High completion rates with directly observed preventive treatment (DOPT) of latent tuberculosis infection (LTBI) in Ethiopian immigrants (EI) to Israel

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Background: Previous studies show rates for completion of treatment of LTBI in immigrants from high TB burden countries between 22%-60%. In a study in southern Israel only 16.4% of EI completed their course of treatment. Since all EI in our catchment area were located in absorption centers, we applied DOPT to all. Each patient was examined by a physician once on evaluation and twice for follow up.

Objective: To evaluate the efficacy of a nurse-managed, active outreach DOPT program with minimal physician involvement, in a cohort of immigrants from a high TB burden country.

Methodology: A retrospective cohort analysis of 710 medical records of EI at absorption centers in Zefat who had started DOPT for LTBI and were followed up during 2005-2010.

Findings: Forty three individuals were excluded due to translocation during treatment and DOPT was stopped prematurely in 4 women who became pregnant. Of the 663 EIs included (359 males), 628 (94.7%) completed treatment. Of the 35 who failed to complete INH therapy, 23 went on to complete 4 months of Rifampin. Thus 98.0% completed LTBI therapy. Demographic factors did not predict treatment completion; however side effects were significantly (p<0.001) associated with non-completion.

Conclusions: High completion rates for LTBI were attained among EI in absorption centers, through outreach DOPT. Skilled and dedicated nursing made routine physician involvement redundant.

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P2653
Results of a tuberculin skin test survey performed in a national representative sample of young Albanian students.

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Background: Tuberculosis (TB) epidemiology in Albania has significantly improved in the last decades owing to advanced TB control activities following financial support from different sources. In 2010, WHO estimated a TB incidence and mortality rate of 14 and 0.38 per 100,000 population, respectively.

Objective: To estimate the Albanian prevalence of latent TB infection (LTBI).

Methods: A national Tuberculin Skin Test (TST) survey was carried out in 2010. Furthermore, a standardized questionnaire was distributed to a representative sample of young Albanian students.

Results: Three districts (Dibra, Tirana-Kamez, Vlora) were selected based on representativeness criteria (location, incidence and migration patterns). The survey performed according to WHO recommendations enrolled 4,722 students (2,359, 49.9%, were males); proportions of educational level were: grade 5 (30%), grade 6 (33%) and grade 7 (37%). Results were evaluated in 98.5%. Induration size exceeded 15 mm in 16%, while in 56% of the cases ranged from 6 to 10 mm. Prevalence of LTBI was higher in Dibra District and Kamez (13% and 9.5% respectively), strictly related to TB incidence. 2,813/3,242 could answer an anonymous questionnaire on TB. Students living in the district of Dibra showed the highest proportion of positive skin test results on TB items, probably explained by the high TB incidence and by the high frequency of information from television programmes.

Conclusion: Estimated LTBI prevalence is low in Albania, although a high geographical variability was described. Students’ knowledge on TB was deemed not satisfactory, despite 87% knew the name of the disease.

P2654
Stigma associated with tuberculosis among Tajikistan labor migrants

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Problem statement: Stigma is the most significant barrier in prevention of TB transmission, provision of adequate care, support, treatment and decreasing negative impacts. Currently, TB issue and stigma associated with labor migrants have not been learned yet in republic of Tajikistan. Goal of the survey: The goal of the survey was deep understanding of stigma among TB migrants in Tajikistan and development of mechanisms for mitigating the stigma.

Materials and methods: The survey was done through individual interviews at respondents houses. We used qualitative and detailed interviews for detection of barriers which labor migrants have relating to TB stigma and reasons of late TB diagnoses.509 people of 7 rayons (out of 66 rayons) of the country were included as the third quarter of the year. Out of these, 53 followed up. 9/53 (16.98%) had turned TST positive after 3 months. Duration of stay in the wards as well as number of TB patients in the ward during their hospital stay was found to have proportionately increased the risk of transmission (P < 0.001). Out of 117 visitors, 98 were TST negative. Out of these, 61 followed up. 4/61 (6.56%) had turned TST positive after 3 months. This study indicates that there is a small but definite risk of nosocomial spread of TB. Isolating TB patients in a separate ward and restricting frequent visitors may help.

P2657
Prognostic factors in tuberculosis related mortalities in hospitalized patients

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Introduction: Despite effective treatment regimes available, Tuberculosis (TB) stands among one of the leading causes of death as the third most common cause of death. A retrospective case-control study was undertaken at the Pulmonology department of the tertiary care centre in Karachi, Pakistan. For patients hospitalised with TB, sixty of those who were discharged were compared with sixty of those who could not survive during hospitalisation. Radiological findings, clinical indicators and laboratory values were matched between the two groups to locate poor prognostic factors.

Methods: A retrospective case-control study was undertaken at the Pulmonology department of the tertiary care centre in Karachi, Pakistan. For patients hospitalised with TB, sixty of those who were discharged were compared with sixty of those who could not survive during hospitalisation. Radiological findings, clinical indicators and laboratory values were matched between the two groups to locate poor prognostic factors.

