mal-nourished population were more prone to acquire TB infection.

Cohort analysis of Cat I smear positive cases and their relapses when treated with Cat II under RNTCP over seventeen years (1994 to 2010)

R.K. Mehra

**Aim:**

Cohort analysis of Cat I smear positive cases and their relapses when treated with Cat II under RNTCP over seventeen years (1994 to 2010).

**Design:**

→Cat I regimen (2HRZE+4HR thrice weekly) is given to NSP, NSN & EP cases.

→Relapse: Sm. Pos. cases, once cured under RNTCP, reporting back as Sm. Pos. again after a gap and are treated with Cat II.

**Method:**

Cat I Sm. Pos. cases regd. from 1994 to 2010 in CC Gulabi Bagh, Delhi covering a popn. of Ten Lac, were meticulously followed up. Self-reporting relapses arising out of cured cases were put
on Cat II regimen. The treatment outcome data in both situations was analysed.

**Results:**
BIG COHORT included 8250 Cat I Pos. cases regd. from 1994 to 2010. The Avg. Cure Rate was 87% (range: 83.6% to 93.7%). The Avg. Failure Rate was 4.2%. Till 31/12/2011, AS MANY AS 603 (8.4%) relapses were reported out of 7183 cured cases. On analyzing the time of relapse, out of 454 relapse cases reported within three years of Cure in patients regd. from 1994 to 2007, AS MANY AS 226 (49.8%) have been reported AS EARLY AS within six months of cure. The Success Rate of relapse cases when put on Cat II, however, was fairly acceptable i.e., 78%.

**Observations:**
(i) HIGH self-reporting Relapse Rate (8.4%).
(ii) Most relapses reported WITHIN six months of cure (49.8%).
(iii) Significant Success Rate (78%) of relapse cases.

**Conclusion:**
These indicate possibility of Endogenous Reactivation of disease in relapses thereby recommending REAPPRAISAL OF THE INITIAL CAT I REGIMEN W.R.T. ITS REGULARITY & DURATION.

**IS SEVERITY OF COPD AN INDEPENDENT RISK FACTOR FOR DEVELOPMENT OF METABOLIC SYNDROME**
Sumeera Banday, VK Arora, M B Gupta

**BACKGROUND**
The term “metabolic syndrome” is given to the condition in which there is a coexistence of obesity and a constellation of interrelated factors that increase the risk for development of diabetes mellitus, nonfatal and fatal cardiovascular disease as well as all cause mortality. Patients with COPD may be at an increased risk of development of metabolic syndrome due to limitation to physical activity imposed by respiratory symptoms.

**OBJECTIVE:** To evaluate if severity of COPD is an independent risk factor for development of metabolic syndrome.

**STUDY DESIGN:** Cross Sectional Study

**METHODS:**
In 100 patients with COPD, the characteristics of the metabolic syndrome were measured and conclusions were drawn regarding the severity of COPD (Indian Guidelines), and the presence of metabolic syndrome as per the International Diabetic Federation Guidelines (2005).

RESULTS, DISCUSSION AND CONCLUSION:

Out of total number of 100 patients of COPD, 28 satisfied the criteria of metabolic syndrome. This constitutes about 28%. The mean age of patients with metabolic syndrome was 61 years. Male to female ratio was about 2:1. 7% of the patients had mild COPD and none of them had metabolic syndrome. 87 patients had moderate COPD and of these 22 (25.3%) had metabolic syndrome. 6 patients had severe CPOD and all of them (100%) had metabolic syndrome. The mean age of these patients was 60 years and male to female ratio in this group was 1:1. All the patients with severe COPD and metabolic syndrome were smokers. The average smoking index of patients with severe COPD and metabolic syndrome was 320. The mean waist circumference was 90.5 cm. All the patients with severe COPD and metabolic syndrome had raised fasting blood sugar (mean 122.7 mg%), raised triglycerides (mean 159.7 mg%) and hypertension (mean systolic BP 170 mm Hg and mean diastolic BP 94 mm Hg). Mean HDL level in this group of patients was 44.2 mg% and mean BMI was 27.3 Kg/m².

As per the International Diabetic Federation Guidelines (2005) definition raised waist circumference (obesity) is an essential criteria for the diagnosis of metabolic syndrome. Obesity is usually seen with chronic bronchitis rather than with emphysema, although this distinction is not always the rule. There is evidence that patients with COPD lead a more sedentary lifestyle, which would contribute to the development of obesity. Alternatively, obesity may modify the clinical picture of COPD. For example, exercise intolerance, a hallmark of COPD, is likely to be worsened by fat accumulation. Obesity is also been associated with deterioration in lung function. In COPD, an increased Body Mass Index (BMI) does not protect against fat-free mass depletion, since there is a preferential loss of muscle tissue in this disease. In fact, muscle mass may be reduced despite a normal BMI. Systemic inflammation has been identified as one of the elements common to both COPD and metabolic syndrome.

This study revealed a high degree of correlation between severity of COPD and presence of metabolic syndrome in the north Indian population suffering from COPD. During the period of the study there was no fatal event in the study group. All the patients were put on appropriate treatment after enrollment in the study and were doing well till last follow up.

HEALTH RELATED QUALITY OF LIFE IN TB PATIENTS UNDER DOTS STRATEGY

Utkarsh, V.K Arora, MB Gupta

BACKGROUND

HEALTH is not only defined as a mere absence of disease or infirmity but also as a state of complete physical, mental and social well-being. Apart from physical symptoms, the patient of tuberculosis
faces several physiological, psychological, financial and social problems. These problems have a great impact on the well being of the patient suffering from tuberculosis and impair the quality of his/her life.

OBJECTIVE

To evaluate the health related quality of life in 50 patients under D.O.T.S BY HQRL Questionnaire at 0 weeks, 4 weeks and 8 weeks

METHOD

The present study has been carried out in 50 subject who have been reporting at D.O.T.S. centre at Santosh medical college and hospital. Design of the study has been prospective and descriptive in which score based questionnaire comprising of 36 items covering 8 health concepts chosen on basis of reliability vitality and frequency of measurement in health survey were included.

RESULT AND CONCLUSION

The result indicated that there has been significant (P<0.05) improvement in the Physical functions, Role physical, Vitality and Role education in 8 weeks after anti TB therapy whereas the improvement in Mental health, General health bodily pain(Focus on his work) and Social factor has not been very significant(P>0.05) after 8 weeks of treatment. The major reasons quoted by the patients which affected their social life, and mental happiness had been, frequent visits to the DOTS centre for drug therapy and asking for continuous help from the family and neighbours. The detailed results will be presented.

Contact Investigation of Mycobacterium tuberculosis Infection in Three Captive Asian Elephants (Elephas maximus) in Southern India – A Case Report

Venugopal K.P, David Abraham, Sathish Mundayoor

Recent studies have confirmed that there is a potential for transmission of tuberculosis infection between elephants and humans. It is now estimated In southern India, a recent study has shown that nearly 15 per cent of the captive Asian elephants infected. In almost all cases, it is the human strain of mycobacteria (M. tuberculosis) that is isolated from infected captive elephants.

Small white caseous nodules were observed in the lung tissue during post-mortem examinations of three adult captive Asian elephants (Elephas maximus). Tuberculosis infection caused by Mycobacterium tuberculosis was confirmed by culture of the lung nodules followed by nucleic acid amplification of the culture isolate. Nearly 25 keepers who were in charge of the three elephants were screened for tuberculosis infection by tuberculin skin test followed by the whole blood gamma-interferon assay, QuantiFERON-TB Gold®.
Chest X-rays of those keepers with clinical symptoms suggestive of tuberculosis infection were also examined.

Contact investigations did not give conclusive evidence in identifying the source of infection. Untraceability of all keepers who were in charge of the elephants over their extended lifespan, high prevalence of latent tuberculosis infection in the general human population and mahouts and the daily contact of elephants with the general public in addition to their mahouts were the main impediments in tracing the source of infection. However, results of this contact investigation gave valuable insights into the possible risks of human-to-elephant and elephant-to-human transmission of tuberculosis in captive elephants and mahouts, for the first time in an elephant range country in Asia. The paper will diagrammatically represent the elephant-mahout and elephant-elephant contact networks for the three elephants.

The study is important as elephants can be a reservoir of Tuberculosis infection and may have zoonotic implications. A detailed systematic study is ongoing.

Correlation of pleural biopsy histopathological patterns with fluid analysis in pleural tuberculosis

Ritu Kulshrestha, Himani Sing, Rajkumar, V.K. Vijayan

**Background:** Pleural involvement by tuberculosis (TB) may be primary, secondary or postprimary (reactivation) pleurisy. The development of empyema and/or pleural fibrosis typically follows severe pleural space inflammation and exudative effusion. In hemorrhagic pleural effusions, an accurate identification of the pleural pathology and its correlation with clinical-radiological features is necessary to reach a definitive diagnosis.

**Methods:** We retrospectively analyzed the histopathological features of pleural biopsies received at department of Pathology, V.P Chest Institute from January 2009 to November 2012. All cases were correlated with pleural fluid analysis and clinical/radiological features. All biopsies were stained with H&E and Ziehl Neelsen stain.

**Results:** Total 12 biopsies were received. These included 10 males and 2 females, age ranging from 33 to 80 years, mean of 65 years. The adequate biopsies (n=11) were classified into Group I: malignant (2/11=18.18%), Group II-nonmalignant (9/11=81.81%). Pleural fluid submitted in Group II revealed hemorrhagic aspirate in 8/9 cases (88.89%), while lymphocyte predominance was seen in only 1/9 case (11.11%). In Group II histopathological analysis revealed, chronic lymphocytic pleuritis in 4 cases (44.44%), epithelioid granuloma formation in 3 cases (33.34%), necrosis in one case (11.12%) and fibrosis was seen in one case of non-resolving effusion (11.11%).

**Conclusion:** In patients presenting with hemorrhagic effusion it is important to differentiate tubercular effusion from malignancy by pleural biopsy. The histopathological patterns of tubercular involvement of pleura vary depending upon the stage of involvement and
epithelioid cell granulomas may not be identified in all cases. The knowledge of the histopathological patterns is necessary to accurately identify these cases and improve patient outcome.

A retrospective review of tuberculosis patients attending a tertiary care hospital in upper Assam with special reference to multidrug-resistant tuberculosis

M.K. Goswami, D.J Bhattacharjee, J. Pathak

Introduction: India continues to be burdened with high morbidity and mortality due to tuberculosis amounting to more than one fifth of the global tuberculosis cases.

Objective: To observe the pattern of distribution of tuberculosis cases in AMCH with special reference to multidrug resistant tuberculosis (MDR TB)

Method: A retrospective study was conducted at Assam Medical College, Dibrugarh, the largest tertiary care hospital in upper Assam catering to 7 districts and neighbouring areas of 2 nearby states. Duration of study was from April 2011 to March 2012. Data was retrieved from the records of DOTS register maintained in the Deptt. of TB and Chest.

Results: A total of 398 patients treated for TB were identified as per RNTCP protocol, of which 26.88% cases had pulmonary sputum positive TB, 14.82% sputum negative pulmonary TB and 37.94% were identified as having extra-pulmonary TB. 19.6% of the total cases were put on Cat II. Most common age group was identified as 21-30 years and 59.29% of the patients were Males. Of the patients 33 were identified as MDR TB suspects which accounts for 8.29%

Conclusion: In spite of all advances in medicine even in 21st century, the curse of TB has not been controlled. AMCH, being the only tertiary health care facility in upper Assam, has to cater to the needs of a population of around 10.5 million. The patients come here for getting state-of-the-art treatment. Hence, though the picture presented here is not indicative of accurate situation but somehow it reflects the scenario. The emerging threat of MDR-TB has no doubt aggravated the problem. The present study though a small-scale in nature throws light on the epidemiological quotients of the problem. Further broad-based study encompassing larger number of patients conducted for a longer period is advised to know the enormity of the problem.

GENITO-URINARY TUBERCULOSIS AND ITS ASSOCIATION WITH INFERTILITY IN WOMEN

C Iravatham, C. Tellapragada, Dr C.E.Prasad, VK Marri, H Hussain, Ansari, Padmaja G.V, Sushmitha.V

Introduction: Infertility is a stressful event especially for women having both psychological and social impact. Causes can be broadly classified under genetic, unknown etiology, environmental factors or of infectious origin.
**Aim:** Pros analysis for cause of unexplained infertility in Women.

**Material and methods:** The study was carried during the period of 2008-2010. 200 females between the age group of 18-80 (mean age=30.03) presenting with recurrent urinary tract infection, not responding to antibiotics, irregular period and unexplained infertility where clinically evaluated. Investigations included radiological and routine laboratory work-up, Mantoux test, with screening for presence of AFB (Acid Fast Bacilli) which were carried out on early morning urine sample for three consecutive days.

**Results:** Of the total 200 patients AFB was positive in urine samples of 120(60%) of which 72 patients (36%) fall within the age group of 18-25 years with history of infertility. Risk factors in older age group (>45 years) was Diabetes and other constitutional disorders. Treatment with Anti TB Treatment (ATT) under DOTS had a successful outcome of negative AFB Reporting in the urine and subsequent conception.

**Conclusion:** Thus, early detection and treatment can have a positive impact on prognosis. Education on healthy life style management for women can help in restoring their health.

Utility Of Diagnostic Modalities of Pulmonary And Extra Pulmonary Tuberculosis: How Ready Are We?

C Iravatham, C. Tellapragada, C.E.Prasad, VK Marri, H Hussain, Ansari, Sushmitha.V Padmaja G.V

**Introduction:** With the ever-increasing prevalence – Tuberculosis still remains one of the leading causes of mortality and morbidity in India. Timely diagnosis and prompt treatment of the infectious cases plays a pivotal role in combating the curable killer.

**Aim:** a) To evaluate the utility of Line probe assay (Geno Type MTBDR plus) .  
   b) Compare with conventional methods.

**Materials and Methods:** A total of 160 samples comprising of Sputum (86), Pus (36), BAL (22), others 16 included tissue, pleural effusion and ascitic fluid etc received during a period of one year were processed for AFB smear (ZN and Fluorescent stain), Conventional AFB culture (L.J.Media) followed by Drug Sensitivity Testing . Geno Type MTBDR plus assay for MTB identification and resistance detection towards Rifampicin and Isoniazid was carried out directly from clinical samples.

**Results:** Of the 160 samples, 108 (68%) were smear positive for acid fast bacilli, 90 (56%) were culture positive on LJ media, 81 (50.6%) were positive for MTB by Genotype MTBDR plus. Of the 90 positive samples, 74 (82%) were isolated from pulmonary and 16 (18%) from extra pulmonary samples. The sensitivity and specificity of MTBDR plus assay were found to be 77.8% and 74.3% respectively in detecting MTB directly from both pulmonary and extra pulmonary samples.

**Conclusions:** With the high prevalence of extra pulmonary TB cases in India and low sensitivity of line probe assay to detect the MTB, there is definitely a need for devising new diagnostic modalities at molecular level for diagnosis extra pulmonary Tuberculosis.
BACKGROUND:

Pulmonary infections have diverse presentations in the HIV-seropositive patient, creating difficulty and delay in diagnosis and treatment. The chest radiographic appearances of patients presenting with pulmonary symptoms are frequently nonspecific. Further characterization of chest radiographic patterns in correlation with clinical findings and laboratory values would be helpful in narrowing the differential diagnosis of pulmonary disease in HIV-seropositive patients.

AIMS & OBJECTIVES:

1) To study the clinical features of Pulmonary Tuberculosis in HIV patients related to CD4 cell count.

2) To study the radiographic features of Pulmonary Tuberculosis in HIV patients related to CD4 count.

3) To study the bacteriological (sputum AFB) status of Pulmonary Tuberculosis in HIV patients related to CD4 cell count.

MATERIAL & METHODS:

Study design: Cross sectional study

Setting: The department of Pulmonary Medicine, SVRR Government General Hospital, Tirupati.

Period of study: January 2011 To April 2012.

Sample size: Total number of patients who attended Chest OP and were admitted in Pulmonary Medicine ward of SVRR Government General Hospital, Tirupati with Tuberculosis and HIV during the study period.
RESULTS:

1. Majority of patients were in the age group 30-40 years.
2. Out of 115 people 72.17% were males 27.82% females.
3. Most common presenting symptoms were cough (96%), fever (83%)
4. Among x-ray findings infiltrative lesions were more common than lower zone infiltrations in sputum positive patients.
5. Sputum positivity was seen only in 53.91% of patients.
6. Mean CD4 count in this study was 177.08±155.47
7. Most of the patients (66.07%) had CD4 counts <200 cells/μl.
8. 100% of military TB had CD4 <200 cells/μl.
9. Most of patients (54.54%) with upper zone lesions in chest x-ray had CD4 <200 cells/μl.
10. Most of the sputum positive cases were seen with CD4 >200 cells/μl.

CONCLUSION:

CD4 counts correlated well with the clinical profile of TB, which showed that when CD4 counts were less than 200 cells/μl, sputum negative pulmonary TB and disseminated pulmonary TB were more. Chest x-ray were atypical in the form of lower zone involvement and more of infiltrative lesions.

So, a high level of clinical suspicion is required in diagnosis of TB in HIV infected especially when they are in the later stages of disease which is indicated by CD4 counts <200 cells/μl.

COMPARATIVE STUDY OF EMPYEMA THORACIS OF TUBERCULOUS AND NONTUBERCULOUS AETIOLOGY

P.Ranjit Basha, G.Aruna, M.Neethi chandra, Dr.S.Subba Rao

BACKGROUND: Empyema thoracis is a disease of significant morbidity & mortality especially in the developing countries, where tuberculosis remains a common cause. Clinical outcome in tuberculous empyema is different from nontuberculous empyema because of associated complications like bronchopleural fistula, fibrocavitary parenchymal
disease. We performed a prospective study over a period of one year with the objective of comparing the clinical profiles & outcomes of patients with tuberculous & nontuberculous empyema.

**MATERIAL AND METHODS:** A Prospective study of adult cases of nontraumatic & nonsurgical thoracic empyema admitted in wards of Dept. of pulmonary Medicine, S.V.R.R.G.G.H, S.V.Medical College, Tirupati.

**RESULTS:** Twenty two cases of empyema were seen during the study period, of which 12 (54.54%) were of non-tuberculous aetiology while tuberculosis constituted 10 (45.45%) cases. Among the non-tuberculous empyema patients, staphylococcus aureus in two cases, klebsiella in two cases, streptococcus pneumoniae in two cases were isolated frequently. Duration of illness and mean duration of chest tube drainage were longer in patients with tuberculous empyema. Also the presence of bronchopleural fistula often requiring surgical drainage procedures was more in tuberculous empyema patients.

**CONCLUSION:** Tuberculous empyema remains a common cause of empyema thoracis in India. Tuberculous empyema differs from non-tuberculous empyema in the clinical presentation, management & has a significantly poorer outcome.

**GENDER BASED BARRIERS IN ACCESSING TUBERCULOSIS TREATMENT: A QUALITATIVE STUDY FROM EASTERN NEPAL**

Kumar Gaurav, Jha N, Niraula SR, Yadav DK, Bhattarai S, Pokharel PK

**Introduction:-** Previous studies have demonstrated longer length of delays in diagnosis and treatment among men and women, especially among women experiencing longer duration of delay in accessing tuberculosis treatment.

**Objective:-** To explore responsible factors among men and women affecting longer duration in accessing tuberculosis treatment.

**Methodology:-** Qualitative approach with FGD sessions among community people, DOTS provider and Pulmonary TB patients were conducted separately between March to May 2012.

