

362. Factors related to health system delays in the diagnosis of pulmonary tuberculosis in Estonia.

Pehme L, Rahu K, Rahu M, Attraja A:
Int J Tuberc Lung Dis 11(3): 275-281

Timely diagnosis of active tuberculosis (TB) is particularly crucial to minimize not only disease transmission, but also morbidity and mortality in the community and in health care facilities. Delayed or missed diagnosis has been reported to be an important factor in occurrence of nosocomial outbreaks of TB. The delay in diagnosis has two constituent components: Patient delay and health system delay (HSD). Numerous risk factors for prolonged HSD in TB have been identified in previous studies, including the individual's perception of the disease severity of the disease, access to health service and expertise of the health personnel.

A study was designed to assess the HSD in diagnosing pulmonary TB(PTB) and its risk factors after major social changes in Estonia, to assess the ability of a completely reformed health care system to diagnose patients with PTB.

All newly detected symptomatic culture positive patients with PTB aged ≥ 16 year and notified in the Estonia Tuberculosis registry during 2002-2003 (n=185) were included in the study. Patients were interviewed within 30 days of diagnosis using an interviewer administered questionnaires. Detailed data were collected on each patient, to determine social and demographic variables, presence of cough and other pulmonary symptoms, history of a contact with case of active TB, dates when a doctor was consulted and the specialty of the health provider first contacted by the patient. The dates of first chest X-ray, results of sputum examination by smear microscopy and culture for Acid Fast Bacilli (AFB) and results of

HIV testing routinely performed after TB diagnosis were obtained from patient's medical records. The diagnosis of PTB in Estonia requires both smear/culture results and chest X-ray.

HSD was defined as the interval in days from the date when medical provider was first contacted by the patient to the date the TB diagnosis was made. The median and the 75th percentile of the HSD were calculated. The categories 'prolonged HSD' and 'extreme HSD' were defined as the delays, respectively greater than the median and greater than the 75th percentile of the length of the delay.

The factors significantly associated with HSD greater than the median (19 days) and the 75th percentile (40 days) were smear negativity, absence of cough among symptoms, absence of chest X-ray during the first visit and age >60 years. A significantly shorter HSD was determined in non-Estonians and unemployed patients. HSD was not associated with the specialty of the doctor first contacted by the patient.

This study shows that the health care system here is still managing the diagnosis of PTB without significant delays, even after substantial modification in the health care system resulting from social reform in a post-socialist country and the family physicians can manage PTB patients successfully.

363. Newly developed WHO growth standards: implications for demographic surveys and child health programs.

Deshmukh PR, Dongre AR, Gupta SS and Garg BS: **Indian J Pediatr 2007; 74 (11) : 987-990**

Malnutrition is a major public health problem primarily among young children in many developing countries in the world. National Centre for Health statistics/World Health Organisation growth reference (NCHS reference) is being used

for assessment of nutritional status of children since late 1970s. WHO developed child growth standards (WHO standards) and introduced it in 2006 to describe how children should grow when free from disease and when their care follows healthy practices.

A cross-sectional study was carried out in 20 Anganwadi centres under primary Health Care Centre, Anji, to compare estimates of prevalence of under-nutrition based on WHO standards and NCHS.

Total of 1491 under six year children attending the Anganwadi centres were studied for nutritional status. Nutritional status was analysed by NCHS standards using EPI INFO 6.04 software package and also by newly introduced WHO standards by Anthro 2005 software package. Chi-square test was used to compare the results.

According to WHO standards, the prevalence of underweight and severe underweight for children 0-6 years was 47.4% and 16.9% respectively. By NCHS reference, the overall prevalence of underweight and severe underweight for children 0-6 years was 53% and 15% respectively. The prevalence of underweight as assessed by WHO standards was significantly lower when compared with the assessment based on NCHS reference ($P < 0.01$). But, WHO standards gave higher prevalence of severe underweight than NCHS reference though the difference was not statistically significant ($p > 0.05$). In the light of newly developed WHO child growth standards, all the nutrition, related indicators in demographic surveys like NFHS should now be derived using the WHO standards.

364. Qualitative evaluation of tuberculin test response in childhood tuberculosis.

Akhila K, Madhavan S and Adhisivam B: **Indian J Pediatr, 2007, 74 (7), 641-644**

Tuberculin skin test (TST) is still a valuable tool for diagnosis of acquired immunity against tuberculosis in children.

A cross sectional study was conducted to know if different forms of clinical presentation of tuberculosis in children are associated with different type of tuberculin reaction. TST responses in 268 children (134 cases and 134 controls) less than 12 years of age was carried out over a period of 18 months at JIPMER, a tertiary care referral hospital in Pondicherry, India. The qualitative and quantitative TST responses in various clinical forms of tuberculosis were analyzed.

Koch's and *Listeria* variants were more common in children with TB lymphadenitis and pulmonary TB respectively. Ten percent of the study children with TB meningitis were tuberculin negative.

It is concluded that qualitative TST responses are non homogeneous among the various clinical types of childhood tuberculosis. They are not a correlate of protective immunity with little or no prognostic significance.

365. Additional risk of developing TB for household members with TB case at home at intake: a 15 year study.

Tuberculosis Research Centre, Indian council of Medical research, Chennai: **Int J Tuberc Lung Dis, 2007, 11(3), 282-288**

Transmission of tubercle bacilli in the community is mainly by the patients with smear positive pulmonary tuberculosis (PTB). Contacts constitute a particularly vulnerable group and they have a higher prevalence of tuberculous infection and disease than non-contacts.

