261. Illness Behaviour of Tuberculosis Patients Undergoing DOTS Therapy : A Case Control Study.
Bhasin SK, Atul Mittal, Aggarwal OP and Chadha RK: **Ind J Tub 2001,48, 81-85.**

Illness Behaviour refers to the ways in which symptoms may be differentially perceived, evaluated and acted or not acted upon by different kinds of persons. The Illness Behaviour Questionnaire (IBQ) is applicable to any illness and has widely been used in the study of chronic pain, organic and non organic abdominal pain and somatoform disorders. The IBQ is designed to identify various psychiatric syndromes that may account for a discrepancy between the objective level of pathology and a patient's response to it, termed abnormal illness behaviour. The IBQ is a self-administered questionnaire that uses a yes/no response format. The standard 62 questions are grouped into 7 dimensions, identified empirically via factor analysis. The questionnaire was adapted for Indian conditions. The four meaningful factors for Indian conditions were General Hypochondriasis (GH), Denial (D), Affective Inhibition (AI) and Affective Disturbance (AD). In the present study the adapted Hindi version was used to find out the Illness Behaviour of tuberculosis patients. DOTS strategy has been introduced in India to improve the cure rates on account of considerable non-adherence met with in self-administered therapy. It is extremely important to take a holistic view of treatment in view of the complex psychosocial characteristics of the disease. Hence this study was undertaken to study the illness behaviour of the patient so that we can identify the factors that may affect the treatment profile of the patients undergoing DOTS therapy.

The study was conducted at two DOTS centres under the field practice area of the University College of Medical Sciences and Guru Tegh Bahadur Hospital, New Delhi. The controls came from another DOTS centre but comprised of patients suffering from minor ailments like upper respiratory infections, diahorrea, malaria etc, but matched for equal number, age and sex. The IBQ was given to both the groups and the study was conducted between December 1999 and January 2000.

A total of 103 tuberculosis cases and a similar number of matched controls were administered the IBQ. The tuberculosis patients exhibited features pertaining to GH, AI and AD more than the controls and the differences between the two groups were statistically significant. However Denial was seen more in controls compared to tuberculosis patients. Hence the authors recommend, generally, that for a disease with so many psychosocial parameters a valid illness behaviour profile of these patients be studied so that these can be used as an adjuvant to the implementation of the Revised Tuberculosis Control Programme.

262. The Comparison of Tuberculosis Treatments: A Short Course Therapy and The Directly Observed Short Course Treatment (DOTS), East Java Province, Indonesia.
Betty Roosihermiatie, Midori Nishiyama and Kimihiro Nakae : **The** South East Asian **Journal of Tropical Medicine and Public Health, Vol. 31, No. 1, March 2000,85-88.**

The Indonesian House hold surveys of 1980 and 1986 revealed tuberculosis to be the ninth and tenth leading cause of morbidity, respectively. Indonesia also had the highest estimated annual rate of tuberculosis infection at 2%. In 1969 eradication of lung tuberculosis was integrated with village health centres and in 1979 the passive case detection was changed to active case detection. Directly Observed Treatment Short Course (DOTS) was introduced in 1995. The aim of this study is to compare the smear conversion rate between a short course therapy and tuberculosis treatment with DOTS in East Java.

East Java is one of the big provinces and its capital, Surabaya, is the second largest city in Indonesia. The population in 1995 was 34 million. East Java has the highest number of tuberculosis cases in Indonesia. The study used results of a short course therapy in a 5 year period (1989/90-1993/94) and the tuberculosis treatment with DOTS (1994/95- 1995/96) from the East Java tuberculosis eradication program. Standard diagnostic procedures and treatment regimens were followed in both the groups. In the short course therapy the regimen for an adult was INH 400mg, Vitamin B6 l0mg, Rifampicin 450mg, and Ethambutol l000mg every day for the first month followed' by intermittent treatment with INH 700mg, Vitamin B6 l0mg and Rifampicin 600mg twice weekly for five months. The drugs used in DOTS were INH 300mg, Rifampicin 450 mg, Pyrazinamide 1500mg, Ethambutol 750mg and Streptomycin injection 750mg depending on the categorization of the patient. In the intensive phase the drugs were given daily for the first two months followed by intermittent treatment three times a week for the next four months or five months depending on the categorization. DOTS was provided initially by a provider (midwife / health care worker)

followed by an influential family member like husband, wife, parent, brother, sister etc. Health staff supervised DOTS only for the initial three days, thereafter the supervision was only by the family member. Smear conversion was examined after intensive phase in both the groups, whereas in DOTS smear conversion was examined at the end of treatment also, to determine cure. The results were analyzed by comparing the percentage of smear conversion rate between treatments using the z-test.