**Result:-** The perception of fear, hiding symptoms, social stigmas and traditional beliefs were common among women. The study revealed that social and cultural barrier, ignorance of symptoms, home remedies, fear of stigma, access to health centre from rural areas, poor knowledge of TB signs and symptoms, beliefs on traditional healers were the common reason for the longer delays in diagnosis.

**Conclusion:-** The findings suggested that knowledge, information, perception regarding TB among men and women are lacking, especially among females. This warrants awareness for early diagnosis and control of disease.

**REVERSE MUTATION IN TUBERCULOSIS : HYPOTHESIS WITH A RAY OF HOPE**

Kishor Chandra Mohanty, Nikhil Sarangdhar

**Introduction :** The maximum achievable cure rate even with assured compliance with optimum regimens with reserve anti-TB drugs in MDR TB is ≤ 65% and in XDR TB ≤ 30-40% Except for the fluoroquinolones, officially no new drug has been introduced for the treatment of tuberculosis since the last two decades. Few drugs have been recommended but not officially introduced. When the patient who is an XDR TB or confirmed XXDR TB case and who does not respond even with optimum treatment with second line anti-TB drugs does not
respond, we are left with a treatment dilemma as regarding what drugs to give the patient. as they have already taken all possible reserve drugs that can be given.

**Design :** Case Reports of 4 patients

**Setting :** A Tuberculosis clinic run by the Muslim Ambulance society in Mumbai which an outreach OPD of the TB & Chest department of K. J. Somaiya medical college

**Material and Methods :** Four patients of culture proven Extensively Drug resistant (XDR) and Extra - Extensively drug resistant (XXDR) Pulmonary Tuberculosis who were non-converters even after ≥ 9 months of treatment with optimum therapy with recommended second line reserve anti-TB drugs with assured compliance, and who showed "Rise and Fall" phenomenon were given the following anti-TB drugs with close monitoring (Clinical, Radiological, Bacteriological): Isoniazid, Rifampicin, Pyrazinamide , Ethambutol, Ciprofloxacin and Streptomycin.

**Observations and Results :** All 4 patients showed sputum conversion within ≤ 4 months. Follow-up has shown persistent bacteriological negativity.

**Hypothesis :** Resistance occurs to anti-TB drugs by a series of Spontaneous Mutations. By multiple (239) subcultures, Bacillus Calmette Guerin (BCG) was rendered Avirulent without loss of Immunogenecity. The hypothesis of reverse mutation comes from the fact that the strain of Tubercle bacilli in diseased patients has undergone Multiple subcultures and multiplication in vivo.

Our hypothesis is that if the drug sensitive bacilli can produce drug resistant bacilli by multiple spontaneous mutations, then drug resistant bacilli by multiple mutations can also become sensitive, which would like to call REVERSE MUTATION.

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**SPUTUM CONVERSION WITH MEROPENEM AND CLAVULANIC ACID IN THE TREATMENT OF MULTI DRUG RESISTANT AND EXTENSIVELY DRUG RESISTANT TUBERCULOSIS**

Kishor Chandra Mohanty, Salil Bendre, Nikhil Sarangdhar, Racchana Fadia

**Study objectives :** To study the efficacy and safety of Meropenem with clavulanic acid in Extensively Drug resistant and Multi- Drug resistant Tuberculosis.

**Design :** An open labeled study.

**Setting :** A community teaching hospital cum medical college with 400 beds in Mumbai, with 40 beds for TB and Chest diseases, which acts as a tertiary referral institute for several specialities. The institute also has a D.O.T.** centre as well as D.M.C.*** accredited and managed by R.N.T.C.P.****

**Patients and Interventions :** 26 patients of sputum positive pulmonary tuberculosis with culture and drug susceptibility reports of Extensive drug resistance or Multi-drug resistance were given Intravenous Meropenem with clavulanic acid once daily. Sputum smear was done every 15 days.
Results: In all, a total of 21 out of 26 patients (80.8%) turned sputum negative within 60 days. Sputum conversion was seen in 9.1%, 45.5%, 54.6% and 90.9% of MDR TB patients and in 36.6%, 56.6%, 63.2% and 73.3% of XDR TB patients at 15, 30, 45 and 60 days of treatment respectively.

Conclusion: Meropenem along with clavulanic acid was found to be successful as an additional drug in the treatment of Extensively drug resistant and Multi-Drug resistant Tuberculosis. The success rate of this therapeutic combination for early sputum conversion, could be used for patients who are willing to be hospitalised, and will also provide hope in the era where second line anti-tuberculosis drugs are expensive, prevalence rates high and success rates low.

Emergence of MDR & XDR-TB: Where we are and what we have to face?

Shankar Prasad

Tuberculosis (TB) remains a cause of concern for the whole world even today in spite of the availability of the therapeutically effective drugs. Although Short Course Chemotherapy (6-9 months) was made available in 1984/85 but WHO had to declare Tuberculosis disease as a Global Emergency in 1993 and now Ministry of Health and Family Welfare, Govt. of India had to notify Tuberculosis disease on 7th May, 2012.

Various studies carried out indicated irregular, incomplete, indiscriminate and improper use of 1st line Anti-TB drugs (like Isoniazid, Rifampicin, Ethambutol, Pyrazinamide & Streptomycin) as one of the most important causes of emergence of MDR-TB (Multi Drug Resistant Tuberculosis).

Moreover unethical use of 2nd line Anti-TB drugs (like ciprofloxacin, Ofloxacin, Levofoxacine, Mobificloxacin, Gatifloxacin, Ethionamide, Prothionamid, Clofazimine, Linezolid, Clarithromycin, Amicacin, Ciprofomycin, Cycloserin etc.) are converting MDR-TB into XDR-TB (Extensively Drug Resistant Tuberculosis).

It is also a known fact that treatment of MDR/XDR-TB is not only very expensive and of long duration but also very toxic with various adverse drug reactions.

So 1st and foremost efforts should be confined to secure proper utilization of 1st line Anti-TB Drugs to prevent emergence of MDR-TB & prevention of use of 2nd line Anti TB Drugs without Culture & DST (Drug susceptibility testing).

Ministry of Health & Family Welfare, Govt. of India’s Notification on Tuberculosis would be helpful but help of individual TB workers, NGO’s like Tuberculosis Association of India, Association of Chest Physicians, Association of Physicians of India as well as Indian Medical Association & intensive IEC activities are the must to avert the tragedy (XDR-TB) otherwise we would have to return back to the Sanatoria era.

Detecting Tuberculosis infections among persons living with HIV in Karnataka, India: a population-based analysis

Reynold G Washington, Souradet Y. Shaw, Marissa Becker, J Prakash, BM Ramesh, Shajy Isac, James F. Blanchard, Stephen Moses,

Background
Tuberculosis (TB) and HIV co-infection in TB endemic regions is a clinical and programmatic challenge. TB is the commonest OI and cause of death among people living with HIV. While the intensified TB-HIV program has enhanced linkages between national TB and HIV programs in India, critical gaps remain. The Samastha HIV care and support project mandated that all PLHIV be assessed for TB at every clinical visit.

**Methods**
Data were obtained from PLHIV registered between 2007 and 2010 in the Samastha project, a comprehensive HIV program for PLHIV in 15 high prevalence districts in Karnataka state, southern India, supported by USAID. Poisson regression models were used to assess the impact of year, age, sex, geography (north/south) and urban/rural location on TB detection rates at the time of registration.

**Results**
70,028 PLHIV were included, of which 6,067 (8.7%) had a TB diagnosis at registration. Diagnosis of TB at time of registration increased from 75.1 per 1,000 in 2007 to 92.7 per 1,000 in 2010, for an adjusted increase of 6% per year (p<.0001). TB diagnosis increased similarly for men and women (8% p<.0001), and for urban/rural locations (9%, p<.0001). Diagnosis increased in southern Karnataka (8%, p<.0001), but not in northern Karnataka (1%, p=.533). Of 35,507 PLHIV who had CD4 counts measured at program registration, 4% of individuals with CD4 $>350$ cells/mm$^3$ had TB at time of registration as compared to 16% of individuals with CD4 $<200$ cells/mm$^3$. In multivariable models, individuals with CD4 $<200$ cells/mm$^3$ were 3.6 times more likely (95%CI: 3.2-4.0, p<.0001) to be diagnosed with TB at registration.

**Conclusions**
Diagnosis of TB at registration increased as the Samastha program matured, with equitable outcomes seen in women and men, and by urban and rural locations, while diagnosis should be improved in northern Karnataka.

**COMPARISION OF VARIOUS DIAGNOSTIC MODALITIES IN PATIENT’S OF EXUDATIVE PLEURAL EFFUSION**
D.C. Gupta, N K Jain, R K Jenaw, S Koolwal, N Khippal

**Objectives:** This study was undertaken to compare and correlate efficacy of pleural fluid adenosine deaminase, with pleural fluid alkaline phosphatase, and their ratio to serum level in patient’s of exudative pleural effusion with confirm diagnosis by gold standard.

**Methods:** A total of consecutive 262 patients, who attend OPD and IPD, had exudative pleural effusion and gave their consent were included in this study. Diagnosis was confirmed by gold standard method of diseases and assigned into two groups: tuberculous (192) and non- tuberculous (70) pleural effusion. Value of ADA and ALPO4 were tested in each group.
Results: Mean value of pleural ADA, ALPO4 and their ratio to serum level was significantly higher in TB as compared to Non TB pleural effusion ($P < 0.001$). In ROC curve analysis, sensitivity and specificity values were 93% & 97% for a cut-off value of 50 U/L for pleural ADA, 75% & 79% for 60 U/L pleural ALPO4 and were 81% & 91% for P/S ADA, 91% & 73% for P/S ALPO4 ratio respectively. At a cut off level of 70U/L PF ADA found to have 77% & 100% and at 0.9 P/S ALPO4 have 52% & 100% sensitivity and specificity respectively.

Conclusion: At 70 U/L Pleural ADA and 0.9 P/S ALPO4, it is possible to avoid invasive and expensive methods to ascertain diagnosis of tuberculosis in as much as 77% and 52% patients respectively. This is most helpful in remote areas where advanced diagnostic lab facilities are not available yet.

Untrained medical officers and interrupted HIV kit supply resulted less number of HIV testing among tuberculosis patients 2010-12, Hugli, India

Rama Bhunia, S Dey, D Roy, T Mondal, S Banerjee, A Sen, R R Banik, B Saha, S Halder

Background: There was limited information regarding TB-HIV co-infected case patients in Hugli district. We evaluated the TB-HIV component of Revised National Tuberculosis Control Programme between April 2010 and March 2012 in Hugli with the objectives to identify the gaps in terms of input, process and output indicators.

Methods: Input indicators included proportion of trained key health care personnel, Number of ICTC/ TU, process indicators as proportion of ICTC with interrupted supply of HIV kit > 2 weeks/ six months, ICTC visit at least once six monthly by district officers and output indicator as proportion of TB patients HIV tested.

Results: 11 tuberculosis units (TU) had trained 11 Medical Officers (Tuberculosis Control), 11 Senior Treatment Supervisors, 11 Senior Tuberculosis Laboratory Supervisors. 12 ICTCs had 12 trained laboratory technicians but 12 of 52 (23%) medical officers working in DMCs were trained. There was no ICTC in Ahmedpur TU. 11 of 12 ICTCs (92%) did not have uninterrupted HIV kit supply. District officers visited all the ICTCs . Of 5816 tuberculosis patients, 1869 (32%) were HIV tested and 33 (1.8%) TB-HIV co infected case-patients were detected between April 2010 and March 11. Of 5857 TB patients, 2606 (45%) were HIV tested and 50 (1.9%) TB-HIV co-infected case-patients were detected between April 2011 and March12.

Conclusions: HIV testing of all tuberculosis patients was less due to untrained MOs and HIV kit interrupted supply. State health authority sanctioned another six ICTCs, DMC medical officers were trained and HIV testing kit supply monitored weekly.

AN ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF PHYSICIANS REGARDING DIAGNOSIS AND MANAGEMENT OF COPD

Jai Kishan, Rajesh Bhaskar
**Aims and Objectives:** To assess the current Knowledge, Attitude and Practice (KAP) of physicians regarding diagnosis and management of COPD and to identify any gaps and reasons for deviation from standards of COPD management.

**Material and methods:** The study was conducted by Department of Pulmonary Medicine, Government Medical College, Patiala, on physicians involved in management of COPD patients. The study included 300 physicians, 75 each in category of primary, secondary and tertiary health care providers and Pulmonologists. A self designed questionnaire was used for the assessment and responses were received by e-mail, fax and interviews.

**Results:** COMPARISON OF AGGREGATE SCORE FOR KAP

<table>
<thead>
<tr>
<th>Score</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Pulmonologists</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>(747/1800) 41.5%</td>
<td>(883/1800) 49.1%</td>
<td>(915/1800) 50.8%</td>
<td>(1259/1800) 69.9%</td>
<td>3804/7200 (52.8%)</td>
</tr>
<tr>
<td>Attitude</td>
<td>(216/675) 32.0%</td>
<td>(256/675) 37.9%</td>
<td>(263/675) 39.0%</td>
<td>(391/675) 57.9%</td>
<td>(1126/2700) 41.7%</td>
</tr>
<tr>
<td>Practice</td>
<td>(392/1275) 30.7%</td>
<td>(449/1275) 35.2%</td>
<td>(495/1275) 38.8%</td>
<td>(658/1275) 51.6%</td>
<td>(1994/5100) 39.1%</td>
</tr>
</tbody>
</table>

Only 39.1% were practicing COPD guidelines. Pulmonologists were significantly ahead of other groups compared individually in all parameters. (p-value >=0.001 compared to other groups) Also, despite adequate knowledge and a positive attitude, practice of standard management guidelines significantly lags behind among all study groups compared collectively (For sum total: K and A >=0.001, A and P =>0.001 and P and A =>0.001).and individually as well. Physicians of all level need to be given training for improving knowledge and attitude. Facilities need to be provided to improve their practice.

**COPD – AN ORPHAN DISEASE**

A.K. Vashist

COPD – a grossly neglected area from public health perspective is still under diagnosed, undertreated and underfunded. It is a progressive and disabling disease, affects the quality of life of an individual and kills 1 person every 10 seconds – 1.6million/ year. Tobacco smoking and cooking on solid fuels are the major risk factors. 90% of the COPD deaths occur in low and middle income countries on account of cumulative effects of fumes from burning solid fuels with an additive effect of simultaneous smoking in unventilated kitchens. The number of people using solid fuels is likely to increase from 2.4 billion to 2.63 billion by 2030 and presently 2 billion tobacco consumers are also increasing at an alarming pace. Unchecked
COPD is projected to be the third leading cause of death by 2030. With ageing population, the burden of COPD in the community is on a rise. Management cost of COPD for the patient/ family members and the society as a whole is cumbersome. Community awareness and Lung Health Promotion need to be imparted as empowering the community is a low cost – high gain sustainable intervention. Programs targeting families against indoor air pollution and adolescents against tobacco smoking will arrest the ill effects of IAP and COPD in the long run. Focussed and sustained advocacy evoking multi-sectoral response is urgently required to combat COPD so that in the long run it is not a major public health problem. This paper deals with the community-based management of COPD.

5 M approach to enhance tuberculosis case finding

Gururaj Patil, Reynold G Washington, Oommen George, Shenoy Cherian, Prarthana R

Background:
In 2011, the UASID supported, Market Based Partnership for Health (MBPH) TB Care and Control Project was launched in 13 districts in Karnataka to enhance TB case detection in urban slums.

Methods:
Macro-planning: 633 highest populated urban slums in 49 towns were chosen.
Mapping: 1239 primary care practitioners, ranging from less-than-fully qualified medical practitioners to practitioners of modern medicine, catering to the urban slum populations were mapped, of whom only 793 reported seeing at least one TB patient in the previous month. 928 providers were sensitized, 333 trained and 439 networked and provided supportive supervision.
Micro-planning: Community outreach workers used social and focus maps to reveal locations and profiles of TB practitioners and patients. All Family and occupational contacts were screened for symptoms suggestive of TB.
Mobilisation: Community level events and interpersonal communication through house visits were used to sensitize and mobilize CS to seek a sputum test.
Monitoring: Project was monitored using multiple tools and processes; a web-based MIS platform generated valuable disaggregated data and RNTCP laboratory & TB registers provided outcome level information. Data quality assessments and external evaluations ensured quality assurance.

Results:
1160 new sputum positive cases of TB were detected from 7450 referrals (16% conversion). Private Health care providers contributed 337 TB patients from 1601 referrals (21%), and direct referrals from outreach workers led to 759 cases from 5192 referrals (15%). In addition, communication resulted in increased health seeking and case detection. Overall, monthly RNTCP data trends showed 85% increase in sputum microscopy among CS from
MBPH intervention slums and 43% increase in TB case detection at the end of 7 and 9 months respectively, from the start of the intervention.

**Conclusion:**
A comprehensive approach using the 5 M is efficient in enhancing TB case detection.

Comparison of *in-house* multiplex PCR with commercial Immuno-Chromatography Tests for rapid identification and differentiation of *M. tuberculosis* from Non-tubercular Mycobacteria

Parveen Kumar, Prit Benny, Manisha Jain, Satyendra Kumar Sahani, Sarman Singh.

**Background and Aim:** Currently, rapid Immuno-Chromatographic Test (ICT) has been used to develop one step rapid *M. tuberculosis* (MTB) confirmation in culture isolates. However, these ICT devices require bacteria to grow in cultures which take several days to week. In the present study, we evaluated rapidity and accuracy of an *in-house* multiplex PCR (m-PCR) carried out directly on the clinical samples in terms of rapid identification and differentiation of *M. tuberculosis* from Non-Tuberculous *Mycobacterium*.

**Methods:** In a single blind prospective study, a total of 224 clinical samples from patients with suspected tuberculosis were tested by m-PCR. This PCR uses the *Mycobacterium* genus specific target *hsp*-65, MTB specific target *esat*-6 and ITS region of *M. avium* complex specific target. All samples were cultured in MGIT culture tubes and processed in an automated system (MGIT-960 ®). From the medium in the tubes twoICT tests: BD MGIT TBc Identification Test (TBc ID) (Becton Dickinson,USA) and SD Bioline TB Ag MPT-64 Rapid Test (Standard Diagnostics, Korea) were performed as per the manufacturers’ instructions. Data were statically analyzed by comparing the results of m-PCR and ICT.

**Results:** After 42 days of incubation of 224 samples, 139 were MGIT cultures positive and 85 MGIT culture negative. Out of 139 MGIT positive, 112(80.5%) isolates were found positive as MTBC and 27 (19.45%) negative by both ICT tests. However, m-PCR was able to detect 115 (82.7%) as MTB. Moreover, among 27 strip negative, 23 cultures were detected as NTM, 3 MTB and 1 MAC. All MGIT culture negative were detected negative by both ICT strip tests.

**Conclusion:** The in-house m-PCR was found more sensitive, rapid (could be done directly on clinical samples) and able to differentiate *M. tuberculosis*, *M. avium* and other non-tuberculous mycobacteria.

Molecular Characterization of *Mycobacterium tuberculosis* isolated from North Indian Patients with extrapulmonary tuberculosis

Manimuthu Mani Sankar, Jitendra Singh, Sandeep Kumar, Parveen Kumar, Selvaraj Cynthiya Angelin Diana and Sarman Singh
**Background:**

EPTB, though not a public health problem, as it is not contagious, yet it is a major health problem due to significantly high rate of mortality and morbidity in India. EPTB accounts for approximately 15-20% of all types of tuberculosis. Genotyping of *M. tuberculosis* as such, helps in tracking the transmission links between individuals, and demonstrates instances in which epidemiologically linked people are infected with unrelated strains. Genotyping can also differentiate recurrence and re-infection of the infection.