A study was conducted in a community in South India, to compare the incidence of cases in cohorts of contacts and non contacts over a 15 year period, to quantify the risk from domiciliary TB cases and to assess the scope for chemoprophylaxis as a public health measure.

In all, 3506 contacts of smear positive (Smear +ve, Culture +ve) and 2910 contacts of Smear negative TB cases (Smear -ve, Culture

+ve) and 246845 persons with no TB cases at home were followed for 15 years, with a repeat survey every 2.5 years consisting of radiographic and sputum examination, selective follow up of high risk individuals and passive surveillance. If a case developed during the follow-up, all household members were subsequently considered as contacts. Cox's proportional hazards model (multivariate) was employed to compare incidences.

The annual incidence of culture positive TB cases was respectively 526 and 271 per 100 000 population for contacts of smear positive and smear negative patients and 198 per 100 000 in non contacts. The adjusted hazard rate was 3.4 for contacts of Smear +ve patients (95%, CI: 3.0-3.9) and 1.7 for contacts of Smear -ve patients (95%, CI: 1.4-2.0) as compared to non-contacts. Of 3942 incident cases, 337 (8.5%) came from household with a TB case.

Although family contacts had a significantly higher incidence, their contribution to total new case load was meager. Contact chemoprophylaxis as a public health measure would therefore have limited impact on community TB incidence.

366. Progress towards tuberculosis elimination in Cuba.

Gonzalez E, Armas L, Lianes MJ: *Int J Tuberc Lung Dis*, 2007, 11(4), 405-411

While tuberculosis is a serious problem in low and low middle income countries, Cuba is working on the elimination of the disease. TB elimination as a public health problem was defined by the Advisory council of the Elimination of Tuberculosis(ACET) as an incident rate of TB (all forms) ≤ 1 per 1000 000 population. In Europe it was defined as an incidence rate of one infectious case of TB per 1000 000 population. Where as for Latin American countries, an overall incidence rate ≤ 5 per 100 000 was set.

Tuberculosis elimination requires fighting significant challenges such as large reservoirs of latent infection, long incubation periods, inadequate prevention strategies, social inequalities, poverty and its consequences, declining effectiveness of health services, the negative impact of HIV infection, MDR tuberculosis and need for long term medical commitment.

The Cuban National Tuberculosis Programme was implemented in 1962. The Direct observation of treatment was included in the programme since 1971, while the DOTS strategy is being implemented since 1982. A study was conducted to assess the short term trends of major indicators of tuberculosis elimination within the context of low middle income country. For this purpose, data from national TB registry of the ministry of Public health were reviewed.

In 1994, TB was given top priority by the ministry of public health. The Cuban NTCP was updated and moved to first place in the communicable disease plan, with good allocation of human and financial resources. TB control activities continued to be based on early detection of cases among TB suspects with respiratory symptoms, fully supervised treatment, BCG vaccination of new borns and preventive therapy for eligible contacts of TB patients. A re-intervention package was created that consisted of the following:-

- Improvement of surveillance system.
- Monitoring of TB in persons living with HIV
- Enhanced TB contact investigations beyond the household.
- Supervision of TB control activities complemented by annual courses for health personnel involved in TB control
- Operational and applied research focused on local and national evaluation of the impact of NTCP.

The incidence of TB declined from 1965 to 1991 from 65.0 to 4.7 per 100,000 population, then

reversed in the period 1992-1994. The implementation of re-intervention package reversed the increase from 1995-1998. From 1999-2003, 97.5% of TB suspects identified underwent sputum smear microscopy. The incidence rate declined from 10.0 to 7.2/100,000. In 2003 the case detection rate was 92.2%. The overall TB cure rate was 92% and TB /HIV co-infection was 3%. Two of the 15 provinces reached incidence rate of <5/100,000, eliminating TB as a public health problem.

Low incidence, high detection and cure rates along with low rates of TB-HIV co-infection are evidence of progress towards the elimination of TB as a public health problem in Cuba, using DOTS in a context of good socio-cultural and technological interaction.

367. Adherence to high activity antiretroviral therapy (HAART) in pediatric patients infected with HIV: Issues and interventions.

Chirag A. Shah: **Indian J Pediatr 2007;74 (1): 55-60**

Acquired Immune Deficiency Syndrom (AIDS), one of the most destructive epidemics the world has ever witnessed, claimed 3.1 million lives in 2005 of which more than half a million (57, 000) were children. Presently an estimated 40.3 million people are living with HIV worldwide, of which 2.3 million are children under 15 years.

HIV management has drastically changed in the current era of effective potent anti-retroviral therapy (ART). Therapeutic strategies have expanded greatly from historical treatments with single anti-retroviral drug to combination therapy, which has been shown to delay progression of AIDS, improve survival, result in a greater or more sustained virologic and immunologic response and delay development of virus mutation that confer resistance to the drugs being used. For these reasons, HAART is recommended for all infants, children, adolescents and adults infected with HIV.

HAART has been proven effective in suppressing Human Immune Deficiency Virus (HIV) replication, decreasing morbidity and mortality associated with HIV and improving quality of life in adults as well as children infected with HIV. At least 95% adherence to HAART is optimum and studies have shown that <95% adherence is associated with virologic failure rate of >50%. Important factors influence adherence to HAART such as regimen related complexities, patient/family related issues and factors related to health care delivery system make adherence to HAART challenging. Although, numerous interventions to improve adherence have been investigated in developed as well as developing countries, majority of work in this area is focused on adherence in adults and data in children is limited. Therefore, in order to facilitate adherence and improve outcome of HAART in pediatric population, it is necessary to have a deep understanding of the factors influencing adherence and interventions that can improve adherence in children.

Compiled by
G UMADEVI