PS-101493-15 Frequency and timing of tuberculosis recurrence in Western Cape Province, South Africa

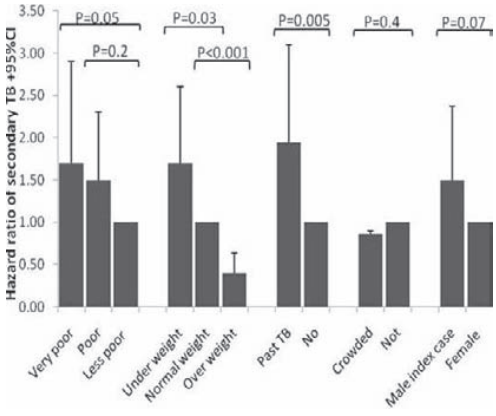
F M Marx,[1,2] R Dunbar,[3] A C Hesseling,[3] B G Williams,[4] P E Fine,[5] N Beyers.[3] [1]Department of Paediatric Pneumology & Immunology, Charité Universitätsmedizin, Berlin, [2]Koch Metchnikov Forum, Berlin, Germany; [3]Desmond Tutu TB Centre, Stellenbosch University, Tygerberg, [4]Centre of Excellence in Epidemiological Modeling and Analysis (SACEMA), Stellenbosch, South Africa; [5]Department of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, UK. e-mail: marxf@gmx.de

Setting: Two urban communities in Cape Town, Western Cape Province, South Africa with annual tuberculosis (TB) notification rates exceeding 1000 per 100 000 (all cases). Rates of TB re-infection were shown to be high in these communities.
Objective: To estimate the risk of recurrent treatment for different groups of TB cases; to analyse the distribution of time to re-treatment.
Methods: We analysed 1996–2008 routine TB register data from 2 TB clinics. Probabilistic linkage software was used to identify individual subsequent treatment episodes. Matches identified were manually reviewed by 2 independent data managers. We estimated 5-year risks of recurrent treatment for the 1996–2003 cohort of bacteriologically confirmed cases. For 621 cases with available data, time intervals between treatment end date and record date of a subsequent episode were analysed.
Results: A total of 3118 confirmed TB cases were recorded. The estimated 5-year risk of recurrence was 20.1% (95%CI: 18.1%–22.1%) for all TB cases, 15.3% (13.2%–17.4%) after cure, 40.0% (22.9%–57.1%) for HIV-positive cases after cure, and 37.6% (31.4%–37.9%) after default. We found a Gaussian distribution of treatment intervals with a peak at 5.0 months (standard SD: 1.6 months), and, underlying this distribution, a slow exponential decay with the number of cases decreasing at 3.2% per year. Strong evidence was found for a difference in the fit of the 2 distributions compared to a single exponential distribution ($P < 0.001$). Treatment default accounted for 76 (32.9%) of 231 cases with a subsequent episode recorded within 8 months since treatment end date.
Conclusions: TB recurrence seems highest among treatment defaulters and HIV co-infected individuals in this setting. A high number of cases with recurrent TB present early after the end of previous treatment. We speculate that follow-up examinations within the first 6–8 months after the end of treatment may be a useful strategy to early identify recurrent TB.

PS-101495-15 Poverty and poor nutrition are the strongest risk factors for TB disease following exposure

K Zevallos,[1,2] D Boccia,[1,3] R Montoya,[1,4,5] J Alva,[1,4,5] T Valencia,[1,2] M Rivero,[1,4] R H Gilman,[2,4,6] C A Evans.[1,2,7] [1]IFHAD: Innovation for Health and Development, Lima, [2]Universidad Peruana Cayetano Heredia, Lima, Peru; [3]London School of Hygiene and Tropical Medicine, London, UK; [4]A.B Prisma, Lima, Peru; [5]Adventist Development and Relief Agency, Lima, Peru; [6]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; [7]Imperial College London, London, UK. Fax: (+511) 4932942. e-mail: karen_zevallos@hotmail.com

Background: People living with TB patients are at high risk of developing TB disease in the first years after exposure. We aimed to characterize predictors of this risk in a Peruvian shantytown.
Methods: Newly diagnosed patients ($n = 708$) with sputum that was smear microscopy positive for TB were identified. Their contacts aged over 14 years were recruited and followed in a prospective cohort study for up to 5 years. Risk factors were determined at the time of recruitment and a socioeconomic score was made using tetrachoric factorial analysis of data including assets and basic services. The association of these variables with subsequent TB disease was assessed using Cox regression analysis clustered by household. This determined hazard ratios (HR) for secondary TB risk with 95% confidence intervals (CI).
Results: Among 1984 household contacts, we confirmed 110 secondary TB cases. Secondary TB risk is shown in the graph and was higher among the poorest households. Specifically, people living in the poorest third of households had 1.7 times the HR of secondary TB compared to the least poor third of households (CI 1.1–2.9, $P = 0.05$). This association was mediated by crowding but the number of people sharing each room was not independently associated with TB risk. Underweight predicted secondary TB (BMI < 20 kg/m^2 HR 1.7, CI 1.1–2.7, $P = 0.03$) compared to normal BMI, and overweight was protective (BMI > 25 kg/m^2 HR 0.40, CI 0.24–0.63, $P < 0.001$). Contacts who had had previous TB were at



increased risk of secondary TB (HR 1.9, CI 1.2–3.1, $P = 0.005$), as were contacts of male index cases (HR 1.5, CI 0.95–2.2, $P = 0.07$). TB in household contacts was not significantly associated with BCG vaccination, the sex and age of the contact, or microbiological studies.
Conclusion: Poverty, under-nutrition and previous TB were the strongest risk factors for household contacts developing TB disease. These risk factors may be used to focus screening and preventive therapy.