**Material and Methods:** A total of 419 samples from suspected EPTB cases (one sample from each patient) were collected from the All India Institute of Medical Sciences, New Delhi between April 2007-May 2011. All samples were obtained before starting any treatment. Culture isolates (125) obtained from these samples were subjected to spoligotyping and 24 loci mycobacterial interspersed repetitive units (MIRU).

**Results:** Spoligotyping results were compared with the world Spoligotyping Database of Institute Pasteur de Guadeloupe (SpolDB4). The spoligotyping results showed that 110 (88%) displayed known patterns while 15 (12%) isolates had no matching database. Predominant spoligotypes belonged to CAS family (57.27%). The largest clade comprised of 38 isolates belonging to the CAS1_DEL lineage. Though there was no significant association between specific mycobacterial lineage and extra-pulmonary site, a significantly high (p<0.001) number of Beijing type isolates (28.6%) were isolated from bone and joint samples as compared to cerebrospinal fluid (5%).

**Conclusions:** There was a significant association between Beijing family isolates and multi-drug-resistance, while all MANU genotypes were pan-drug sensitive. The CAS family lineage was most prevalent genotype in the EPTB cases in our population.

**Poor Performance of Serological Tests in the Diagnosis of Pulmonary Tuberculosis: Evidence from a Contact Tracing Field Study**

Sarman Singh, Jitendra Singh, Sandeep Kumar, Krishnamoorthy Gopinath, Veena Balooni, Niti Singh, Kalaivani Mani

**Background:**

Delayed or missed diagnosis of TB continues to fuel the global TB epidemic, especially in resource limited settings. Use of serology for the diagnosis of tuberculosis, commonly used in India, is another factor. In the present study a commercially available serodiagnostic assay was assessed for its diagnostic value in combination with smear, culture and clinical manifestations.

**Methodology**

A total of 2300 subjects were recruited for the study, but 1041 subjects were excluded for various reasons. Thus 1259 subjects were included in the study of which 470 were pulmonary tuberculosis cases (440 of 470 were culture-positive) and 789 were their asymptomatic contacts. A house-to-house survey method was used. Blood samples were tested for IgM,
IgA, and IgG antibodies using the Pathozyme Myco M (IgM), Myco A (IgA) and Myco G (IgG) enzyme immunoassay (EIA).

Results

Out of 470 PTB cases, BCG scar was positive in 82.34%. The Mantoux test and smear positivity rates in PTB cases were 94.3% (430/456), and 65.32% (307/470), respectively. Among the asymptomatic contacts, BCG scar was positive in 95.3% and Mantoux test was positive in 80.66% (442/548) contacts. No contact was found falsely smear positive. The sensitivity of IgM, IgA, and IgG EIA tests was 48.7%, 25.7% and 24.4%, respectively, while the specificity was 71.5%, 80.5%, 76.6%, respectively. Performance of EIAs was not affected by the previous BCG vaccination. However, prior BCG vaccination was statistically significantly \( (p=0.005) \) associated with Mantoux test positivity in PTB cases but not in contacts \( (p=0.127) \). The agreement between serology and Mantoux test was not significant.

Conclusion

The commercial serological test evaluated showed poor sensitivity and specificity and suggests no utility for detection of pulmonary tuberculosis.

EVALUATION OF SERUM PHOSPHORUS LEVEL IN ACTIVE PULMONARY TUBERCULOSIS

V. ARUNCHANDAR, RAJESHWARI, NANCY GLORY

INTRODUCTION

Malnutrition is observed frequently in patients with pulmonary tuberculosis but their nutritional status is poorly documented. There was a tendency for phosphorus level to be higher in those with more extensive active disease suggesting an association with tissue destruction. It appears therefore more relevant to study the behaviour of this element.

AIM AND OBJECTIVE

The objective of this study is to investigate the serum phosphorous in newly diagnosed pulmonary tuberculosis patients.

STUDY CENTRE

Institute of Thoracic Medicine, Madras Medical College, Chennai

STUDY DESIGN

Observational study
DURATION OF STUDY

3 months

MATERIAL AND METHODS

In this study 25 outpatients aged 15 to 80 years with newly diagnosed active pulmonary tuberculosis patients were subjected to routine blood investigations, chest x ray, pa view and sputum for AFB 2 smears.

INCLUSION CRITERIA

Newly detected pulmonary tuberculosis patients.

EXCLUSION CRITERIA

Patients not giving consent for the study

ANALYSIS

By appropriate statistical methods.

Results

Results of the study will be presented at the Conference

RARE COMPLICATION OF CHRONIC EMPYEMA -
A CASE REPORT

KASI.M, NANCY GLORY.D, SUNDAR.V,

Mediastinitis with subsequent empyema or pyopneumothorax represents one of the most common complications of esophageal perforations. However, the reverse pathogenesis, i.e perforation of esophagus caused by chronic empyema, occurs with sufficient rarity as to justify the reporting, case report in which chronic empyema was the causative agent of oesophageal pleural fistula.

CASE REPORT:
A 38 year old male chronic alcoholic was referred to us as a case of chronic empyema for the past 6 months. He had been treated with ATT and antibiotics irregularly over the period of 6 months. On admission, emergency tube thoracostomy was done that drained 2L of foul smelling pus. On 4th day, he complained of finding food particles in the Intercostal drainage tube. Emergency CT was taken with oral contrast, that showed a fistulous connection between oesophagus and pleural space. Upper GI endoscopy revealed a fistulous opening in the middle one third of oesophagus. Patient was referred to surgical gastroenterologist for surgical management, however the patient succumbed to sepsis in spite of treatment.

BRINGING OUT THE DETERMINANTS OF ATT DEFAULT


INTRODUCTION: Defaulters of ATT are an important cause for failure to reach targets of RNTCP and for the emergence of drug resistant TB.

AIM: To analyse the reason for default of anti tuberculosis treatment.

JUSTIFICATION OF THE STUDY: By analysing the reasons for ATT default we will be in a position to devise better programmes to reduce incidence of default.

STUDY CENTRE: Institute of Thoracic Medicine, Madras Medical College, Chennai.

STUDY DESIGN: Observational study.

MATERIAL AND METHODS: In this study, 100 patients who have defaulted anti tuberculosis treatment will be administered a questionnaire.

INCLUSION CRITERIA: All patients who have defaulted under RNTCP and from private practitioners.

EXCLUSION CRITERIA: None.

Results will be presented in the conference.

COMPARISON OF OBSTRUCTIVE SLEEP APNEA IN OBESE AND NON-OBESE

Kandala Venu, Kondapalli Nageswara Rao, Divyesh KW, Sharvil Soni, Raghudeep, Srikar

Background:

Obstructive sleep apnea is more commonly encountered in obese subjects. But a few non-obese subjects also develop sleep apnea.

Objective:

To compare the anthropometric data and polysomnographic data in obese and non-obese patients of obstructive sleep apnea.

Material and Methods:

A Cross-sectional study was conducted in 30 subjects with history of snoring and ESS>10 by polysomnography. Out of 30 subjects 23 were diagnosed obstructive sleep apnea (AHI>5).These 23 subjects were classified as non-obese and obese based on BMI, <30 and
Results:

Total number of OSA cases were 23 subjects, 13 were obese and 10 were non-obese. No difference in mean age, sex was observed. Statistically significant difference in mean BMI (33.31±3.3 vs 26.9±2.28), anthropometric measurements (WC, HC, TMD), ESS, Arousal index, oxygen desaturation parameters (ODI, T%<90% SaO2) was observed in obese and non-obese patients of OSA. Mean value of lowest oxygen saturation was significantly lower in obese than non-obese patients of OSA. Total sleep time, sleep efficiency, N3 stage and REM stage was significantly decreased in obese than non-obese patients of OSA.

Conclusion:

Obstructive sleep apnea was more common in obese than in non-obese patients. The severity of OSA was increases with the obesity. Non-obese patients who had OSA were had structural abnormalities like lower thyromental distance than in obese and Mallampati score class 2 and class 3 abnormalities. Smoking and alcohol intake were predisposing risk factors for obstructive sleep apnea in non-obese patients. Interventions like weight reduction and changing of life style may have beneficial effect in the outcome of obstructive sleep apnea.

ROLE OF RAPID DIAGNOSTIC METHODS ON MDR TB CASE MANAGEMENT UNDER NATIONAL TB CONTROL PROGRAMME

K.K Chopra, M. Hanif, Vidya Nidhi Gumma

Introduction:

Multidrug-resistant tuberculosis (MDR-TB) poses a formidable challenge to TB control due to its complex diagnostic and treatment challenges. India is the highest TB burden country in the world accounting for one-fifth of global incidence. The problem has recently been compounded by the emergence of multidrug resistant tuberculosis (MDR-TB). Conventional methods for mycobacteriological culture and drug susceptibility testing (DST) are slow and cumbersome, requiring sequential procedures for isolation of mycobacteria from clinical specimens, identification of Mycobacterium tuberculosis complex, and in vitro testing of strain susceptibility to anti-TB drugs. During this time patients may be inappropriately treated, drug resistant strains may continue to spread, and amplification of resistance may occur. Rapid detection of anti-TB drug resistance have therefore become a priority in TB research and development. Recent advances in technology have introduced in National TB control programme as a rapid and reliable method (LPA) to differentiate between susceptible and resistant Mycobacterium tuberculosis strains.

Objectives
1. To study the Impact of rapid diagnostic method on MDRTB case management
2. Comparison of conventional method and rapid method on MDRTB case management

Material and Methods:
A cross sectional study was conducted. Samples were processed by conventional proportion method (DST) and rapid method by Line Probe assay, and following base line indicators were studied. a) No. of confirmed MDR TB cases, b) Average time for reporting result to DTO c) No of confirmed MDR cases by two methods, Proportion of confirmed MDR cases started on DOTS.

Results:
Introduction of LPA in National Revised TB control programme showed MDR cases detected among suspects was 41.3% as compared to 49.67% with conventional LJ method. Similarly cases put on MDR treatment increased up to 87.7% from 71 % with conventional method. Drastic reduction of death rate 0.22% after introduction of rapid molecular method (LPA) as compared to 9% of death rate through conventional method. Not willing for DOTS plus treatment cases fallen from 7.25% to 3.3% by LPA , not tracing of patients was also be decreased from 6% to 2.5 %

Conclusion:
Introduction of these assays in screening and diagnostic algorithms could significantly reduce the turnaround time, impact on morbidity, mortality and transmission of MDR-TB and not willing for DOTS plus treatment.

PREVALENCE OF SMOKING AND BEHAVIOURAL PATTERN AMONG MEN TOWARDS MEASURES IMPOSED UNDER ‘THE CIGARETTES AND OTHER TOBACCO PRODUCTS ACT 2003’ IN RURAL HARYANA
RANDHIR KUMAR, ANU BHARDWAJ, SHALINI DEVGAN, S K AHLUWALIA, ABHISHEK SINGH, JYOTI RANI

Introduction: Tobacco is the most important preventable cause of death and disease among adults. In 2003, The Government of India passed the Cigarettes and Other Tobacco Products Act (COTPA) applicable to all tobacco products. Public awareness of the ban on smoking in public places was very low and as a result, there were widespread violations.

Objective: To ascertain prevalence of smoking and to assess the behavioural pattern among rural men towards anti tobacco measures imposed under cigarette and other tobacco products act 2003.

Material & Methods: The present cross sectional survey was carried out in the rural field practice area of the department of community medicine, MMIMSR, Mullana among 661 men aged ≥ 18 years for a period of 4 months from August to December 2012 using pretested self-administered questionnaire. Data was analyzed using SPSS version 20 and valid conclusions were drawn.
Results & Discussion: The prevalence of smoking was 42.7% and among them 78.8% were regular smokers. The prevalence of smokeless tobacco was 32.4%. Biphasic trend was observed in age and smoking pattern. Only 9% of the study population were aware of the COTPA 2003, 86.2% were aware of prohibition of smoking in public place and 73.0% knew the age limit below which sale of tobacco products was banned. 21.8% of smokers were reported that their smoking habit got reduced to some extent because anti-tobacco advertisement & act, 4% reported that they had totally quit smoking but majority (68.2%) of them reported that act didn’t had any impact on their smoking habit.

Conclusion: Preventive steps like behavioural change communication, fiscal measures and further more strong enforcement of the act are needed in order to achieve desired results of COTPA act.

A STUDY OF SPUTUM EOSINOPHILS IN ACUTE EXACERBATION OF ASTHMA

N.Sandeep Krishna, K.Surendra Menon

Aim-
To find the levels of sputum eosinophils during well controlled and acute exacerbation of asthma and to find the association of sputum eosinophils with acute exacerbation of asthma.

Methodology-
This study was conducted on 46 patients of asthma who came with exacerbation of symptoms. Sputum eosinophils were measured during the initial visit. They were treated on a combination of inhaled long acting beta 2 agonists with an inhaled corticosteroid and short acting beta 2 agonists as and when required. These patients were later followed up twice. Follow up visit 1 being one month after the initial visit and follow up visit 2 being one month after the follow up visit 1 and their sputum eosinophil count and level of asthma control were assessed in both the follow up visits. The patients in both the follow up visits were classified as well controlled and exacerbation based on the symptoms of asthma control questionnaire and spirometry. The level of sputum eosinophils during each visit was analysed to find its association with exacerbation of symptoms.

Results-
Out of the forty six patients who came initially with exacerbation twenty eight (61%) had eosinophils and eighteen (39%) had normal counts. In follow up visit 1, eight patients who had exacerbation, seven (87.5) patients had eosinophilia and the remaining one patient (12.5%) had normal eosinophil count in the sputum. There is a significant association between sputum eosinophilia and exacerbation of symptoms. In visit 2, out of four patients who came with exacerbation one (25%) patient had elevated sputum eosinophil count.

Discussion- Asthma is a clinical syndrome characterized by chronic inflammation of airways with variable airflow obstruction, airway hyperresponsiveness to specific and no specific stimuli. Eosinophilic airway inflammation was associated with increased symptoms and exacerbations. This study suggests that there is a significant association between acute exacerbation of asthma and sputum eosinophilia.
Conclusion- From the present study we can conclude that the sputum eosinophils are significantly increased in most asthmatics during exacerbation. Monitoring the sputum eosinophils can serve as an indicator for predicting the exacerbation and thus tailoring the treatment when sputum eosinophils are increased can reduce airway inflammation and thus prevent exacerbations.

Bidirectional screening of Diabetes patients for Tuberculosis and TB patients for Diabetes Mellitus

Mahishale Vinay, Jali M.V., Hiremath M.B

OBJECTIVES: To assess the feasibility and results of screening diabetes (DM) patients for tuberculosis (TB) and (TB) patients for diabetes mellitus (DM) within the routine health care setting

METHODOLOGY: Prospective observational study carried out within the diabetes Centre and Pulmonary Medicine Department from Feb 2012 to Sept 2012. The screening for active TB in DM patients is followed as per the guidelines of the Revised National TB Control Programme (RNTCP). The screening for DM in TB patients followed the guidelines stipulated by the National Programme for prevention and control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) in India.

RESULTS: Total of 307 patients diagnosed with TB during the study period. Among the TB patients 9.77% were smokers, 19.54% were known cases diabetes and 15.96% were newly diagnosed cases of diabetes. Total of 4118 Diabetes patients were screened for TB in which 111 patients found to have TB.

DISCUSSION: The strengths of this study are that we implemented screening within the routine health system; there was no special budget for the implementation of this activity.

CONCLUSION: It is feasible to screen DM patients for TB resulting in high rates of TB detection. It is also feasible and important to screen TB patients for DM in the routine setting, resulting in a high proportion of patients with known and newly diagnosed DM.

Estimation of Unit Cost of sputum microscopy - based on 9 years’ involvement of 9 NGO DMCs in 8 districts of UP State in India

N .Arora, Fr .S. James, Sr. P. Varghese, Fr M. Abraham, R.Singh, D. Wati

Settings: CBCI CARD Project has linked 152 Catholic Health Facilities through 198 signed NGO Schemes of Indian NTP, which is now considering payment to NGOs on Unit Cost basis

KNEUS, an FBO, is affiliated with the Project and is for over 9 years, operating 9 DMCs in 8 districts of UP State. It receives a fixed Grant-in- Aid (GIA), per DMC per year, in accordance with the DMC-A Scheme.

Objectives

1. To estimate unit costs of sputum microscopy & diagnosis of sputum positive TB cases at NGO- DMCs

2. To rationalize the basis of costing for future NGO schemes

Methodology

1. Review of data of 9 DMCs run by KNEUS.
2. Estimation of unit cost based on total number of suspects examined and positive cases diagnosed and the known amount of payable fixed GIA

Results

1. The Average Unit Cost (AUC) of sputum microscopy is INR 124 (range 76-215) and of sputum positive case is INR 766 (range 513-1407)
2. AUC of sputum microscopy and for diagnosis of sputum positive case for the period 2008 to 2012 is higher at 310% & 277% respectively, as compared to earlier than 2008, due to inflation & increase in GIA from INR 50,000 to INR 150,000.

Conclusions

1. There is a wide range of costing of microscopy services even in similar geographic & socioeconomic settings
2. Similar meta-centric estimates of cost of different NGO Schemes can be made for deciding the optimum payable unit costs & for establishing the basis of revised financial norms

Unusual appearance of an infected giant bulla: A case report

C.Raghavendra and K.Gowrinath,

The infected unilateral giant bulla may occasionally appear like pyopneumothorax on chest x-ray. We report a case of infected giant bulla on right side who underwent tube thoracostomy drainage as a case of pyopneumothorax outside under the guidance of chest x-ray (PA View) alone. The air in the right hemithorax was later established as giant bulla through computed tomography of chest.

Comparison of TST with IGRA in diagnosing tuberculosis infection in a group of elephant workers in South India

K.P Venugopal, Binu Areekal, Satheesh Mundayoor

Newer diagnostic tests for tuberculosis are being widely used in clinical practice. The exact utility of these tests has not been studied in Indian field conditions

We share our experience with these tests done as a part of our study of tuberculosis screening for elephant workers of temple elephants of south India.

Objectives

Comparing two diagnostic tests for Tuberculosis infection to assess their agreement. Sample consisted of 183 elephants workers, working as first mahouts of temple elephants in various temples of Kerala and Tamilnadu.

After getting written consents, detailed clinical evaluation was done. TST (Mantoux) done with two units PPD (SPAN diagnostics) on left arm, and blood collected for
Quantiferron gold in tube (cellestis), done at Rajeev Gandhi centre for Biotechnology, Thiruvanathapuram. TST results read after 48 hours and induration of 10mm or more taken as positive.

Total of 183 elephants workers were enrolled in the study. 12 workers were not available for reading skin test. 2 QFT results were indeterminate. Among 169 Mahouts, 61 had positive results for tuberculosis infection with both tests and 128 positive with any one of the test. 41 were negative for both. 67 persons had disagreement with TST and QFT results. If we take QFT as a gold standard and TST as a screening test, sensitivity is 64.9 but specificity is lower than 59%. Ch square test shows a significant difference between QFT and TST in diagnosis of latent TB when measurement is at 10mm. and it is statistically significant. In kappa test of agreement also it is a low agreement at 0.206 which is a low agreement. Among 6 persons with clinical evidence of tuberculosis, QFT was negative in 4, but TST was positive in all.