The average smear conversion rate in short course therapy among the 35,292 cases was 94.4% over the five year period. In the two years of the study when DOT was used the smear conversion rate was 97.67% and 98% respectively. The smear conversion rate of the treatment with DOTS was significantly higher compared to the short course therapy (p-value: < 0.001). Thus tuberculosis treatment with DOTS should be promoted. The concept of supervision by health workers or health cadres should be applied considering DOTS is mostly given by family members. And there should be readiness of tuberculosis staff to do the treatment with DOTS in all levels to expand the coverage.

263. Lower Lung Field Tuberculosis and Mixed Infections: A Diagnostic Dilemma.
Rajasekaran. S. Srinivasan. A, Vanaraj. V, Senthamizh Chelvan. A: **Pulmon, Vol 1 Number 2, (September-December) 1999,67-69.**

It is well established fact that the apices of the lungs are the most commonly afflicted portions by re-infection tuberculosis. Even though the lower lung field tuberculosis (LLF-TB) was recognized by Kidd, tuberculosis predilection to the susceptible apical and sub apical pulmonary areas had overshadowed its presence in lower lung fields in many clinical settings. Non tuberculosis infections and post occlusive bronchial disease are considered to be the major causative factor for unresolved or incompletely resolved lower lung field lesions. This study projects the relevance of mixed Mycobacterial (tuberculous) and non-tuberculous bacterial infections as an important cause for unresolved lower lung lesions.

Bacteriologically confirmed 300 pulmonary tuberculosis patients admitted from 1996 to 1998 at the Department of Thoracic Medicine, Govt. Raja Mirasudar Hospital, Thanjavur were selected for analysis. All these patients were questioned about their illness and previous treatment and they were subjected to complete clinical examination and routine investigations and specific investigations for Tuberculosis viz., Sputum smear microscopy for AFB-three specimens, culture for non tuberculous bacterial organisms. X-ray chest P.A. view and lateral view in patients with lower lung field lesions Computed tomography, bronchoscopy etc. Those hospitalized with lower lung field lesions and initial sputum smear negativity were subjected to repeat sputum smear microscopy and X-rays after a course of antibiotic therapy for 10-15 days.

Among the 300 consecutively selected bacteriologically confirmed pulmonary tuberculosis patients 51 (17%) had lower lung field tuberculosis. Of these 51 LLF-TB patients 28 patients (54.9%), who had negative sputum smear microscopy were initially handled either as unresolving non - tuberculous lung lesions or bronchiectasis. Repeated sputum smear examinations for AFB after administering 10-15 days of combined antibiotic therapy helped to clinch the diagnosis. In the event of mixed Mycobacterial and non tuberculous bacterial infections, the combined antibiotic therapy eliminates overwhelming and rapidly multiplying non tuberculous organisms early paving way for repeat sputum smear microscopy to detect the 'un covered' M. tuberculosis. This study clearly identified I) Younger patients 2) Female patients 3) Unresolving lower lung field lesions with mixed infections and 4) Lower lung field bronchiectasis not responding to conventional line of management as the possible predictors for enhanced detection of LLF-TB. It is also emphasised that sputum smear negative patients with predictors should be subjected to repeat sputum examinations for AFB after an adequate and appropriate course of combined antibiotic therapy.

264. Improving Compliance to Chemotherapy
Ghosh C. S., Ravindran P., Devi S.M., Joshi **M: Pulmon,** Vol **2 Number 1, (January-April) 2000, 27-31.**

The World Health Organization (WHO) has declared a global emergency with respect to tuberculosis (TB). The treatment of TB is ranked as the most cost effective of all therapeutic programs in terms of cost per year of life saved. Disability Adjusted Life Years (DALYS) lost from TB is between 43 to 63 lacs. Drug default is **a** major hurdle in the management of TB because it is the chief cause of relapse and drug resistance. Non compliant patients remain infectious longer and are more likely to develop drug resistance and take twice as long to complete therapy. A prior KAP study done by the same author prior to the present study showed that 80% of the patients are not aware of the duration of treatment and the health consequences of drug default. The objective of

this study is to evaluate the effectiveness of a patient communication and motivation strategy in improving compliance to chemotherapy in pulmonary tuberculosis.