PS-100632-15 Case detection under the national tuberculosis prevalence survey in Bangladesh

S A Shahed Hossain,[1] K Zaman,[1] M A Quaiyum,[1] S Banu,[1] A Islam,[2] N Islam,[3] P C Barua,[3] F Van Leth.[4] [1]ICDDR,B, Dhaka, Bangladesh; [2]The Union, Dhaka, [3]NTP, Dhaka, Bangladesh; [4]KNCV Tuberculosis Foundation, The Hague, Netherlands. Fax: (+880) 2 8811568.
e-mail: shahed@icddrb.org

Aim: Bangladesh has completed a national prevalence survey of smear positive cases among ⩾15 years population in 2009. The activities included active screening for TB cases through household survey. Experiences in conducting active screening for TB cases are described.
Methods: The survey included over 52 000 adults from about 22 000 households. Equal numbers of urban and rural clusters were selected. All members ⩾15 years were approached and two sputum samples were collected. Cases were diagnosed by Initial fluorescence microscopy, and then confirmed by Ziehl-Neelsen method.
Results: Census included 63 715 adults, 51% and 49% from rural and urban clusters respectively and almost equally from female and male. 81% provided at least one sputum sample and 5% had a history of cough. Among 11 617 non participants, 60% were male, around 70% were <45 years and 2.3% had a history cough. Thirty-three TB cases were detected, 15 of them complained of cough, and 3 were under TB treatment. In the collected sample 40% were actually sputum, even though macroscopically labeled as saliva. Absence of male members, difficulties in collecting samples from females, problems in entering urban apartments, resistance by religious leaders were some of the challenges faced. Programmatically, rapid deployment in a cluster, accommodation for short period, little time to build rapport, setting field laboratory in absence of regular water and electricity supply and keeping the staff healthy in a roaming field situation were major challenges.
Conclusions: A good team build up and intense communication between supervisors helped in conducting the survey smoothly. Continued and sustained backup from NTP and partners was useful to overcome these challenges.

PS-100399-15 Aspects épidémiologiques des cavernes tuberculeuses au CHU de Befelatanana

O Ratsirahonana, J Rakotoson, M Rakotondravola, J Rakotomizao, A Andrianarisoa. USFR Pneumologie Befelatanana, Antananarivo, Analamanga, Madagascar.
e-mail: ratsirahonana_orelys@yahoo.fr

Contexte : La tuberculose représente un grave problème de santé publique à Madagascar. Elle augmente dramatiquement dans le monde et est responsable de 1,7 millions de décès enregistrés en 2006. Les cas hospitaliers sont souvent de diagnostic tardif.
Objectifs : Déterminer les aspects épidémiologiques des cavernes tuberculeuses observées dans l'unité de soins, de formation et de recherche en pneumologie, au Centre Hospitalo-universitaire de Befelatanana durant la période de janvier 2006 à Décembre 2007.
Méthodologie : Il s'agit d'une étude descriptive rétrospective à partir des dossiers médicaux des malades pris en charge dans le service sur une période de deux ans.
Les paramètres à analyser sont : La prévalence , l'âge, le sexe, le niveau d'instruction, les facteurs de risques associés, la densité bacillaire, les caractéristiques radiologiques (taille, siège), le délai de dépistage. Les données ont été encodées sur Epi-info.
Résultats : Sur 214 malades recensés, 96 ont présenté des cavernes soit 44,85%. Le sexe ratio est de 1,2.

- L'âge moyen est de 40 ans [115–55 ans].
- 82,3% des malades avaient plus de dix BAAR par champ à l'examen microscopique.
- Les lésions se situaient le plus souvent au niveau du sommet droit (59,4%), unilatérales (92,7%), atteignaient généralement un lobe (94,8%).
- La plupart des cavernes ont une taille inférieure à cinq centimètres de grand axe (79,2%)
- L'intoxication tabagique est retrouvée dans 40,6% des cas.

Conclusion : La caverne tuberculeuse touche surtout les sujets jeunes de 25 à 40 ans. Pour avoir un dépistage précoce, nous recommandons une radiographie systématique du thorax au cours des visites médicales scolaires ou lors des visites d'embauche. Par ailleurs la lutte contre le tabagisme s'impose car il constitue le facteur de risque le plus fréquent.

PS-100608-15 No more re-emergence of tuberculosis in Cuba: lessons learned

L Armas Perez, E Gonzalez-Ochoa. Surveillance and Research on TB/ARI, Pedro Kouri Institute, Havana, Cuba. Fax: (+537) 204 60 51. e-mail: luisa@ipk.sld.cu

Background: Notification of pulmonary tuberculosis smear-positive pulmonary [TBpAFB (+)] cases as well as smear-negative declined to 6.4 per 105 population in 2006, really being a challenge for the Cuban society which is now facing its possible elimination.
Objectives: To describe and analyze former and re-