IGRA assay is expensive test for diagnosing latent infection. It appears to have no value in diagnosing active disease. Since there is high disagreement between the tests utility of this test in field conditions has to be re examined.

OUTCOME OF TREATMENT FAILURE CASES RETREATED WITH CATEGORY-2 ATT IN RNTCP-A STUDY FROM NORTH KERALA
B. Deepu

Introduction

India is the highest TB burden country in the world. RNTCP based on WHO recommended DOTS strategy was started in India in 1993. All new cases of TB are given category-1 therapy with 2(HRZE)3 + 4(HR)3. Those who undergoing failure in cat-1 are put on cat-2 therapy with 2(HRZES)3 + 1(HRZE)3 +5(HRE)3. There is a lot of criticism on cat-2 to treat failure cases of cat-1. So an attempt is made to investigate the outcome of cat-1 failure cases who are retreated with cat-2 regimen.

Aims and Objectives

- To obtain the outcome of category-1 failure cases initiated on cat-2 regimen.

Methodology

Retrospective collection of data, and analysis of all cases of category-1 failure cases who are initiated on cat-2 therapy in Malappuram district of Kerala registered from fourth quarter of 2006 to third quarter of 2011 from TB register in DTC.

Results

Of total 260 cases of category-1 failure cases initiated on cat-2 regimen,
- 183 cured (70.38%)
- 13 treatment completed (5%)
- 9 died (3.3%)
- 30 cat-2 failure(11.53%)
- 18 defaulted (6.93%)
- 3 transferred out (1.15%)
- 4 cases switched to cat-4 (1.53%)
Discussion

The cat-2 regimen can cure 70.38% of cat-1 failure cases. If the treatment completed is also taken into account, 75.38% of cat-1 failure cases get benefited from cat-2, which is contrary to previous studies, may require larger studies to confirm.

A STUDY ON PROPORTION OF COUGH OF $\geq$ 2 WEEK AND $\geq$ 3 WEEKS IN OUT PATIENT ATTENDEES AT COMMUNITY HEALTH CENTER AND YIELD OF SMEAR POSITIVE PULMONARY TUBERCULOSIS CASES AMONG THEM

Dhabadi B, Meundi AD

Objectives: 1) To estimate the proportion of cough of $\geq$ 2 weeks and $\geq$ 3 weeks duration in adult new OPD attendees 2) To estimate and compare the yield of smear positive pulmonary tuberculosis cases among the above two groups. Methods: A cross-sectional study was undertaken among new adult out patients in CHC Sullia. After screening, individuals with cough for $\geq$ 2 weeks were interviewed using structured questionnaire. All the identified PTB suspects were referred for sputum microscopy examination for AFB by ZN technique. Results: A total of 533 PTB suspects were identified by screening 247343 new adult OPD attendees. The proportion of PTB suspects with cough $\geq$ 2 weeks duration was 2.15% and $\geq$ 3 weeks duration was 1.27%. Among the identified PTB suspects 126 (23.64%) did not provide two sputum samples. Of 407 who provided two sputum samples, 19 (4.7%) sputum positive cases were diagnosed among PTB suspects with cough of $\geq$ 2 weeks, and 14 (5.5%) sputum positive cases among PTB suspects with $\geq$ 3 weeks. Conclusion: There was an increase of 70% in identification of PTB suspects and increased yield of 36% of sputum smear positive tuberculosis cases when the revised criterion (cough $\geq$ 2 weeks duration) was used compared to the earlier criterion. This substantiates the continued use of “$\geq$ 2 weeks” definition of PTB suspects under RNTCP in India.

Clinical profile and treatment outcomes in patients of pyo-pneumothorax in a tertiary care hospital


Aims and Objectives

The present study was undertaken to study the age-sex profile, symptomatology, microbiologic findings, etiology, management and treatment-outcome in new patients of pyopneumothorax.

Material and Methods

The prospective study on 57 new cases of pyopneumothorax was conducted in patients admitted at LRS Institute of Tuberculosis and Respiratory Diseases. In all cases closed intercostal tube along with under water seal drainage was applied along with proper chemotherapy (antibiotics / anti-tubercular) and physiotherapy given according to need. Daily assessment of the progress in the cases was made and the cases who did not have satisfactory
outcomes after 3 weeks, were evaluated for thoracic surgical intervention for further
management. Surgery if required was done. Patient underwent surgical intervention followed
up in the OPD to record the treatment outcomes.

Results

In this study on 57 patients of pyopneumothorax we found out majority of them were
between 21 to 40 years. The male and female ratio was found to be 4:1, smoking and
alcoholism history was present in about 40 % Chest pain and cough were most common
symptoms.
Tubercular and pyogenic ratio was 3:1, more frequently on the right side (52.6 %) and in
three fourth of the tubercular cases the contra-lateral lung also showed lesions. Overall
average duration of hospital stay is 51 days ranging from 10 to 110 days (tubercular 60 days
and pyogenic 37 days). We found 80% success rate in the management of pyopneumothorax
with intercostal tube drainage only. Average duration of ICD before surgical intervention was
63 days.

DOTS – THE INCOMPLETE STORY

PRASHANT KUMAR, R.B.DEOSKAR, MEDHA.D.BARGAJE, YOGESH AGRAWAL

OBJECTIVE

To highlight the problems faced by clinicians at tertiary care hospital in implementing DOTS
in special situations.

METHODOLOGY

Patients of tuberculosis who were receiving DOTS from our DOTS centre were followed up
during the treatment and co-morbidities and adverse drug reactions were noted and necessary
modification in the dosage of anti tubercular treatment were done.

DISCUSSION

It was observed that in certain cases dosages of anti tubercular drugs had to be modified and
stepwise drug challenge was done in case of adverse drug reactions, hence it was found to be
difficult to implement DOTS in such cases as drugs are available only in kits in fixed doses.

CONCLUSION

Certain problems in implementation of DOTS need to be highlighted and suitable modified
guidelines for such special cases like drug rash, drug induced hepatitis, renal function
impairment, etc., need to be given.
Mucous matters more for diagnosis of Pulmonary Tuberculosis

Deval Mehta, Bhupendra Rathod, Iva Chatterjee, Firoj Ghanchi

Ziehl–Neelsen staining method of sputum smear microbiology adopted with strict standardization in RNTCP of India is a cheap, easy to perform tool with improved sensitivity (> 60%). Under the program two sputum samples on consecutive days are collected for diagnosis of pulmonary tuberculosis. The analysis was undertaken to assess qualitative and quantitative impact of two different sputum samples of patients diagnosed to have smear positive pulmonary tuberculosis at designated microscopy centre (DMC) in year 2011. For 693 smear positive pulmonary tuberculosis patients, 1386 smears were prepared, stained and screened for AFB as per standardized RNTCP protocol. Out of 1386 smears, 1206 (87%) were mucoid and 180 (13%) were mucosalivary in nature. 89% (1075/1206) mucoid (M) samples and 45% (81/180) mucosalivary (MS) samples showed presence of AFB (smear positive). Only 11% (131/1206) M samples were smear negative whereas 55% (99/180) MS samples were smear negative. 82% (566/693) patients had first day sample mucoid and 92% (639/693) had 2nd day mucoid sample (10% gain). 70% (483/693) and 98% (680/693) patients respectively had 1st and 2nd smear positive (gain 28%).

**Conclusion:** MS samples have high smear negativity whereas M samples have very high smear positivity. Incremental yield of 2nd smear positivity is significant which in part is related to improved sputum quality (mucoid). Smear positivity is more related to mucoid quality of sputum sample. One visit, one sample diagnosis of pulmonary tuberculosis could be a reality with ensured high quality (mucoid) sputum sample that undoubtedly would save precious time and resources in underprivileged, high tuberculosis burden regions.

Correlation between clinical predictor and bacterial flora from sputum in patients with acute exacerbation of chronic obstructive pulmonary disease

GARG NITIN, ARORA V.K, PRASAD ANURAG, GUPTA SONISHA, MISHRA PRASHANT, GUPTA PRASHANT

**BACKGROUND:** The wide use of antibiotics for treatment of chronic obstructive pulmonary disease (COPD) lacks evidence. The aim of this prospective study was to identify factors that can help to estimate the probability that a microorganism is involved in exacerbation of COPD and, therefore predict the success of antibiotic treatment.

**METHODS:** Clinical data and sputum samples were obtained from 50 patients during exacerbation of COPD. Bacterial infection was identified by the presence of a potential pathological microorganism in relation to the normal flora in sputum.

**RESULTS:** Out of 50 exacerbation, 19 (38%) had bacterial involvement. There was a strong correlation between four predictors that are. A) severity of COPD (the more the
severity) b) reduced peak expiratory flow rate  c) grade of dyspnea (higher the dyspnea) and
d) colour of the sputum (purulent sputum), to a positive culture (p value <.001).

Conclusion: These bedside clinical predictors can be very useful in predicting a pathogenic origin of AECOPD and based on culture / sensitivity pattern of the institute this could guide the need for an early antibiotic therapy in cases of AECOPD pending culture.

Study of primary drug resistance to first-line and second line anti-tubercular agents

Myneedu VP, Singhal R, Khalid UK, Sharma PP, Bhalla M, Sarin R

Introduction: No data is available regarding the prevalence of first-line and second line anti-TB drug resistance in treatment-naïve tuberculosis TB patients from North India.

Objectives: Study of primary drug resistance to first-line and second line anti-tubercular agents

Methodology: A total of 452 TB patients were enrolled in 12 designated microscopy centers within a district under RNTCP as per cluster sampling methodology. Detailed clinical information was collected for each patient. All samples were processed for microscopy, conventional culture and drug susceptibility to first line and second line anti-tubercular agents.

Results: Mean patient age was 32.1 years with male predominance of 63.2%. For information provided, 33 patients were alcoholic, 32 had history of drug abuse, 17 smokers, 17 HIV positive, 6 diabetic and 1 malnutrition. Anti-tubercular treatment (< 1 month) was taken by 31 patients. Of the total samples, 76.3% were smear positives and 86.9% were culture positives. A total of 12 (4.5%) isolates were found to be multi-drug resistant of which 1(0.4%) strain was extensively drug resistant (XDR). Mono-isoniazid resistance, mono-rifampicin resistance and mono-ofloxacin resistance was found in 6.1%, 0.8% and 1.9% strains respectively. Two stains were found to be resistant to all first-line drugs.

Conclusion: This is the first systematic study from North-India to assess the primary first-line and second line anti-TB drug resistance. A prevalence of 4.5% and 0.4% of MDR and XDR is found in the study.

LINE PROBE ASSAY IN DETECTING MULTI DRUG RESISTANT MYCOBACTERIUM TUBERCULOSIS AND THE MUTATIONS IN NORTH EASTERN STATES

Ritu Singhal, Vithal Prasad Myneedu, Jyoti Arora, Niti Singh, Girish Chander Sah, Rohit Sarin

Introduction: Line probe assay is the test approved by World Health Organization for rapid detection of MDR-TB under PMDT at 33 laboratories in the country.

Objectives: We undertook this study to detect rifampicin and isoniazid resistant MTB strains and common mutation patterns among MDR-TB suspect patients from North-Eastern states using GenoType MTBDRplus.
**Material and Methods:** The sputum samples of MDR suspects were received in National Reference Laboratory in Department of Microbiology from 1st January 2012 to 30th August 2012. The patients were designated as MDR suspects based on Criterion A. The drug resistance was determined by detecting the commonly found mutations in the \( rpoB \) gene for rifampicin and \( katG \) and \( inhA \) genes for isoniazid respectively.

**Results:** A total of 553 samples were received in the period. The line probe assay was performed on 339 samples (either directly on samples or from cultures). Of these 339, 181 (61.7%) isolates were found to be multi-drug resistant. Among common mutations studied from North–East, missing WT8 along with specific mutation in codon S531L for rifampicin resistant (59.8%) and missing WT along with specific mutations in codon S315T1 of \( katG \) gene for isoniazid resistant (82.4%) were found to be the commonest pattern obtained.

**Conclusion:** This is the first study of mutations in RIF and INH among MDR suspect patients in North-Eastern states. Minor variations were found in the study compared to other Indian studies. The detection of MDR-TB using line probe assay has revolutionized the diagnosis and therefore management of such cases even in the remotest of the regions of India.

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**Molecular epidemiology and Genetic characterization of \( M. \) tuberculosis from HIV seropositive and HIV seronegative patients by Spoligotyping**

Niti Singh, Jitender Kumar, S. Gayatri, Upasna Aggarwal, D. Behera, Sarman Singh

**Objectives:** To determine the prevalent / predominant genotypes of \( Mycobacterium tuberculosis \) in HIV positive patients attending tertiary care hospital using the Spoligotyping.

**Material and Methods:** A total of 128 HIV co infected Tuberculosis (pulmonary/extra pulmonary) suspects were recruited in this study. All the samples obtained were decontaminated using N-acetyl-L-cystine/ Sodium hydroxide (NALC-NaOH) method and were inoculated onto Lowenstein-Jensen (LJ) media (solid culture) and BACTEC MGIT 960 (liquid culture). DNA for Spoligotyping from positive cultures was extracted using QIAGEN kit. Spoligotyping was performed using a commercially available kit (M/s Ocimum Biosolutions)

**Results:** Out of 128 suspects, 99 (77.3%) were HIV seropositives and remaining 29 (22.7%) were HIV seronegative. Of the 99 HIV seropositive patients, 38 (38.8%) were culture positive, and one sample got contaminated, rest were culture negative. Out of 29 HIV seronegative patients, 10 (47.6%) were culture positive, 11 (52.4%) were culture negative and 8 samples got contaminated during incubation. Spoligotyping of 35 HIV co infected MTB isolates and 5 HIV negative revealed CAS (48.6%) as the predominant SIT, followed by LAM (14.3%) and Beijing (11.4%) among the HIV co infected patients. Spoligotyping was performed using a commercially available kit (M/s Ocimum Biosolutions) and BACTEC MGIT 960 (liquid culture). DNA for Spoligotyping from positive cultures was extracted using QIAGEN kit. Spoligotyping was performed using a commercially available kit (M/s Ocimum Biosolutions).

**Conclusion:** CAS is the most predominant SIT in HIV positives from Delhi.

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**Detection of airborne Mycobacterium tuberculosis using Envirotech APM 414-A Mycobacteriological Study**
**Introduction:** Recently, the number of reported cases of *Mycobacterium tuberculosis* (*MTb*) has increased worldwide. The understanding of transmissibility and infectivity is not clear. The rapid urbanization of society, widespread construction of new compact and closed construction of TB hospitals where the same air is circulated in closed mode may be the reason of increase incidence of tuberculosis. The biological quality of air in hospital environments is of particular concern as *MTb* bacilli are carried on airborne droplet nuclei produced by aerosols that can occur from coughing, sneezing, talking, or even singing. Patients may serve as a source of pathogenic microorganisms to staff, visitors and to fellow patients. In view of the above we carried out an operational research to demonstrate quality of air in TB wards, OPD and Labs of LRSI.

**Aims & Objectives**

1) To detect Mycobacteria in air sample of MDR ward, general TB wards, OPD consultation rooms & Labs of LRSI.
2) To compare Mycobacteria load in open & closed (negative pressure) MDR wards.

**Material and Methods:** In this study a total of 14 different sites were selected from MDR TB wards, General TB wards, OPD consultation rooms and laboratories of LRSI.

In a span of three months, nineteen air samples were collected from these sites by rotation at different time of day to cover all working hours. Air sample were collected for 120min at each designated site using Local air Quality Sampler (Envirotech APM 414) by two methods for each designated site.

1) Glass Impinger method: with liquid medium (7H9 broth) & distilled water.
2) Filter sample method: with Glass Microfiber Filter paper (Whatman GF/A)

These were than inoculated in mycobacteria specific media, both solid (LJ) & liquid medium (7H9 broth).

Furthermore identification of other airborne pyogenic bacteria was also determined.

**Results:** Among the 19 air samples 2 air samples were positive for mycobacteria and were identified as nontuberculous mycobacterium i.e. *Mycobacterium chelonae*. However other samples showed growth for pyogenic bacteria i.e. *Klebsiella pneumoniae, Pseudomonas aeruginosa, Citrobacter freundii, Staphylococcus aureus* and *gram negative cocci*. No bacterial or mycobacterial organism was detected in MDR negative pressure ward. The above result shows that there is presence of bacteria other then mycobacteria as air droplet in general wards, OPD & Labs. There is no difference in quality of air in MDR negative pressure wards & MDR open wards in respect to Mycobacterial load. However, some difference was noted in terms of pyogenic bacteria, between general wards and negative pressure MDR wards. The two non-tuberculous mycobacterium strains found in general wards could be a normal environmental contaminant.

**Conclusion:** The result showed that the application of this technology may be used in the area of hospital epidemiology and infection control, and in solving the misery of transmissibility of MTB in healthy contacts and within non-institutional settings where groups of people are involved. This study is still going on in order to observe the seasonal variability in airborne mycobacterium and others pyogenic bacteria.
Evaluation of feasibility, accuracy, and effectiveness of use of the Gene-Xpert MTB/RIF test for diagnosis of tuberculosis and multidrug resistance *Mycobacterium tuberculosis* in “Extra-Pulmonary samples


**Introduction:** Extrapulmonary infection with *Mycobacterium tuberculosis* complex (MTBC) is not an uncommon in a respiratory outpatient department (OPD) and in many cases it is difficult to establish the diagnosis, since the number of bacterial load in extrapulmonary specimens is less than the pulmonary specimens. In order to diagnose extrapulmonary tuberculosis invariably invasive procedure are followed to get the desired specimens which is never a easy procedure and is consider as precious samples as it is not an easy to get repeat sample as in the case of pulmonary tuberculosis. One of the latest systems, the GeneXpert MTB/RIF (Xpert) assay was evaluated with extrapulmonary samples in department of microbiology at LRSI of TB & RD, New Delhi. The system is a fully automated system based on hemi-nested real-time PCR to amplify an *M. tuberculosis*-specific sequence of the rpoB gene.

**Material and methods:** In this evaluation study, 54 non-respiratory specimens were collected and tested in LRSI National Reference Laboratory for Mycobacteria (NRL) during May 2010 to August 2011. The extrapulmonary samples collected from each suspected patients were divided into 3 part and simultaneously subjected to Cepheid GeneXpert® MTB/RIF assay, smear microscopy, LJ culture and MGIT culture. The positive cultures were further subjected to rifampicin drug susceptibility testing. Only the single specimen received in the department were tested for MTB infection and detection of rifampicin resistant. The samples comprised of pleural fluid (23), lymph node aspirate (11), pleural pus (09), gastric aspirate (06), cold abscess (03), pus from thigh (01) and mandibular pus (01).

**Results:** Out of the 54 extra-pulmonary specimens, Cepheid GeneXpert® MTB/RIF assay identified 27 (50.00 %) of samples as *Mycobacterium tuberculosis* followed by MGIT 17 (31.48 %), LJ 14 (25.92 %) and smear microscopy 06 (11.10%). Sensitivity of Cepheid GeneXpert® MTB/RIF assay for rifampicin resistance detection was 99.11 %, 98.14% and specificity 98.61 %, 98.11 % respectively when compared with the MGIT and LJ 1 % proportion result.

**CONCLUSIONS:** The Cepheid GeneXpert® MTB/RIF assay System is most sensitive amongst the smear microscopy, LJ culture and MGIT culture. The turnaround time for delivering the report is 2 hours. This will considerably improve the TB patient management.