The study was conducted as a randomized control trial in a tertiary care setting. Newly diagnosed. Sputum smear positive and X-ray positive pulmonary tuberculosis patients in the age group 15-70 years attending the chest clinic of Medical College and State TB Centre at Thiruvananthapuram were the participants in the study. The intervention was daily chemotherapy and innovative communication and motivation strategy for the study group. To augment the communication and motivation strategy a contract was signed by both the provider and patient following the initial session. The control group patients received chemotherapy with usual motivation. The outcome measured was the proportion of patients who had completed 85% or more of prescribed medication and number of deaths during the study period. In all 530 patients were randomized to intervention and control groups. There were 267 patients in the intervention and 263 patients in the control group.

The results were available for 504 cases, 251 intervention and 253 controls. Baseline characteristics were similar in both groups. Male:female ratio was 8:2. Mean age, disease severity and prediagnostic cost were also similar in both groups. Most of the default occurred during initial months of chemotherapy. 50% of the default in the intervention group and 76% of the default in the control group occurred during the second and third month of chemotherapy. Treatment completion rate was 85% (214) for the intervention group and 63% (159) for the control group (p=0.000). Mortality rate was 2% (7) for the intervention group and 7% (18) for the control group (p=0.004). With better education and communication strategy there was significantly better completion rate among intervention group compared to control group. The study indicates to get better results curing should be combined with caring mode in the management of tuberculosis.

265. An External Quality Assessment Service in Microbiology in India - A Six Years Experience. Mary VJ, Umadevi Mukundan, Ohri VC, Badrinath S, Jacob J T: **Indian Journal of Medical Microbiology, (2001) 19 (1); 20-25.**

The diagnosis of infectious disease is incomplete in many instances without determining the aetiology, which requires laboratory tests. The scientific practice of modern medicine and of public health requires high quality microbiology support service. The reliability of the test depends very much upon the knowledge and skills of the personnel, the quality of reagents and culture media, the strict adherence to laboratory protocols and the application of internal quality control (IQC) procedures. The availability of an external quality assessment service (EQAS) will enable the clinical microbiology laboratory to evaluate its performance and improve it by taking remedial measures when found necessary. The Christian Medical College (CMC) has been running an EQAS in the private sector, under the auspices of the Indian Association of Medical Microbiologists (IAMM). In this study, the report of their experience for five years is being presented.

Clinical Microbiology Laboratories all over the country were offered the opportunity to participate in the EQAS, through announcements at IAMM meetings and through personal contacts and correspondence. Upon enrollment, each laboratory was assigned a code number which was known only to the chief of that laboratory and one senior member of the central unit at the Department of Clinical Microbiology of the CMC Hospital at Vellore, Tamilnadu. The tests are planned and test specimens samples are made into sets for smear examination; culture of an organism for isolation, identification and antimicrobial susceptibility testing and a serological test. One set is mailed every 3 months according to a fixed schedule. Each set is accompanied with instructions for the participating laboratory. The results have to be communicated to CMC within 2 weeks of receipt of the packet. The assessment of performance of each set of tests, by each laboratory is then communicated only to that laboratory, and the overall performance scores of **all** participants is sent to all participants.

At the beginning of the EQAS, in 1993, there were 22 voluntary participating laboratories, which have grown to 70 in the sixth year. Majority of the participating laboratories are from the private sector. The results of the EQAS showed that high quality performance by most laboratories was limited to a few tests only. The causes of errors appear to be of different types. The skill of the laboratory worker, the quality of the reagents, the test procedures all had a role to play in the errors. In the case of antimicrobial susceptibility testing the lack of IQC because of not using control organisms or want of standard antimicrobial discs were the causes of poor quality of results. Batch to batch variations in the performance of diagnostic kits are possible, and laboratories should use IQC procedures to guard against this, The extent of discrepancy observed calls for National Institutes to stringently monitor the sale of diagnostic kits. Our experience shows it is possible and feasible to establish and run an EQAS programme. Ideally a national regulatory agency should establish and maintain such a service and offer it to all clinical microbiology laboratories in the country. Ideally all laboratories should participate and satisfactory

performance should be a pre-requisite for accreditation. Such a process is essential for ensuring the quality of laboratory results upon which depends the correct treatment of individual patients and proper public health responses.