Presence of multidrug resistant mycobacterial strains in geriatric population in national reference laboratory

Manish Mathur, V.P. Myneedu, A.K. Verma, Ritu Singhal, Manpreet Bhalla, Rohit Sarin

Recently, WHO has declared multidrug resistant tuberculosis (MDR-TB) as a ‘notified disease’ and more than 90% of MDR-TB strains are prevalent in China, India, Russian federation and South Africa. These MDR strains are harbouring not only in young adults but
also in old age patients who are prone to TB infection. Despite implementation of widespread, extensive control efforts, the vulnerable and neglected old age patients are deprived of readily available DOTS and DOTS plus program, consequently trailing the spread of tuberculosis (TB) and MDR-TB. This study highlights the isolation and identification of MDR-TB strains amongst old age patients.

Objectives:

1. Diagnosis of pulmonary tuberculosis in geriatric population by smear examination and culture
2. Antimycobacterial susceptibility testing of mycobacterial strains.
3. Determination of MDR and XDR strains among mycobacterial strains

Methodology: It was a retrospective observational study undertaken in the national reference laboratory at LRSI of TB and RD. In this study, the test performed during January 2010 to July 2012 (2 ½ years) were recorded and analyzed. During this period 12140 geriatric sputum samples were processed for smear microscopy, 867 for LJ culture and 188 for MGIT culture. The DST data of the positive cultures were also analyzed.

The patients were labeled as MDR- TB if their sensitivity report showed resistance against both Rifampicin (R) and INH. The patients were labeled as XDR- TB if their sensitivity report showed resistance against ofloxacin and any one of inject able drug kanamycin, amikacin or capreomycin along with resistance to rifampicin (R) and isoniazid. Sputum samples of 201 geriatric patients were processed by line probe assay (LPA) and results were analyzed.

Results: In 30 months of retrospective study, ZN smear examination showed 11.3% slides positive for acid fast bacilli. The LJ and MGIT culture result showed 43.25% and 49.47% positive samples for Mycobacterium tuberculosis respectively. LPA record showed 65.67% samples positive for mycobacterium tuberculosis complex. The DST data by conventional method for 1st line ATT drug showed 33.33% MDR-TB strains and 2nd line drug susceptibility result showed 1.75% as XDR-TB strains. In the line probe assay 7.5% were identified as MDR strains.

Conclusion: Isolation of large number of MDR –TB strains from old age patients in this specialized tuberculosis institute is a distressing situation. Concurrent occurrence of XDR-TB strains is a serious threat to community where no drugs are available for treatment. It is a crucial need for developing specialized TB control program for protecting the old age TB patients in order to control occurrence and spread the TB in old age group subject.

Prevalence of Multi-drug resistant tuberculosis among culture positive Cat-I failures from 6 districts of Delhi under RNTCP at a National Reference Laboratory

Niti Singh, Manpreet Bhalla, Zeeshan Sidiq, V.P. Myneedu, Rohit Sarin

Background and objective:

Multi drug resistant tuberculosis (MDR-TB) is a global concern. A case of MDR-TB is about 20-40 times more expensive to manage than a case of drug sensitive TB. The present study
was aimed at deterring the prevalence of MDR-TB among patients declared as Cat-I anti tuberculosis treatment failures.

**Material and Methods**

A total of 784 Cat-I failure cases were enrolled in the study over a period of two and half years. Samples were processed by modified Petroff’s method and inoculated on to LJ media. Culture positive samples with requisite no. of colonies were subjected to drug susceptibility testing (DST) against the four first line anti tuberculosis drugs (Streptomycin, Isoniazid, Rifampicin and ethambutol) using 1% proportionate method according to the standard RNTCP guidelines, in six districts of Delhi.

**Results**

Out of the total 784 samples, 510 (65%) were smear positive and 274 (34.9) were smear negative. 470 (59.9 %) of the inoculated samples were culture positive and 292 (37.2%) were negative while 22 (208%) showed growth of contaminants after eight weeks of incubation at 37°C. Out of the total 470 culture positive samples 91 (19.4%) were not fit for DST and the remaining 379 (80.6%) samples were subjected to first line DST. 225 (59.4%) were MDR while 154 (40.6%) were non MDR. Highest percentage of MDR cases was seen in Nehru Nagar district (26.3%) followed by Malviya Nagar (25.5%), DDU (21.3%), LRS (12.1%), RTRM (8.3%) and Moti Nagar (3.3%).

**Conclusion**

Despite the standard treatment regimen available for treating tuberculosis, drug resistant tuberculosis is on the rise. In this study a high percentage (59.4%) of MDR patients is of major concern.

**OCCURRENCE OF NON- TUBERCULOUS MYCOBACTERIUM IN CLINICAL SAMPLES- A POTENTIAL PATHOGEN.**

AK Verma, VP Myneedu, M Bhalla, J Arora, M Mathur, D Behera, R Sarin

**Introduction:** Silent presence of non-tuberculous Mycobacteria (NTM) and increasing incidence of NTM is of great concern for clinical microbiologists as well as clinicians.

**Objectives**

This study is aimed to find NTMs in positive cultures and identify them to species level.

**Material & Methods:** The study period was from January 2009 to June 2011. Total 4104 positive cultures were subjected for species identification by different morphological and biochemical tests. All the tests for identification were performed as per standard procedure along with the standard control strains of NTM, provided by JALMA, Agra.
Results: During the study period out of the total 15581 processed sample, 4044(25.95) cultures were positive for Mycobacterium tuberculosis complex and 60/15581 (0.38%) identified as NTM. Further identification showed 21 different mycobacterial species and they belong to all the 4 groups of Runyon classification. The most common species identified in this study was \textit{M.simae}(07) followed by \textit{M.avium}(06), \textit{M.gordonae}(05), \textit{M.kansasi}(05), \textit{M.fortuitum}(05), \textit{M.chelonea}(05), \textit{M.phelii}(05), \textit{M.terrae}(04), \textit{M.szulgai}(02), \textit{M.vaccae}(02), \textit{M.flaviscens}(02) \textit{M. trivale}(02), \textit{M.malmoense}(01), \textit{M.intracellular}(01), \textit{M.xenopi}(01), \textit{M.ulcerans}(01), \textit{M.tusciae}(01), \textit{M.triplex}(01), \textit{M.septicum}(01), \textit{M.mucogenicum}(01). The NTM isolated were from following specimens i.e. Sputum (22/15581, 0.14%), pleural pus (13/15581, 0.08%), Lymph node aspirate (12/15581, 0.07%), pleural fluid (4/15581, 0.02%), bronchial wash (5/15581, 0.03%), pus (2/15581, 0.01%), CSF (1/15581, 0.006%) and ascitic fluid (1/15581, 0.006%).

Conclusion: The isolation of NTMs from different clinical samples indicates that they may be the causative agents for pulmonary and extra pulmonary non tuberculous diseases. Elaborated and focused studies are needed to differentiate NTM between commensal/colonizer, pathogen and laboratory.

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HISTOPLASMOSIS PRESENTING AS ADRENAL MASS
K.V RAMAN, SOMNATH DASH, HARSHA P

A Hindu female aged 30 years, was admitted for high fever & vomiting in low general condition. Taken Cat II regimen for 9months privately, 2 years back. She was receiving O.H.A for NIDDM. 2 days after she developed seizures. Medicine consultant reviewed and advised USG abdomen/Brain CT SCAN. USG abdomen revealed adrenal mass; CT scan revealed parietal lobe calcified granuloma. C.E.C.T abdomen revealed bilateral adrenal mass with multiple mesenteric lymphadenopathy. On this basis patient was put on ATT/Anti Epileptic drugs supported by steroids and antibiotics. Further investigations revealed pancytopenia (anemia, neutropenia, thrombocytopenia) which was corrected by Platelet & Blood Transfusion. Patient was not making satisfactory improvement even after 2 weeks. So C.T guided F.N.A.C of mass was done which came to be Adrenal Histoplasmosis. Amphotericin b was started immediately. After 3 days patient developed hemorrhagic Pleural Effusion. Tube drainage (I.C.T.D) was given and 3L of hemorrhagic fluid came out in 2 days. All supportive treatment was continued. In spite of all efforts patient continued to deteriorate and died two days after.

All relevant details including investigations will be discussed and presented in detail.

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PEDIATRIC (0-14) TUBERCULOSIS- BURDEN AND ITS RISK FACTORS ESTIMATED IN RNTCP CENTRES IN CHENNAI
E.Rajalakshmi, S.Valarmarthi, S. Parameswari, Mayilvahanan Natarajan

Introduction: Tuberculosis (TB) is among the top 10 causes of death among children worldwide. In India Childhood tuberculosis remains a major health problem. India is the highest TB burden country accounting for 1/5 (21%) of the global incidence. Until very
recently childhood TB has not been a priority health and has remained essentially a hidden pandemic.

Objectives: To estimate the burden of childhood tuberculosis and its associated risk factors reported in RNTCP centers Chennai.

Methods: A survey has been conducted in 10 Tuberculosis Units (TU) which comprises 42 RNTCP centres. Socio-demographic details, BCG vaccination status, and tuberculosis contact details is collected. Clinical data has been collected from records available in RNTCP cards. Statistical analyses were done using SPSS.

Results: In the study period of 6 months 185 cases are reported in 10 TU. More number of cases reported 38(20.5%), 35(18.9%) in zone 1 and 3 respectively. Among them 87(47%) male and 98(53%) female. 56(30.3%) < 5 years and 129(69.7%) > 5 years. 125(67.6%) are living in single room with the family. 55(29.7%) have household contacts and 20(10.8%) have neighborhood contacts. 176(95%) category II and 9(4.9%) are in category I in DOTS. Chi-square resulted that there is no significant (p-0.817) association between BCG vaccination status and the disease occurrence with a weak positive correlation (0.025).

Conclusion: The gender distribution is almost equal and > 5 years is affected more. BCG vaccinated children also infected especially in > 5 years group. Hence there is a need for community based study to identify risk factors and also drug trials to protect the above 5 years children from the infection.

PROFILE OF DIFFUSE PARENCHYMAL LUNG DISEASE PATIENTS ATTENDING PULMONOLOGY DEPARTMENT OF SRMCH.

Abdul Majeed Arshad, Puneet. K. Nagendra, B.Rajagopalan, Vijayalakshmi Thanasekaran, Sangeetha. M.

OBJECTIVES OF THE STUDY

The diagnosis of DPLD is usually delayed, an initial assessment with a well structured history consisting of occupational and environmental exposures along with the history of presenting complaints, shall lead to timely diagnosis. Here in this study we made an attempt to gather the clinical profile of DPLD patients. Thus enlisting the facts regarding their initial presentation, diagnostic tests performed, diagnosis delay and treatment received.

METHODOLOGY OF INVESTIGATION:

This is a Questionnaire based descriptive study carried out in our department. The written informed consent of the participant was taken after briefly explaining the study process in their own language. The questionnaire data like name, completed age in years, sex, residential address, contact number, history of respiratory and other system involvement, history of co morbidities, habits, relevant occupational and environmental history, family history, diagnostic test reports, treatment history were enlisted by the investigator.

RESULTS:

1. Demography:
   - 68 DPLD patients enrolled.
   - 42 (62 %) Females and 26 (38 %) Males.
- 36 (53%) from the urban, 32 from rural areas (47%).

2. Occupational and environmental exposure to potential agents:

   22 people (32%)
   No relevant exposure: 46 people (67%)

   Avians – 3 people (5%)
   Hay – 5 people (7%)
   Mineral / cotton dust – 12 people (17%)
   Others – 2 people (3%)

3. Habits:

   Smoking – 21 people (31%)
   Ethanol consumption – 7 people (10%)
   Drug abuse – 1 person (1%)
   No Habits – 44 people (65%)

4. Presentation:

   A. Symptoms at presentation

   Dyspnea – 67 people (98%)
   Cough – 65 people (96%)
   Joint symptoms – 10 people (15%).

   Others:
   Fever – 10 people (15%)
   Weight loss – 8 people (12%)
   Leg swelling – 8 people (12%)
   Fatigue – 6 people (9%)
   Urinary disturbances – 5 people (7%)

   B. Duration of symptoms from onset to consulting the doctor:

<table>
<thead>
<tr>
<th>Duration</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3 MONTHS</td>
<td>14</td>
<td>20%</td>
</tr>
<tr>
<td>1-6 MONTHS</td>
<td>18</td>
<td>26%</td>
</tr>
<tr>
<td>&gt;6 MONTH</td>
<td>36</td>
<td>54%</td>
</tr>
</tbody>
</table>

   Minimum – 2 weeks.
   Maximum – 3 years

   C. Comorbidities:

   Diabetes Mellitus – 22 people (33%)
   Rheumatoid arthritis – 8 people (12%)
   Hypothyroidism – 7 people (10%)
   GERD – 3 people (4%)
   Systemic sclerosis – 3 (4%)
   CKD – 2 people (3%)
   Others:
Cardiac Failure – 5 people (7 %)  
COPD - 5 people (7 %)  
Asthma – 4 people (5 %)  
Hyperthyroidism – 1 (2 %)  
Seizure disorder – 1 (2%)  
No comorbids – 17 people (25%)

D. Number of Doctors prior to the diagnosis of DPLD:

1 Doctor – 6 people (8%)  
2 Doctors – 36 people (53%)  
3 Doctors – 23 people (33%)  
>4 Doctors – 4 people (5%)

F. Duration from onset to diagnosis:

<3MONTHS  8   11%  
1-6 MONTHS  13  20%  
>6 MONTH  47  69%

5. Prior investigations performed

A. Blood for autoimmune profile:

Was performed in 54 (79 %) people

<table>
<thead>
<tr>
<th>Test</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA</td>
<td>8</td>
</tr>
<tr>
<td>ANA</td>
<td>10</td>
</tr>
<tr>
<td>ANCA</td>
<td>3</td>
</tr>
<tr>
<td>Scl 70 Ab</td>
<td>2</td>
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</table>

B. HRCT Thorax

All of them had underwent

UIP – 25 (36%) people  
NSIP – 15 (21%) people  
HSP – 5 (6 %) people  
Others- 4(5 %) people  
Inconclusive- 20 (30%) people

C. Echocardiogram:

39 (58%) people underwent 2D echo  
PAH observed in 15 (37 %) people
Normal PAP in 24 (63%) people

**D. PFT**

Was performed in 7 people (10%)

6. Treatment history:

   **A. Inhalers**
   
   Total of 34 (49%) people were prescribed inhalers

   **B. Steroids**
   
   High dose in 12 people (18%)
   Low dose in 38 people (56%)

   **C. LTOT** was prescribed for 9 people (13%)

   **D. Antioxidants** only in 32 people (46%)

   **E. Immunomodulators** only in 8 people (12%)

   **F. Both antioxidants and immunomodulators** in 10 people (15%)

**CONCLUSION:**

1. A well structured initial history will aid in timely and appropriate diagnosis.

2. A significant proportion of patients had thyroid involvement, cardiac manifestations, GERD, CKD, stressing the need to evaluate the DPLD patients for a systemic disease rather than as an isolated disorder.

3. The lack of knowledge in identifying the patterns in some patients emphasizes the scope for future research in the field of DPLD.

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**Involvement of Red Cross volunteers for treating Cat-II TB patients in Punjab – An Experience**

R P Verma

**Introduction**
Prevalence of TB is a global problem as 8.8 million (139/1,00,000) new cases occur every year. 80% cases are reported in 22 countries and about 1.7 million deaths are due to TB. As regards India the annual incidence is 2 million people (21% of global). The major concern is emerging problem of adherence to MDR-TB. The rate of MDR-TB is 1-3% in new cases for which the default rate is 14%, the half of it i.e. 7% are likely to become MDR cases. It was in this context that Indian Red Cross Society took initiative to accept partnership in TB Control Programme to provide support in treating most vulnerable cat-II TB patients to reduce the burden of MDR.

**Project Area**

The project was initiated in the slum area of two districts of Punjab (Amritsar & Jalandhar), with the following goal & objectives:

**Goal & Objectives**

- To combat the spread of TB and control of MDR TB
- To ensure that cat-II patients are put back on treatment until they are cured.
- To provide care and support to the most vulnerable cases.
- To increase community awareness.

**Methodology of Intervention**

The task was given to 20 Red Cross volunteers and two district team leaders. The trained Red Cross volunteers brought the cat-II TB patients to the nearest DOT centres for treatment. The patients and their family members were given counseling to complete the treatment. They provided small incentive to the poor patients for visiting DOT centres. The patients were educated on respiratory etiquettes. Social mobilization activities and awareness meetings were held in the community by the volunteers. The project activities were monitored by the district TB programme officer and RNTCP staff throughout the project period. However, this project was planned and implemented under the guidance of state project coordinator Punjab state Red Cross branch Chandigarh. The project was evaluated by external agency also.

**Target Group**

The patients were really most vulnerable as majority of them were labourer, illiterate, drug-alcohol users and mostly living in one room accommodation in slum area. These patients had previous bad history of discontinuation of treatment as cat-I patients.

**Outcome**

Out of 120 patients, above 90% have been cured. No patient has defaulted treatment except one who is not traceable. The experience has shown that Red Cross volunteers have capacity to provide excellent treatment support, counseling for patients and can contribute to public health oriented activities in TB treatment. It was found that Indian Red Cross volunteers are more often more accessible to patients. This is an experience that IRCS
volunteers are examples of delivering high quality tuberculosis services to communities working in cooperation with TB programme to the benefit of all.

COHORT ANALYSIS OF CAT 2 CURED SUBJECTS UNDER RNTCP

Gupta Sonisha, Arora V.K, Banday Sumeera, Srivastava Utkarsh, Gupta Prashant Raj.

STUDY POPULATION : 36 Subjects.

DESIGN OF STUDY.: Prospective .

RESULTS. : 36 subjects who had completed regular Chemotherapy under CAT 2 in SANTOSH MEDICAL COLLEGE, GHAZIABAD between JAN 2010-DEC 2010 Were followed up till SEPTEMBER 2012 for the TB status in these subjects. 10 subjects lost to follow up (8 patients address changed and 2 out of station), 5 subjects died, 4 subjects had sputum positivity and deterioration on Radiological basis. 6 subjects had Persistent of symptoms with sputum negativity, 11 patients were stable and had no symptoms and were living normal Life.

CONCLUSION: 11 subjects out of 36 under CAT 2 cured Patients (31%) were found stable after 1.5-2.5 years of follow up.

Detailed results and implications will be presented

Correlation of cytological and microbiological criteria in diagnosis of tubercular lymphadenitis

Iqbal R Kaur, Neha Goel, Bineeta Kashyap, R Avasthi, Vinod Arora, N P Singh

Background and objective

Tubercular lymphadenitis is the most common (~35%) manifestation of extra pulmonary tuberculosis. Laboratory diagnosis of tubercular lymphadenitis is established by histopathology, microscopy for demonstration of acid fast bacilli and mycobacterial culture, wherein each parameter varies in terms of sensitivity and specificity. Main aim of the present study is to correlate cytological and microbiological examination for diagnosis of tubercular lymphadenitis.
**Material and methods**

In this study a total of 45 fine needle aspirate (FNA) from lymph nodes of patients clinically suspected of having tubercular lymphadenitis were included. All aspirates were processed for mycobacterial culture on L-J medium and Z-N staining after NALC-NaOH concentration and were subjected to cytological examination.

**Results**

Out of total 45 aspirates, 20(44%) were from cervical lymph nodes followed by supraclavicular, axillary, inguinal and submental. On cytological examination, smears revealed epithelioid granulomas with caseous necrosis, epithelioid granulomas without necrosis, necrosis only without epithelioid granulomas and reactive lymphoid hyperplasia in 7(15.5%), 5(10.6%), 23(51.6%) and 10(22.3%) aspirates respectively. Overall AFB positivity was seen in 18(40%) aspirates, out of which 15(83.3%) were found to be positive for mycobacterial culture. AFB positivity was found in 3(42.8%) of the cases showing epithelioid granulomas with caseous necrosis, 15(65.2%) of cases with necrosis only without epithelioid granuloma.

**Conclusion and remarks**

3 samples which were AFB positive but culture negative could be due to absence of viable organisms in culture inoculum or effect of NaOH during processing. Combining cytological testing with microbiological examination of FNA samples increases the diagnostic accuracy in tubercular lymphadenitis and a molecular technique like PCR can be included for rapid and early diagnosis of the infection.

**Study objectives** : The positive effect of Active surveillance in case finding, case holding and public sensitization.

**Setting** : Mumbai District TB control society, Municipal corporation of Greater Mumbai

**Material and Methods** : Mumbai district TB control society has done Active Surveillance by house to house survey and contact examination as per NTI guidelines format utilizing the existing staff of RNTCP and without using any additional manpower or resources in three surveys in March-April, June-July and October 2012. The same areas were covered in all the 3 surveys.

**Results** :

<table>
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<tr>
<th>Period of Active surveillance</th>
<th>Household covered</th>
<th>Population covered</th>
<th>Sputum + ve TB</th>
<th>Sputum -- ve / E.P. TB</th>
<th>Total no. of TB cases diagnosed</th>
<th>Started on treatment</th>
<th>% started on treatment</th>
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<td>4425066</td>
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<td>77</td>
<td>293</td>
<td>289</td>
<td>99 %</td>
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</table>

WE CARE FOR YOU

Minni Khetrapal, Arun Bamne, K. C. Mohanty, Salil Bendre, Abhishek Kothari, Nikhil Sarangdha
<table>
<thead>
<tr>
<th>Prevalence areas</th>
<th>June – July 2012 (entire city)</th>
<th>Active surveillance October 2012 (entire city)</th>
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<tr>
<td></td>
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<tr>
<td></td>
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**Observation**: The first survey in March-April 2012 was done in high prevalence wards under the Municipal corporation (urban slums of Mumbai city) whereas the subsequent surveys covered all of Mumbai city. More TB cases were picked up in the first survey due to active surveillance and this also enabled greater enrolment of cases under RNTCP. This study shows that the number of tuberculosis cases per lakh population detected (Sputum positive, sputum negative and Extra-pulmonary) is decreasing with each subsequent survey as most of the cases are getting mopped up in the first and second surveys as the awareness about and public faith in the RNTCP comes into the community. Also, active surveillance facilitates registration of detected cases and their enrolment under RNTCP as the contact details and addresses are recorded during the surveys and are easily traceable, especially in high risk groups like urban slum areas.

**Conclusion**: Active surveillance can be done yearly without utilising additional staff or resources. It is especially useful in detecting small pockets of active TB cases which may be missed on passive surveillance. The positive impact of active surveillance is that the number of cases are reducing in each survey. From this we can derive inference that repeated active surveillance surveys for one year will help in TB case detection and enrolment, and thereafter six monthly surveys for one year and subsequently yearly surveys will deliver the message that the health authorities are sincere in taking on the menace of tuberculosis and that the government cares for its people (We care for you).

**Efficacy of Modified DOTS at a Private Medical College and Hospital: Our Experience**

K. C. Mohanty, Salil Bendre, Nikhil Sarangdhar, Abhishek Kothari

**Material and Methods**: An observational study was conducted on 919 patients visiting the DOTS Centre at K. J. Somaiya Medical College & Hospital from March 1999 to December 2010.

Modified DOTS is a unique strategy (in concurrence with MDTCS), in which the patient takes the first dose under supervision and is then given treatment of 15 days. She/he then follows up after 15 days with empty drug blister packets and is subsequently given treatment for another 15 days. At the onset, patients and their family members or relatives are counseled in turn by the TB treatment organizer and then by the Medical Officer regarding the nature of the disease and its public health impact due to airborne transmission, the need to take regular treatment and the consequences of default (including drug resistance) on patient, family and society.
We compared the Cure Rates of patients on Modified DOTS at our centre with National level Cure Rates of patients on DOTS.

Results: There were 695 patients of CAT-I and 224 patients of CAT-II

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Conclusion: This result has shown that with dedication and commitment we can achieve the same target with lesser resources and expenses. It may be noted that the treatment completion/cure rate was no less than that in DOTS and patient acceptability was better - > 90 % as compared to DOTS.

We suggest that for faster expansion of RNTCP and its acceptance by the masses, modified (partially observed) DOTS will be easier to implement without sacrificing the efficacy.

Tuberculosis as a mimicker of brain tumours: A therapeutic dilemma

Richa Chauhan, J.K.Singh

Tuberculosis continues to be a major public health problem worldwide due to the morbidity and mortality caused by it. India accounts for nearly one-third of the prevalence and one-fourth of the incidence of TB globally. Every year, there are approximately 2 million new cases of TB in India. Tuberculosis may affect any part of the body including CNS. Tuberculous meningitis and tuberculoma are the two most important manifestations of tuberculosis of the CNS. Tuberculomas may be solitary or multiple. Tuberculomas are granulomatous masses composed of small tubercles that are clinically and radiographically indistinguishable from enhancing neoplastic lesions. CT and MR imaging findings vary
according to the stage of the lesion, presenting as hypo-intense, iso-intense or hyper-intense lesion. The classical “target sign” which consists of a ring-enhancing lesion with an additional central area of enhancement or calcification has been described as characteristic of tuberculomas, but is not often found. The differential diagnosis in such cases include infectious causes as tuberculomas, sarcoidosis, pyogenic abscess, syphilis, fungal infection, non-infectious causes as multiple sclerosis, stroke to malignant causes like primary brain tumours, multiple brain metastases, CNS lymphoma. An accurate and timely diagnosis is the key to manage such cases as the treatment modality varies from a course of AKT for tuberculomas, chemotherapy for lymphomas to palliative Radiotherapy for brain metastases. Though new imaging modalities like MRS, SPECT etc. Have been found to be useful in diagnosing such cases but their availability and affordability is a problem for our patients. So, these cases evoke the necessity of a diagnostic surgical procedure but at times this is not possible either because of the poor general condition of the patient or the location of the lesion. Though cancer treatments, Radiotherapy and Chemotherapy are frequently toxic, but the risk of toxic effects is justified by the potential gains in survival seen when the appropriate treatment is assigned to the right patient. Thus, there is little room for presumptive diagnoses and empirical treatments. In this paper, we present few such cases, referred to us for Radiotherapy on clinic-radiological basis.

Management of Tuberculosis in Associated Malignancy

Manisha Singh, J. K. Singh

Tuberculosis (TB) presents a global threat in both developing and developed countries. According to the World Health Organization, more than 2 billion people, equal to one-third of the world’s population, are currently infected with tuberculosis bacilli; there were 9.2 million new cases and 1.7 million deaths attributed to TB in 2006. On the other hand, cancer is the second leading cause of death after coronary artery disease with 11.3 million new cases and 7.9 million deaths (∼13% of all deaths) in 2007.

Nowadays, research for carcinogenesis is expanding and the possible correlation between chronic inflammation and cancer development is slowly being unravelled. Therefore, history of TB infection has been examined as a risk factor for cancer development. Regarding this, TB has recently been associated with the development of pyothorax-associated lymphoma (PAL). This seems to provide further credibility to the well-described development of peripheral lung malignant tumours at the site of scars created from old-healed mycobacterial infections. However, one study stated that previous TB history was merely co-incidental with the occurrence of cancer.

Of note, malignancies and the instituted therapies for their management seem to create the proper environment for either the reactivation of a latent TB infection or, more rarely, for the acquisition of a primary mycobacterial infection. Immunosuppression, especially depression of the T-cell defence mechanisms, is associated with mycobacterial infections. Leukemias and lymphomas are mainly associated with mycobacterial reinfections.

Breast Tuberculosis – An Experience in an Oncology Center
Breast Tuberculosis is rarely reported even in tropical countries due to difficulty in diagnosis and its mistaken identify with breast cancer and phylogenic breast abscess. Most common age affected by breast tuberculosis is child bearing age. The mode of infection is not clearly known. Breast tuberculosis has no defined clinical features. It may present as ulcer, sinus or lump in breast.

Diagnosis is based on identification of typical histological features or the tubercle bacilli under microscopy or culture. Anti tubercular therapy for 6 months with or without minimal surgical intervention forms the mainstay of treatment today.

We have found 29 cases of tuberculosis of breast in the last two years. This was a retrospective study of all patients presenting with a breast lump, ulcer or sinus in our hospital from June 2010 to June 2012. Most of the patients were diagnosed with FNAC. Ten patients required biopsy for diagnosis. Most of the lesions were less than 2cm in size. Age of patient ranged from 20 to 50 years. Systemic signs were rare. Axillary lymph node was found in only 8 patients. Most important differential diagnosis was breast abscess. Except four of these patients, most of them responded to six months of ATT. Incision and drainage was required in two patients and excision of residual lump was required in two patients only.

Pulmonary tuberculosis in patients with advanced head and neck cancer : A retrospective study

Anita Kumari, J. K. Singh, V. Trivedi, R.Chauhan, R. Rani

Background: Head and neck cancer is a staggering public health problem and constitutes 5% of the entire cancer world-wide and is one of the commonest cancer encountered in India. Majority of these patients (70–80%) are diagnosed as locally advanced disease (stage III/IV) with lymph node involvement in 30–50% at presentation and this makes the management difficult, so treated with combined modality approach(surgery, radiotherapy and chemotherapy). Many patients with advanced head and neck cancer may have long-term survival after anticancer treatment. Patients with head and neck cancer have more chances to suffer from pulmonary tuberculosis. However, little has been mentioned about the consequence of tuberculosis in these patients. We addressed the impact of pulmonary tuberculosis on clinical outcome of patients with advanced head and neck cancer. Material and Methods: This analysis included 450 patients who received radiation therapy at MCS, Patna in the period from 2009 to 2010. We retrospectively reviewed the medical records of all 450 patients with active pulmonary tuberculosis, defined as a consistent chest imaging pattern and the growth of Mycobacterium tuberculosis in sputum or respiratory secretions.
Total, 18 patients developed pulmonary tuberculosis within 1 year after the initial diagnosis of advanced head and neck cancer (stage III-IV). The demographic data, nutrition status, current cancer status and survival data were collected. Most of the patients received multimodality treatment i.e. RT/ CT+RT, neoadjuvant chemotherapy (NACT) followed by CT+RT/Sx or CT+RT as per the requirement. This depends on the tumor stage, nodal status and age of the patients. Patients with newly diagnosed histological proven squamous cell carcinoma of the oral cavity, oropharynx, hypopharynx and larynx (stage III-IV), age between 25 and 75 years with normal range of biochemical tests and having KPS 60-100% were analyzed. **Results:** Seventeen of 18 patients were males. More than 90% of them have major risk factors (smoking, drinking, and betal-nut chewing) related to head and neck cancer. Eight patients with head and neck cancer were stage IV and all 18 patients received anticancer treatment. Eleven received combined modality therapy. At the moment of anti-TB treatment, there were 6 patients with cancer-free status. Compared to these 6 patients, patients with uncontrolled cancer had a poor prognosis. **Conclusions:** Among patients with advanced head and neck cancer and active pulmonary tuberculosis, the status of uncontrolled cancer signifies a poor prognosis.

**CARIES SPINE / Tuberculosis of Spine**

Amulya Singh

Caries Spine is a presentation of extrapulmonary tuberculosis that affects the spine, a kind of tuberculous arthritis of the intervertebral joints. Scientifically, it is called tuberculous spondylitis. Pott’s disease, also commonly known, is the most common site of bone infection in TB; hips and knees are also often affected. The lower thoracic and upper lumbar vertebrae are the areas of the spine most often affected.

Caries Spine is a medical condition of the spine. Individuals suffering from Pott's disease typically experience back pain, night sweats, fever, weight loss, and anorexia. They may also develop a spinal mass, which results in tingling, numbness, or a general feeling of weakness in the leg muscles. Often, the pain associated with Pott's disease causes the sufferer to walk in an upright and stiff position.

Pott’s disease is caused when the vertebrae become soft and collapse as the result of caries or osteitis. Typically, this is caused by mycobacterium tuberculosis. As a result, a person with Pott's disease often develops kyphosis, which results in a hunchback. This is often referred to as Pott’s curvature. In some cases, a person with Pott's disease may also develop paralysis, referred to as Pott’s paraplegia, when the spinal nerves become affected by the curvature.

**Under-reporting by RNTCP of the TB patients diagnosed by all providers in a south india district**
An inventory study to find out the extent of under reporting of TB patients by the RNTCP was carried out in Tumkur District of Karnataka, during the year 2012. Key study variables included Patient Name, Father/Husband name, Age, Sex, Complete Address, Postal Pin code of patient residence, Patient telephone number for all the sources. A register for recording this information in respect of each patient diagnosed was kept in each department of Medical College and Private Health facilities. The relevant data on smear positive patients diagnosed in all RNTCP DMCs was extracted from Lab Registers. The Lab Technicians and Senior Treatment Supervisors (STS) were informed to record the postal pin code and telephone no. along with the address of the patient in Lab register and TB register. The private practitioners and Medical college faculty were pre-sensitized on International standards of TB care and also the study procedures.

Matching of the records within and between the four sources- TB register, DMC lab register, Medical college departments, Private Practitioners was undertaken using key variables.

Preliminary Analysis revealed that of all the cases diagnosed by four sources, about 18% were not reported by the RNTCP (Under Reporting). About 65% of the total patients diagnosed by PPs and 5% of those diagnosed by Medical colleges were not captured by RNTCP. The proportion of Initial Defaulters was found to be unacceptably high.

The study provided important experience for mounting state/national level inventory studies in order to provide inputs for ‘Onion Model’ to estimate incidence of TB.

Annual risk of tuberculous infection in a rural population of south India and its relationship with prevalence of smear positive pulmonary tuberculosis

Vineet K. Chadha

A survey was conducted in a sub-division of rural Bangalore district to estimate the annual risk of tuberculous infection (ARTI) among children and to find out its ratio to point prevalence of smear positive pulmonary TB. A TB disease survey was carried out in the same area during 2008-10.

The tuberculin survey was conducted during 2010-2011 among 3838 5-9 year old children attending 147 schools selected by simple random sampling. Children were tuberculin tested with 2TU PPD RT23 with Tween 80 and maximum diameter of induration was measured between 48-96 hours. ARTI was computed from prevalence of infection estimated by mirror-image technique.

Prevalence of smear positive pulmonary TB estimated during the disease prevalence survey in was used to find out its ratio with ARTI.

Using the observed mode of tuberculin reaction sizes at 19 mm, among surveyed children, prevalence of infection was estimated at 7.3% (CI: 6.5-8.1); ARTI was computed at 1.05%. Considering the mean age of children, estimated ARTI would most closely approximate to 2008.
Every one percent ARTI was found to correspond to a prevalence of 103 sputum smear positive patients of PTB, which was similar to the ratio of 106 found in the same study area during 1960s. Thus despite the implementation of RNTCP, there has been no change in the number of children infected by each adult point prevalent case of smear positive pulmonary TB at about 10 per year suggesting the need for early case detection and treatment. This may be attributed to delay in case finding and increase in the average number of susceptible contacts per case due to increase in population density and greater mobility.

**POSTER PRESENTATIONS**

**WHY I HAVE GOT TB?**

P.THANASEKARAN

**AIM**

Tuberculosis is a major communicable disease in India and leads the number one position among high TB burden countries. The common question asked why I have got this disease?

**OBJECTIVE OF THE STUDY**

The disease is airborne spread and caused by Mycobacterium Tuberculosis bacteria. The common risk factors are:

1. Poor Socio-Economic Status
2. Malnutrition
3. Social ill habits like Smoking /Alcoholism/Drug addiction
4. Immunosuppressive diseases like Diabetes /HIV /Cancer on Chemotherapy/Prolonged Steroid usage
5. Family History of TB either genetically based or close contact with sputum positive TB patients and so many.

Since we are fighting with TB disease for so many decades, we want to assess the current scenario of risk factors for TB disease in the community and the impact of HIV and Diabetes in TB incidence and prevalence.

**PERIOD OF STUDY**

Study was undertaken from urban Pudukkottai from DTC Pudukkottai DMC and we have selected 500 patients for analysis.

**CONCLUSION**

1. Even though HIV epidemic increase the incidence and Prevalence of TB around the world, but in our country the socio-economic risk factor bypasses HIV.
2. Our main risk factor is **Poor Socio-Economic Status and Malnutrition** which should be addressed in all forums fighting for TB disease.
3. The twin risk factors **Alcoholism and smoking** should also be addressed in all community awareness meetings and in young minds of Indian population in schools and colleges.
4. All diabetic clinics in our country should focus for early detection of TB cases among their clients especially in urban areas.
5. HIV-TB coordination should be implemented at all levels.

**COHORT ANALYSIS OF HIV PREVALANCE AMONG TB CASES – ANALYSIS REPORT**

**P.THANASEKARAN**

**Aim:**
To study HIV prevalence among TB cases registered in our district Pudukkottai –Tamilnadu state and to know the type of TB disease among HIV individuals

**Background of the study:**
Our district Pudukkotai-Tamilnadu state has a population of 16 lakhs and is having three TB units. We have selected all TB cases registered from 1-1-2011 to 31-12-2011 and all TB cases screened for HIV. Our district is one of the high HIV prevalent districts in Tamilnadu and socioeconomically backward district. We analysed the data and we found the following results.

**Outcome of the study:**

Total number of cases registered : 1393
Screened for HIV : 1393
Number of HIV positive : 115

Among HIV positives, the type of TB cases are:
New sputum smear positive pulmonary TB : 26
New sputum smear negative pulmonary TB : 35
New extrapulmonary TB : 34
Retreatment relapse TB : 10
Retreatment sputum negative pulmonary TB : 01
Retreatment extrapulmonary TB : 09

**Conclusions**
Since our district Pudukkottai- Tamilnadu state is one of the high prevalent districta, the incidence of HIV among TB cases is 8.25% [115 out of 1393].

Among HIV cases, the sputum smear negative and extrapulmonary TB cases are more than sputum smear positive pulmonary TB cases.

In PLWHA, the TB screening needs more suspicion and intensified evaluation with necessary investigations.

ICTC councillors and ICTC lab technicians should be motivated to refer suspected TB cases in order to improve the TB diagnosis among PLWHA.

HIV-TB coordination should be intensified at all levels and we need further facilities for TB screening among PLWHA.

**INCIDENCE AND IMPACT OF DIABETES AMONG TB PATIENTS IN TB UNIT PUDUKKOTAI – STUDY REPORT**

P.THANASEKARAN

**AIM:**

To find out the incidence & impact of diabetes among TB patients in TU Pudukkottai for the period from 1ST January 2011 to 31ST December 2011.

**OBSERVATION OF THE STUDY:**

We have registered 465 new TB cases under cat-I regimen and 100 re-treatment TB cases under cat-II regimen.

Among the new TB cases 12 persons found to be Diabetic Mellitus and among the re-treatment cases 6 persons found to be Diabetic Mellitus.