266. Relevance of Degree of Rifampicin Resistance in M.Tuberculosis.
Srivastava K, Das R, Sharma VD, Singh D, Singh HB, & Katoch VM : **Indian Journal** of Medical Microbiology, **(2001) 19 (1)**; 36-39.

Rifampicin (RFM) was introduced for use in anti tuberculosis therapy in early 1970s and has become a very important component of most of the current anti-tuberculosis regimens. Different studies have recorded initial RFM resistance ranging from 0-3%. With the widespread use of RFM, acquired resistance to RFM has been rising and frequency as high as 30% in treatment failure cases has been reported. This picture about drug resistance in M. tuberculosis (M.tb) in general and to RFM in particular is complicated as different methodologies, testing media and cut off level have been or are being used in various studies. Recently new molecular techniques for detection of RFM resistance has been introduced. It is important to determine the comparability of these findings for therapeutic and epidemiological application. In this study an attempt has been made to analyze the profile of sensitivity levels to RFM in the commonly used Lowenstein Jensen (LJ) medium and analyze in terms of their likely impact on therapeutic or epidemiological relevance.

M. tuberculosis isolates reported to be resistant to RFM from various regions of India and deposited in mycobacterial Repository Center at the Central JALMA Institute for Leprosy, Agra were included in the study. A total of 70 strains along with control strain M.tb H37Rv were tested. Pre-inspissation concentrations of 10, 40, 64 and 128 u:g /ml of RFM received from Novartis India was used in LJ medium. A standard bacterial suspension was inoculated onto LJ medium slants. All cultures were incubated at 37°C and readings were taken at the end of 4 weeks of incubation. An isolate was considered as resistant if it yielded a growth of 20 colonies or more at a particular concentration of drug.

It was observed that a proportion of strains (11%) classified as resistant by different methods showed low degree of resistance (10u.g) in LJ medium. It was also observed that the proportion of RFM resistant strains drastically decreased from 40 to 64 and 128 μg levels ($P<0.001$). There was insignificant difference between the sensitivity profiles at 64 and 128 μg /ml concentration levels ($P>0.5$). Keeping in view the pharmacokinetics of this drug, criteria of cut-off levels needs to be reviewed for purpose of therapeutic relevance and comparability especially in relation to new generation molecular methods targeting mutations associated with different levels of RFM resistance.

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267. Tuberculin Test
Chadha VK,: **Ind** J Paediatrics **2001; 68(1):** 53

At last an article that has laid to rest all ambiguity and speculation shrouding the interpretation of tuberculin test results. The author cautions that the tuberculin test only detects the presence or absence of TB infection and that the test should not be used as the sole investigation for diagnosing tuberculosis.

Intradermal injection of 0.1 ml of one TU of PPD RT23 is the dose recommended for use in India and it is administered conventionally on the volar aspect of left forearm using a standard tuberculin syringe and the induration at the test site read 48-96 hours later.

A satisfactory test should raise a flat pale pea sized weal with clear pits of hair follicles and there should be no leakage of tuberculin. The tuberculin test is based on the principle that individuals harbouring tuberculosis infection develop a delayed type hypersensitivity reaction at the test site. Not all tuberculin reactions are attributable to infection with tubercle bacilli. The reaction may also be attributable to non-specific sensitivity due to infection with environmental myco bacteria or BCG induced tuberculin sensitivity. The essence of interpretation of the test is that larger the size of the induration, higher is the probability of it being due to infection with tubercle bacilli. Also other circumstances including the purpose for which the test is administered is to be taken into account while interpreting the test. Reaction sizes of 15 mm and above signify infection with tubercle bacilli while those less than 5 mm indicate absence of any type of myco bacterial infection except in those with severe degree of immune suppression. Reactions with indurations between 10-14 mm could be due to cross sensitivity induced by environmental myco bacteria, BCG induced tuberculin sensitivity or infection with tubercle bacilli. It is more likely to be due to infection with tubercle bacilli in case the child has had contact with a smear positive case of pulmonary tuberculosis. Indurations between 5-9 mm are often due to non-specific sensitivity or BCG induced

tuberculin sensitivity - however, in an immuno compromised child it could be attributable to infection with tubercle bacilli.

The article concludes after making a fleeting reference about the interpretation of a repeat tuberculin test, the invalidity of BCG test and newer tuberculins.

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