All new TB cases with Diabetes got treated with cat-I & oral Hypoglycemic agents, in 6 re-treatment cases, 5 are treated with oral drugs and 1 with Insulin Injection along with cat-II Rx.

Result of the study show incidence of Diabetes in new TB cases is 2.5% and in re-treatment cases 6% which shows more incidence of Diabetes among re-treatment cases.

Outcome analysis shows, in cat-I Rx 8 cases are cured 66% 2 cases are failure 16% 3 cases are Rx completed 18% in cat-II Rx 2 cases are cured 33% 2 cases are failure 33% 1 case is Rx completed 16% 1 case is still on Rx 16%. Diabetes among TB cases definitely reduce the cure rate /more with cat-11 TB cases but there is no marked difference with oral drugs and insulin Rx.

**CONCLUSIONS:**

Incidence of Diabetes among TB cases found to be less -3.8% ONLY.
Along with ATT Rx, we need only proper control of Diabetes either with oral or with Injection Insulin for cure of TB cases by regular Anti Diabetic Rx and follow up.

Diabetes have more failure in cat-II TB cases and have the risk of developing MDR-TB cases and spread of infection among the community.

Most of the Diabetes and TB cases need extension of intensive phase for conversion of sputum positivity to sputum negativity. So why can’t we give IP /3 months for all diabetic cases with TB?

SPECIATION AND DRUG SUSCEPTIBILITY OF NON TUBERCULOUS MYCOBACTERIA ISOLATES FROM SYMPTOMATIC FOR PULMONARY TUBERCULOSIS

Bidhan Goswami, Pranava Mishra, P. Narang, D. K. Mendiratta

Introduction & Objective:

The genus Mycobacterium includes more than 130 validated species. With the advent of HIV/AIDS there has been an increase in incidence of ‘Other mycobacteriosis’, an entity caused by non-tuberculous Mycobacteria (NTM). These organisms can infect immune-competent individuals also. However, the data on these organisms is almost non-existent in our country. Therefore, this study was undertaken to speciate the isolates from subjects symptomatic for tuberculosis and to test their drug susceptibility.

Material & Methods:

A total of 59 NTM were isolated and stocked from sputum samples collected from approximately 4,807 subjects suspected for pulmonary tuberculosis but only 29 could be revived. Revival was better with Paraffin Slide culture (PSC) than on Lowenstein Jensen media. Phenotypic identification was based on standard tests and Drug Susceptibility testing was done by broth dilution method (MIC) following Standard recommendation by CLSI and American Thoracic Society (ATS).

Results:

NTM were speciated as *M. fortuitum* & *M. avium* complex (10 each), *M. cheloni* (6) and *M. simiae* (3). All isolates of MAC and *M. chelonae* were resistant to first line drugs whereas *M. fortuitum* showed 40% sensitivity to Streptomycin. Sensitivity of MAC to Clarythromycin & that of *chelonae & fortuitum* to Clarythromycin, Amikacin, Ciprofloxacin and Sulphamethoxazole was 100%. Doxycycline showed variable result.

Conclusion:

Though the number of isolates tested is small but Clarythromycin seems to be a good drug for NTM as all the three species tested were sensitive. Similarly for *M.chelonae & M.fortuitum*
Ciprofloxacin, Amikacin and Sulphamethoxazole showed good sensitivity but should be used judiciously.

TB HIV: A special Study in Kasaragod District, Kerala

Sunil Kumar.P.P

Objectives

Tuberculosis is the major cause of mortality among the HIV infected persons. Initiation of ART and CPT along with the ATT is not sufficient for preventing mortality among TB patients. The study makes an attempt to analyse the existing situation in TB HIV in Kasaragod District under Revised National Tuberculosis Control Programme. The following are the primary objectives of the study.

4. To analyse the treatment outcome of the TB HIV patients in Kasaragod district during the period of 2010 - 2012.

5. To analyse programmatic related factors that lead to the 100 % TB HIV coverage in Kasaragod District.

6. Methodology of investigation

Study settings: The study was conducted in Kasaragod District, Kerala.

Study Design: Cross sectional study

Patients Sample: All the TB HIV co infected patients registered in the period of 2010-2011 were included in the study (74).

Data Processing and Analysis

After collecting data through patient’s interview and document verification, the researcher started data processing with the aid of the tables the statistical averages for different items were calculated. In the terms of the percentage, explanations were given based on the responses of the respondents.

Main findings:

In the year 2010 49% of the TB Cases registered in the district has tested for HIV and among them 5.8% is HIV positive. In the year 2011 95% cases are tested HIV and among them 5.4% of them are HIV positive. In the year 2012 100% of the TB cases have tested HIV. Even after the administration of ART and CPT properly, 14% of the death reported in 2012 and 21% reported in 2011. Treatment success rate is 62% in 2011 and 57% in 2011. In the year 2012 (up to 3rd Qtr 2012) nutrition support was administrated with the support of Local NGOs that helps to reduce the death rate to 12%.

Conclusions:

ART /ATT and CPT alone are not sufficient for the survival of the TB/HIV patients. Nutrition support also is inevitable to reduce the mortality.

Late diagnosis of HIV infection leads to early death.
All the TB patients/suspects have to offer HIV testing service with the maximum utilization of NACO/RNTCP system.

POSTERIOR MEDIASTINAL MASS – A RARE PRESENTATION OF TUBERCULOSIS

Urvinder Pal Singh, Kalpesh Patel, Aditi, Pooja Aneja

• BACKGROUND
• The Posterior Mediastinum is an irregular triangular space running parallel with the vertebral column; bounded in front by the pericardium above, and by the posterior surface of the diaphragm below, behind by the vertebral column, and on either side by the mediastinal pleura. Common posterior mediastinal mass includes neurogenic tumours, non-neurogenic tumours, paraspinal abscess, descending aortic aneurysm, lymphadenopathy. Mediastinal mass of tuberculous origin is exceedingly rare. Hence this case report.

• CASE REPORT
• A 35 year old woman presented to us with fever and productive cough since 6 months and a reduction in her appetite. Patient’s past history was insignificant without any major illness. General physical examination revealed pallor. Systemic examination was unremarkable. Blood investigations were non-contributory. Chest x-ray PA view showed bilateral infiltrates with mediastinal mass. CT scan of the chest revealed a posterior mediastinal mass. FNAC from the mass under CT guidance was performed. The histopathology revealed multiple epithelioid cell granulomas with necrosis, and stain for acid fast bacillus was negative. Patient however came out to be positive for AFB on sputum microscopy. Thus patient is started on Category I as per RNTCP. Now, Patient is doing well with treatment, and is kept on follow up.

• CONCLUSION
• In conclusion, tubercular infection can have varied presentations. Though presentation as a mediastinal mass is rare in immuno-competent adults, there is always an importance of keeping tuberculous origin in differential diagnosis of mediastinal masses in patients of pulmonary Koch’s. With prompt commencement of ATT, it is possible to treat these patients successfully.

Innate Immunity Markers: Toll –like receptors (TLR4) Genotyping in Healthy controls

M. Singh, P. Singh, R.Singla, D.Tayal, N. Singla, V.P. Myneedu and R. Sarin

Background: Toll-like receptors (TLRs) are trans-membrane receptors that activate cells of the innate immune systems upon recognition of pathogen-associated molecular patterns. The
TLR4 is an essential component of the innate immune response to various microorganisms. Changes in TLRs and signaling molecules that result from polymorphisms (Asp299Gly and Thr399Ile) are often associated with susceptibility to various infectious diseases. The role of the TLR4 pathway in tuberculosis is not well understood.

**Objectives:** The aim of this preliminary study was to investigate the genotype frequency of TLR4 (namely Asp299Gly and Thr399Ile) in healthy controls (both PPD positive and negative) as well as tuberculosis patients.

**Material & Methods:** A total of 59 samples of healthy controls/contact (14 PPD Negative, 33 PPD Positive & 12 PPD status unknown) were recruited from OPD of the LRS Institute of Tuberculosis and Respiratory Diseases, New Delhi. Single nucleotide polymorphisms (SNPs) of the TLR4 gene (Asp299Gly and Thr399Ile) were investigated by using PCR-RFLP method.

**Results & conclusion:** Out of 59 controls, the frequency of mutant allele of GG at position Asp299Gly was found to be very low (< 1%) in PPD positive case. On the other hand, mutant genotype (TT) at position Thr399Ile of TLR4 gene was absent in PPD positive & PPD negative cases healthy controls. Both mutant allele (Asp299Gly & Thr399Ile) have been reported to be associated with susceptibility to tuberculosis in various population (Ferwerda *et al* 2008).

**Landmarks in Tuberculosis**

O.A. Sarma


Characteristics of expired women pulmonary tuberculosis patients registered with the
Directly Observed Treatment Short course centers in Pune, India
Eliza Dutta and Anita Kar
**Objective:** To compare the characteristics of women and men who were patients of pulmonary tuberculosis and were reported expired due to tuberculosis within eighteen months of initiation of Directly Observed Treatment Short course (DOTS).

**Methods:** The vital status and characteristics of 1356 patients aged more than 15 years were ascertained 18 months after date of initiation of treatment. All patients were registered with the DOTS centres in Pune city.

**Results:** Among 1356 patients surveyed for vital status, 195 (154 males and 41 females) had expired due to tuberculosis, as reported by family members. Women had a higher risk of dying young at less than or equal to 30 years of age (OR = 2.389, 95% CI = 1.166 – 4.895), were sputum negative (OR = 2.159, 95% CI = 1.065 – 4.379), were dependents (OR = 14.167, 95% CI = 6.218 – 32.277) and were without formal education (P = 0.001) as compared to men. Women had a feeling of guilt and being a burden to the family because of the illness (OR = 2.250, 95% CI = 1.184 – 4.275). More women as compared to men were single at the time of death (P = 0.05). Multivariate analysis showed a higher risk in women aged less than 30 years (OR = 3.55, 95% CI= 1.072 – 11.754) and who are dependents (OR = 26.588, 95% CI= 8.383 – 84.328).

**Conclusion:** The study suggests that single, women tuberculosis patients who are under the age of 30 years, are dependent, sputum negative and without formal education are at a higher risk of tuberculosis related mortality.

Protein profiling in serum of mice after prime boost vaccination with BCG, Ag85B and Ag85 complex peptide: Quest for identification of new biomarkers


**Objective:** The main objective of the study was to identify protective markers that are expressed in serum of mice after BCG vaccination and booster doses with BCG and with Ag85B and Ag85 peptide in heterologous prime boost strategies.

**Methodology:** To identify protective biomarkers, mice serum samples were subjected to one and two dimensional electrophoresis. Protein profile of developed one and two dimensional gel was studied using Quantity one and PD quest (BioRad) software.

**Main findings:** Based on 1D and 2D SDS PAGE, we identified number of biomarkers some of which were found to down regulate after primary BCG vaccination but was again expressed after booster doses with Ag85 B and Ag85 peptide but not with BCG. Apart from that we also identified proteomic markers that were specifically expressed only after booster doses with BCG, Ag85B and Ag85 peptide.

**Conclusion:** The serum proteomic profiling provides us useful information in identification of biomarkers. Characterization of such protein bands further by LC-MS in near future will help us in identification of such biomarkers and correlate them with improved efficacy of such markers in prime boost strategies.

Differential Diagnosis of Granulomatous Lung Inflammation on Transbronchial Lung Biopsy: A Two Year Study

Ritu Kulshrestha, SnehaManaswita, BalakrishnanMenon, Rajkumar

**Background:** Granulomas are among the most commonly encountered abnormalities in pulmonary pathology and often pose a diagnostic challenge. An accurate identification of the
histopathological features and categorization of granulomas in transbronchial lung biopsy (TBLB) is needed to improve patient outcome.

Methods: Retrospective analysis of 304 TBLB’s received at department of Pathology, VPCI, over a two year period from July 2010 to October 2012 was done. The TBLB’s were histopathologically studied for the presence of granulomatous inflammation. Granulomas were categorized on the basis of their location (subepithelial/ interstitial), presence or absence of necrosis, multinucleated giant cells (Langhans, foreign body type), intracytoplasmic inclusions (Schaumann body, crystals), AFB, PAS and reticulin staining patterns. The histopathological features were correlated with clinical/radiological features for final diagnosis.

Results: Granulomatous inflammation was seen in 52/304 cases (17.1%) with 30 males and 21 females, age ranging from 20-60 years. Definite diagnosis was possible on histopathology in 31/52 cases (59.62%). Tuberculosis was confirmed by identification of AFB positivity in 6 cases (11.53%), caseating granulomas in 6 cases (11.53%), Langhans cells in 13 cases (25%). Submucosal nonnecrotizing granulomas with typical Schaumann bodies, diagnostic of sarcoidosis were found in 6 cases (11.53%).

Conclusions: Definite diagnosis of granulomatous inflammation of lung is possible in 60% cases by systematic histopathological pattern based analysis of TBLB alone. Tuberculosis is the most common causative agent. Its differentiation from sarcoidosis requires appropriate interpretation of histopathology and special stains. In addition a rigorous clinical-radiological correlation is emphasized.

PNEUMOPERICARDIUM: A RARE BUT LETHAL COMPLICATION OF PULMONARY TUBERCULOSIS

VIPUL KUMAR, KB GUPTA, RITU AGGARWAL

Introduction

Pneumopericardium is defined as presence of air in pericardial sac and has been reported to result from spontaneous or iatrogenic cause of underlying disease. It is a rare condition and is important in differential diagnosis of chest pain. There are multiple causes including surgery, blunt trauma, infectious pericarditis with gas forming organisms and fistula formation between pericardium and adjacent gas containing organ (lung, esophagus). It may be caused iatrogenically during pericardiocentesis and mechanical ventilation. Hamman’s sign is a crunching sound synchronous with heart beat heard over precordium produced by heart beating against air filled tissues. Diagnosis is by chest X ray and CECT chest. If the hemodynamic condition is stable, the underlying condition should be treated and patient monitored closely. We present a case of pneumopericardium in a patient of pulmonary TB to highlight rare complication of common disease.

Clinical Details
A 70-year-old female presented to hospital with history of cough, expectoration, fever and dyspnea of one month duration. On examination she was dyspneic and hemodynamically unstable. Chest radiograph showed bilateral fibro cavitary disease and a continuous thin rim of radiolucent air outlining the pericardial sac. CECT thorax confirmed the diagnosis of pneumopericardium. She was started on ATT and other symptomatic treatment but she deteriorated rapidly and expired.

A room temperature stable sputum sample processing reagent for smear microscopy

Arajita Priyadarshini

The lower assay sensitivity of current smear microscopy stems from non-random, localized distribution of TB bacteria in sputum sample. The usefulness of concentrated single sputum microscopy after sputum liquefaction is an established fact in TB diagnostics. Sputum liquefaction reagent (ReaSLR) is a room temperature stable reagent in a tablet format. It provides homogenous mixture of Mycobacteria after digestion and decontamination from a single sputum sample. Unlike NALC-NaOH, ReaSLR is ready to use, room temperature stable, and works at neutral pH. The processed sample once filtered to remove any insoluble material present in the sample provides better quality smears aiding the easier detection of AFB.

The data obtained using ReaSLR method of sputum sample processing provided higher sensitivity (80%) than direct smear microscopy. Our method could detect higher number of scanty samples (20% more than direct smear), and 1+ samples (4% more than direct smear). ReaSLR method converts higher number of smear –ve and culture +ve cases into smear +ve culture +ve.

ReaSLR facilitates higher sensitivity through complete liquefaction, decontamination and filtration of cell debris and insoluble particulate matter. The better visibility of AFB from single concentrated sputum provides better results, lowering the false negatives.

ReaSLR method of single sputum smear microscopy is compatible with existing smear microscopy set up, without requiring any additional instruments, reagents, infrastructure, training and data analysis. It blends into the current TB diagnostic system and provides higher sensitivity. This method has potential to bring a paradigm shift in current screening method of TB patients.

Role of LED based Fluorescent Microscopy in MDR TB treatment follow up patients under PMDT programme

M.Hanif, Shristy Sharma, Pankaj Rathi, Himanshu Vashista, Himanshu Jha, Vidya Nidhi Gumma, K.K Chopra

INTRODUCTION:
Direct sputum smear microscopy is the most widely used test for the diagnosis of pulmonary tuberculosis (TB), available in most health care laboratories at health centre level. The majority of laboratories use conventional bright field light microscopy to examine Ziehl-Neelsen stained direct smears, documented to be highly specific in areas with a high prevalence of TB, but with varying sensitivity (20-80%).

**OBJECTIVES:**
To compare the sensitivity and specificity between the ZN staining and Fluorescent staining methods.

**MATERIAL AND METHODS:**
A total of 500 MDR TB treatment follow up patients were considered in this study. These patient specimens were decontaminated by N-acetyl L-cysteine sodium hydroxide (NALC-NaOH) method. Direct samples and decontaminated samples were used for ZN and FM microscopy.

**RESULTS**
Smears were prepared directly from 500 samples. Out of 500 samples, (ZN vs FM) showed 3.2% vs 5.2% samples were found AFB scanty positive, 7% vs 6.4% were 1+ positive, 2.2% vs 4.8% were 2+ positive and 3.4% vs 4.2% were 3+ positive and 84.2% vs 79.4% were remains negative by ZN staining microscopy and Fluorescent microscopy. Detailed results will be discussed at conference presentation.

**CONCLUSIONS**
Fluorescence microscopy is a useful, rapid, and reliable tool for the examination of specimens for AFB. The efficacy of fluorescence microscopy proved to be much higher than conventional light microscopy.

Role of Immunogenic Protein Encoding Gene MPB 64 for detection of tuberculosis in direct smear negative sputum samples

Vidya Nidhi Gumma, Vinod Kumar Badireddy, Himanshu Vasishta, Himanshu Jha, M. Hanif K.K.Chopra

**Introduction:**
Sputum smear microscopy and culture are generally considered to be the authoritative methods for the laboratory diagnosis of TB. However, smear microscopy is limited due to low sensitivity in paucibacillary specimens. On the other hand, culture remains the gold standard for diagnosis of mycobacterial infections, but it is time consuming and prone to contamination. Several research groups are exploring the possibility to improve their efficiency through molecular methods, we attempted usefulness of Immunogenic protein encoding gene MPB 64 for detection of tuberculosis in direct smear negative cases.

**Objective:**
To check the utility of Immunogenic encoding protein MPB 64 gene for diagnosis of tuberculosis in direct smear negative clinical samples
To compare the specificity and sensitivity of MPB 64 gene in to direct smear microscopy.

Material and methods

A total of fifty (n=50) sputum smear negative samples. These specimens were decontaminated by N-acetyl L-cysteine sodium hydroxide (NALC-NaOH) method. Decontaminated samples were used for conventional laboratory methods like direct smear microscopy and PCR.

Results

Out of 50 direct smear negative samples, 10 (20%) samples were found AFB positive after decontamination.19 (38%) out of 50 smear microscopy negative samples were found AFB positive by PCR. Out of 19 PCR positive samples 9 samples were direct smear 1+ and scanty positive samples. Remaining 10 PCR positive samples were smear microscopy negative samples. One smear positive sample showed negative for PCR.

Conclusion:

Comparison of smear microscopy with respect to PCR showed increased 38% of sensitivity with specificity 96.7%. Positive predict value 0.9 (PPV) and Negative predicted valued (NPV) 0.75

A study of awareness about resistant tuberculosis among medical professionals

N.Sandeep Krishna, K.Surendra Menon

Aim

The basic aim of this study was to assess the existing basic knowledge of medical doctors of various levels of training about the definitions of the resistance patterns in tuberculosis.

Methodology

Two hundred medical doctors were included in this survey from MGMC&RI, Puducherry. A simple questionnaire was designed and presented to the medical doctors to respond by spontaneous answers to the questions in the questionnaire. The participants were asked to define Multi Drug Resistant Tuberculosis (MDR TB) and Extreme (Extremely) Resistant Tuberculosis (XDR TB). The participants were required to respond spontaneously by completing the questionnaire on presentation without waiting time, delayed participation or peer discussion.

Results
Two hundred participants were included in this study. One hundred and forty (70%) participants completed the questionnaire while remaining sixty (30%) participants did not answer the questions completely. Out of 140 responders fifty (35.7%) responders possessed a post graduate degree while remaining ninety (64.3%) responders were post graduate trainees and general medical officers.

Out of total 140 responders sixty (42.8%) could define Multi Drug Resistant Tuberculosis (MDR) correctly while eighty (57.2%) could not define MDR TB correctly. Subset analysis revealed that out of ninety responders without post graduate qualification, only 36 (40%) could give a correct response. Out of 50 post graduate responders, 24 (48%) gave correct responses.

Out of the total 140 responders, Thirty six (25.7%) responders could define XDR correctly while one hundred and four (74.3%) responses were incorrect. Subset analysis of responses revealed that eight (8.8%) correct responses were recorded in the group without PG Qualification while twenty eight (56%) correct responses were recorded in the PG qualified group of 38.

**Discussion**

Tuberculosis is the most common cause of death in adults due to single infectious agent. In this era of drug resistance available knowledge is incomplete and not well disseminated among the medical professionals. The study suggests that there are major gaps in the knowledge of doctors involved in patient care about resistance.

**Conclusion**

The study suggests that there are major gaps in the knowledge of doctors involved in patient care about resistance and its patterns of tuberculosis to available anti tuberculous drugs.

**STUDY OF ECG CHANGES IN PATIENTS WITH COPD**

K. Leela Krishna, M. Kali Rattiname

**AIM**

To study the electrocardiographic changes in COPD patients.

**METHODOLOGY**

An observational type of study done in 2011-2012, fifty patients of COPD aged above 30 years, diagnosed clinically and with spirometric criteria were included in the study for all patients ECG is done and findings are noted.

**RESULTS**
Out of 50 patients with COPD right axis deviation present in 13 cases (26%), R/S ratio less than 1 in V6 in 12 cases (24%), R/S ratio greater than 1 in 6 cases (12%) P-pulmonale is seen in 8 cases (16%), ST segment depression present in II, III, aVF 7 cases (14%), T wave inversion present in V1, V2, V3 found in 6 cases (12%), low voltage QRS in 5 cases (10%), RBBB in 2 cases (4%), lead I sign in 2 cases (2%), ventricular ectopics 2 cases (4%), Multifocal atrial tachycardia is seen in 1 case (2%), SI, SII, SIII seen in 1 case (2%).

DISCUSSION

Voluminous lungs have an insulating effect and thereby diminish the transmission of electrical potential to the registering electrodes. The heart descends to a lower position with lowering of diaphragm. Right ventricle and right atrium becomes compromised due to a reduction of the pulmonary vascular bed leads to right ventricular hypertrophy and right axis deviation.

CONCLUSION

From this present study ECG abnormalities suggestive of pulmonary hypertension (Right ventricular hypertrophy) was found in more than half of these cases. Poor progression with R/S is < 1 was found in 12 cases, right ventricular strain patterns like ST depression in II, III, aVF and T wave inversion was found in 7 and 6 cases respectively, low voltage QRS in 5 cases. Other rare ECG abnormalities like lead I sign and SI, SII, SIII was found in 2 and 1 cases respectively. Rhythm abnormalities like ventricular ectopics, RBBB are found in 2 cases and multifocal atrial tachycardia in 1 case.

TO STUDY THE CAUSATIVE ORGANISM FOR CAP (COMMUNITY ACQUIRED PNEUMONIA) AND THEIR DRUG SENSITIVITY

B.V.A.Ranga Reddy, Mohammad Hanifah

Objective: To see the organism causing CAP and their drug sensitivity.

Methodology

This was an observational study carried out in the department of General medicine MGMCRRI, Pondicherry in the month of May 2011 to April 2012. Clinical records were reviewed for risk factors, co-morbidities and immunization status along with laboratory reports of blood sputum and culture test. History of prior pneumococcal vaccination was also obtained. All patients who were admitted with a diagnosis of CAP in medical ward, pulmonology ward, HDU and ICU were included in the study. 100 patients were included in our study.

Results

Out of 100 patients 60 were males and 40 were Age range 28 to 78 years. (Mean 52 yrs.). 30 patients were hypertensive. 10 out of them were suffering from chronic obstructive pulmonary disease, five hypertensive patients also had asthma, and five had diabetes as well. Two patients had asthma and ischemic heart disease. One was hepatitis C positive with
asthma. Seven patients were treated for T.B in past, one of whom had asthma, and three had COPD as well. Two patients had COPD and D.M.

Out of these 100 patients 9 patients died. The CRUB-65 scores were 5 in 2 patients, 4 in 4 patients and 3 in 3 patients. Out of 111 patients 12 patients were smokers. All of whom were males. Their sputum culture results were positive in forty patients

24 positive for Strep. pneumonia out of 24, 20 were amoxicillin sensitive.
6 positive for Haemophilus influenza out of 6, 4 were amoxicillin sensitive.
2 positive for Staphylococcus aureus out of 2, 1 is amoxicillin sensitive. 1 was sensitive to salbactam and polymyxin B.
6 positive for Klebsiella pneumonia out of 6, 2 were amoxicillin sensitive. 2 were sensitive to ceftazidime, ceftriaxone, 1 were sensitive to piperacillin/tazobactam, 1 were sensitive to amikacin and polymyxin B.
E. coli 2 they were sensitive to tazobactam, gentamicin, imepenum and polymyxin B.

Conclusion:

Our results show that like other studies done in past Strep pneumonia is still the commonest organism to cause CAP. Despite wide spread and un controlled use of antibiotics in community most of the cases with strep pneumonia are still sensitive to amoxicillin.

Comparative study of clinical and radiological features of Pulmonary Tuberculosis patients with or without Diabetes Mellitus

S.S Gupta, Abhishek Shekhar Sinha, Kartik Sood

Introduction- Nearly one third of the global population is infected with Mycobacterium Tuberculosis and is at risk of developing the disease. More than 90% of global TB cases occur in Developing countries like India. Tuberculosis can be predisposed by a number of conditions of which diabetes mellitus occupies an important place.

Objectives: To compare the clinical and radiological similarities/ dissimilarities between Diabetic Patients with Tuberculosis, and Non-diabetic Patients with Tuberculosis.

Methodology of investigation- A case control study was conducted at the Department of T.B. & Chest of Era’s Lucknow Medical College, Lucknow. A total of 130 subjects with tuberculosis were enrolled of which 65 patients were in study group. Cases will be all new sputum positive, pulmonary tuberculosis patients and, who are known cases of diabetes mellitus and all sputum positive new cases of pulmonary tuberculosis, in which diabetes has been recently detected (as per American Diabetes Association (ADA) diagnostic criteria). 65 patients were in control group. Controls will be all sputum positive new cases of pulmonary tuberculosis without diabetes mellitus.

Conclusion.. Tubercular patients in higher age group have a significant association with diabetes mellitus. Male tuberculosis patients had a significantly higher association with diabetes mellitus. The grade and duration of fever was of significantly higher category in diabetic subjects. Incidence of cough was significantly higher in non-diabetic group. Family history of diabetes was seen to be positive in significantly higher proportion of diabetic subjects as compared to non-diabetic subjects. Involvement of lower zone was significantly
higher in diabetic group. Involvement of upper and upper middle zone was in significantly higher proportion of non-diabetic subjects. Cavity and fibrocavitary involvement was observed in significantly higher proportion in non-diabetic subjects.

**DIAGNOSTIC VALUE OF PCR IN SPUTUM OF PATIENTS OF PULMONARY TUBERCULOSIS**

Gupta SS, Ankit Mehrotra, Nishith Kumar

**Introduction:** Tuberculosis is a long-standing and expanding threat to public health. Rapid diagnosis of pulmonary tuberculosis is thus of immense significance not only for the timely initiation of ATT but also to prevent spread of infection in the society. Lab diagnosis of Pulmonary Tuberculosis (PTB) is based on traditional method of smear microscopy by Ziehl-Neelsen (ZN) staining and on sputum culture of Mycobacterium Tuberculosis (MTB). Smear microscopy is although rapid and inexpensive but lacks sensitivity and specificity. Culture of MTB is more sensitive but it requires viable organisms and long culture periods. Even newer culture methods through radio-isometric system (BACTEC) and biphasic culture may require more than two weeks to confirm the diagnosis thus resulting in delay of treatment. **Aims:** 1) To find out the diagnostic utility of PCR in sputum of patients with PTB 2) To determine sensitivity and specificity of PCR in the diagnosis of PTB 3) To compare the result of PCR with smear reports of MTB by ZN staining. **Settings:** Tertiary care Institute in Lucknow, India. Period: One year. **Material & Methods:** 65 patients who visited Pulmonary Medicine OPD with strong suspicion of active PTB on the basis of clinico-radiological evidence constituted the study group. 40 patients having Non Tubercular respiratory diseases attending the Pulmonary Medicine OPD during the same period formed the case control group. Sputum of all the patients were subjected for smear microscopy by ZN staining method and PCR for MTB in MJ mini thermal cycler (BIO RAD UK) using IS6110 (123bp) primer for amplification. All the patients were subsequently followed clinic-radiologically. **Results:** Out of 65 sputum specimen from cases 40 (61.5%) were smear positive and 25 (38.5%) were smear negative. All smear positive cases were PCR positive and out of 25 smear negative cases, 14 cases were PCR positive (56%). Among 40 specimens from controls none were positive by PCR. All 54 cases who were PCR positive responded to ATT. In present study sensitivity & specificity of smear microscopy was found to be 61.5% and 100% while that of PCR to be 83.0% and 100% respectively. **Conclusion:** Present study suggests that detection of MTB by a PCR based test could lead to earlier treatment, application of isolation procedure and investigation of contacts. Also, diagnosis of PTB at molecular level by PCR is a rapid and effective method for detecting MTB compared to conventional microscopic examination.

**TO STUDY THE TREATMENT OUTCOME AMONG NEW SMEAR POSITIVE PATIENTS WHO WERE IN ACTUAL DOT DURING INTENSIVE PHASE**

Khalid Umer Khayyam, Sunil Michael Kindo, MM Puri, Rohit Sarin

**Background:** The principal of DOTS into a powerful treatment system that ensure monitoring, supervision and accountability for every patient started on treatment and demonstrated that the system could provide effective TB treatment, affordable for developing country.
Objective: To ascertain whether patients actually received DOT in intensive phase and its association with treatment outcome under program condition.

Design: Cross sectional study

Method: This study has been carried out among adult new smear positive patients at DOT center of LRS Institute of TB and Respiratory Disease, New Delhi, India. The data was collected of 50 patients after completion of intensive phase by review of treatment cards and interview of patients with predesigned semi-structured questionnaires in local language at the DOT centre from August’2009 to January’2011 period by the Doctor.

Result: Out of 50 NSP Patient during intensive phase of CAT-1 were 49 (98%) taken DOT and only 1 (2%) missed dose on scheduled day. Extension of intensive phase was in 10 (20%) patients while no extension phase among 40 (80%) patients. Among them only 49 (98%) patients cured at the end of treatment while only 01 (2%) patient failure as per RNTCP guideline.

Conclusion: Higher sputum conversion and cure were achieved due to strict supervision and monitoring along with motivation of patients for treatment adherence.

Case Report of Multi Drug Resistant (MDR) Tuberculosis (TB): A Challenge to Physician

Aruna Durukkar

Multi Drug Resistant (MDR) and XDR Tuberculosis (TB) are tough challenges and an onus for the public health sector. Counseling of the patient along with family members, diagnosis, initiation of treatment, drug adherence, clinical and pathological monitoring and last but not the least; cost of the treatment are some of the important factors that possesses as great barriers.

Here we present a case of successful management for a 9-year-old female child and 30-year-old mother of the child. The child presented symptomatically with sputum Acid Fast Bacillus (AFB) 3+ despite history of 9 months regular Anti Koch’s Treatment (AKT) consumption. At the same time, mother also presented symptomatically and after investigation was found to be sputum AFB 3+.

Samples of both were sent for culture and sensitivity to Hinduja Microbiology Laboratory which were found MDR TB and hence both were started on second line AKT drugs. They were monitored regularly with serial cultures after every 3rd month at the same lab and were found to be negative at the end of treatment with clinical and symptomatic improvement.

Conclusion: With the best clinical and pathological monitoring, reassurance to patient along with family members, counseling and regular follow-up, there is a brighter future and good hope to cure MDR.

TBNA as a diagnostic tool for Non-Hodgkin's Lymphoma

Jindal S, Sindhwani G, Verma SK, Kakkar R
NHL (Non Hodgkin Lymphoma), the most common type of lymphoma, is a group of closely related cancers, with estimated 61 subtypes. The clinical presentation of NHL varies tremendously depending upon the type of lymphoma and the areas of involvement, including mediastinal lymph nodes. Sometimes patients present only with mediastinal lymphadenopathy. Until a few years back, diagnosis of such cases was made with the help of mediastinoscopy, which is a morbid procedure requiring general anesthesia. TBNA (Trans Bronchial Needle Aspiration) is a bronchoscopic procedure to sample mediastinal lesions. We present a 65 year old male who was diagnosed as NHL by using TBNA.

Exploring \textit{M. tuberculosis} Biofilms:

New Perspective in combating the Riddle of an old pathogen

Ritta Mathew, Prabhat Arya, Ashly George, Srinivas Chamakuri

\textit{M. tuberculosis} form drug tolerant biofilms which act as physical/chemical barrier, thus preventing penetration by many antibiotics. This has raised an urgency to identify and develop new anti-mycobacterials with novel mechanism of action. Inspired from nature where bacteria produce different signaling molecules like \textit{N}-acyl-L-homoserine lactone (AHL’s) to communicate among themselves (Quorum Sensing), AHL-type molecules were synthesized and we found that they have an adverse effect against mycobacterial biofilm formation and sliding motility. The MIC for preventing biofilm formation in \textit{M. tuberculosis} is 32.0 \(\mu\)M with an AHL like molecule whereas it is 729.0 \(\mu\)M with isonazid and 73.0 \(\mu\)M with ethambutol. The MIC for \textit{M. smegmatis} biofilm formation is 6.4 \(\mu\)M with the same AHL like molecule. The difference in MIC has also been observed with rifampicin. Using Scanning Electron Microscopy (SEM), we found that \textit{M. smegmatis} cells are elongated in the presence of the chemical inhibitor compared to the untreated. The mechanism of action of these inhibitor molecules should be evaluated in detail. Even though the clinical significance of \textit{M. tuberculosis} bio-films still remains obscure, the rapid growth of bacterial resistance underscores an urgent need for the development of new anti-bacterial strategies, and, recently, quorum sensing (bacterial cell signaling) has attracted considerable attention as a new target in the microbial community. The interception of quorum sensing represents a potential strategy to slow bacterial virulence, such that the host could be treated with lower doses of antibiotics, or the infection could be cleared naturally by the host’s defenses. Such “antivirulence” strategies may have an advantage over traditional antibacterial treatments in combating the deadliest microbial pathogen, \textit{M. tuberculosis}.

Occurrence of XDR-TB among MDR-TB cases from Delhi and North-Eastern Sates of India at a National Reference Laboratory

Manpreet Bhatta, Niti Singh, Jyoti Arora, Zeeshan Sidiq, V.P. Myneedu, Rohit Sarin

\textbf{Background and Objective:}
India ranks second among the 27(Multi-drug resistant tuberculosis) MDR-TB high-burden countries worldwide after China. A frightening new abbreviation- XDR-TB (extensively
drug-resistant tuberculosis) entered the medical lexicon for the first time in March 2006. In the latest WHO report on XDR-TB released on Feb 26th 2008 no data from India was available. Therefore the present study was aimed at determining the occurrence of XDR-TB among MDR-TB cases from Delhi and North-Eastern States of India.

**Material and Methods:**

A total of 389 culture positive samples from different districts of Delhi and North-Eastern states of India were subjected to drug susceptibility testing against the 1st line (Streptomycin, isoniazid rifampicin and ethambutol) and 2nd line (Ethionamide, para-amino salicylic acid, Kanamycin, Amikacin, Capreomycin and Ofloxacin) anti tuberculosis drugs using 1% proportion method according to the standard protocol of RNTCP.

**Results:**

Out of the total 389 cultures tested 270 (69.4%) were MDR and among these MDRs 19 (7%) were XDR. When considered separately not much difference was observed in XDR rates between different districts of Delhi (6.9%) and various North-eastern states (7.1%) of India.

**Conclusion:**

In this study 7% of the total MDR isolates tested were found to be XDR. Similar results have been reported from other states of India too. Though this study may not be representative of the country wide prevalence but occurrence of XDR-TB at a rate of 7% highlights the need of regular testing of MDR isolates against the 2nd line anti- tuberculosis drugs.

**NEED FOR NEW ANTI TB DRUGS**

**P.S.SARMA**

**INTRODUCTION:** The treatment for tuberculosis is designed or suggested nearly 50 years back and the first line of drugs are nearly 50 years old. The regimen that was followed earlier did not yielded the desired result – in terms of cure rate or relapse rate or decline in the death rate. Hence RNTCP was launched in 1992 and the whole country was covered under RNTCP by 1996.

MDG aims to bring down the incidence of new cases as well as the death rate to half of what it was in 1990 by the year 2015 and figures as on date say that we are far away from it. Hence it is time now to have INTROSCEPTION and search for the lacunae; find out remedies; correct them and move forward to achieve the desired targets by 2015.

Resistance to the existing anti TB drugs is an important reason attributed for FAILURE / REPLASE of more and more cases; there by the patients are not responding as they should have for the present drugs. One of the reasons attributed for MDR cases is DRUG RESISTANCE. Hence it is very essential to invent new anti tb drugs.
METHODOLOGY:

Opinion pool from Patients as well as Heath care workers is gathered reg the COMPLAINECE OF THE PATIENTS TO THE PRESENT REGIMEN / DRUGS. Recently a SHORT FILM COMPETITION WAS ASLO announced reg the NEED FOR NEW ANTI TB DRUGS by Vigyan Prasar in collaboration with Open Source Drug Discovery (OSDD) and best entries will be recognized. Our NGO, SMLS TRUST submitted 2 entries for the same; and we have interacted with doctors and patients at KIMS MEDICAL COLLEGE AMALAPURAM for this purpose.

Observations:

We made the following observations:

1. The present anti TB Drugs were discovered nearly 50 yrs back and hence the Tb bacilli developed resistance to them and hence patients are not responding.

2. Under RNTCP the patients need to swallow 7 tabs IN A GO. And patients are finding it difficult.

3. Size of the Tabs – Tabs are big and patients are not able swallow them.

4. SIDE EFFECTS: Most of our Indian Patients are not able to tolerate the drugs because of points 2 and 3 given above and having side effects like nausea and vomiting etc.

CONCULSION:

In view of the above points, it is felt that THERE IS A DEFINITE NEED FOR NEW ANTI TB DRUGS which ARE MORE POTENT; MORE EFFECTIVE; WITH LESS SIDE EFFECTS; and let us hope that our scientists discover them soon and benefit the man-kind.