Results: Factors concerned with in-hospital mortality listed female sex (p<0.01), late sequel of disease (p<0.01), not taking anti-tuberculosis therapy (ATT, p<0.01), smoking (p<0.01), longer duration of illness (p<0.01), and low haemoglobin levels (p<0.02). Extrapolumal TB, dissemination of disease, bilateral radiological findings, co-morbidities and multi drug resistance were not implicated in higher mortality. Most deaths occurred during the first week of admission indicating late referrals and late presentation as an important factor related to in-hospital fatalities.

Conclusions: Poor prognosis in TB patients was associated with non-compliance to therapy, anemic states, late presentation of disease, and development of complications. Patients not taking ATT and hence having longer duration of illness showed higher mortality and so a more radical and effective treatment regimen is required to eliminate TB early on during the onset of disease.

P2658
Influence of social adaptation of tuberculosis patients on the TB form and a chemotherapy outcomes

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The problem of chemotherapy (CT) efficiency in pulmonary tuberculosis (PTB) patients is one of the most burning one at the organization of TB aid.

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Aims and objectives: Connection between social adaptation and stages of PTB (presence of SS+ (sputum smear positive) and cavitory lesion) have been studied. The CT efficiency in the patients with SS- (sputum smear negative) and without lung cavity decay, and in the patients with SS+ and lung cavitory lesions, receiving CT regimen 1 have been assessed.

Methods: Data of 2663 newly detected PTB patients, registered in 2008, from 8 regions of the Russian Federation have been studied. Patients with less severe TB forms (SS- and without lung cavity decay) were selected in the group 1 (467 persons), and the patients with extended TB forms (SS+, cavitory lesions) - in the group 2 (2195 persons).

Results: In group 1, there were 41,1% [95% CI 36.6-45.6] of socially-adapted patients (SAP) [workers, employees, students] and 40,5% [95% CI 36.0-44.9] of socially-vulnerable patients (SVP) (jobless). In group 2, there were 24,3% [95% CI 19.0-29.5] SAP and 53,5% [95% CI 47.1-59.4] SVP. CT efficiency in group 1 was 92,7% [95% CI 90.3-95.1] in group 2 - 69% [95% CI 63.3-74.7]. In group 2, CT efficiency in SVP was 58,2% [95% CI 49.9-66.4], and in SAP - 78,7% [95% CI 68.4-88,0].

Conclusions: SAP, detection of TB with SS- and without lung cavity decay and effective treatment are more frequent, than in SVP. Therefore TB patient social support measures should be brought into all TB programs.

P2659
Extrapulmonary tuberculosis (TB): 40 years observations in Poland
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Aim of the study: To describe changes in extrapulmonary TB epidemiology in Poland since 1970 (beginning of notification of different forms of extrapulmonary TB).

Methods: Retrospective analysis of data from National TB Register. Data presented in ten years intervals.

Results: Since 1970 the systemic decline of number of all TB cases (from 41536 to7509 in 2010) with the shift to older age groups and decline of extrapulmonary TB cases (from 4848 to 716 in 2010) has been recorded in Poland without significant differences of fraction of extrapulmonary TB among all TB cases (11.6% in 1970, 11.2% in 1980, 9.0% in 1990, and 7.9% in 2010). Some differences in profile of extrapulmonary TB was noticed. The decrease in pleural tuberculosis occurred (5.8% of all TB and 50% of extrapulmonary TB in 1970; 5.8% and 50% in 1980; 4.8% and 50% in 1990; 3.5% and 53.8% in 2000; 2.6% and 27.8% in 2010) and in the bone and joint tuberculosis (2.0% of all TB and 50% of extrapulmonary TB in 1970; 1.4% and 12.9% in 1980; 0.9% and 10.2% in 1990; 0.9% and 9.1% in 2000; 0.9% and 9.2% in 2010) also in central nervous system TB (0.3% of all TB and 2.8% of extrapulmonary TB in 1970; 0.2% and 1.9% in 1990, 0.1% and 1.7% in 2000, 0.1% and 1.4% in 2000; 0.1% and 1.3% in 2010).

Conclusions: The demographic characteristics of TB patients changed in Poland in last 40 years with the shift to older age groups however the proportion of TB at extrapulmonary sites remained stable. It is interesting although unexplained.

P2660
Predictors of delayed smear conversion after 2 months of tuberculosis treatment
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Late smear conversion after 2 months of tuberculosis (TB) treatment represents a major problem.

Objectives: Isolate the environmental, clinical, radiological, bacteriological and biological factors associated with a delayed smear conversion.

Methods: We analyzed records from 60 tuberculosis patients, from which 20 had a delayed smear conversion. Those patients were compared in terms of clinical presentation, radiological, bacteriological and biological results, environmental data and evolution under treatment.

Results: Smoking was significantly associated with delayed smear conversion (85% of patients with a late conversion were smokers versus 47.5%, p<0.05), as well as history of diabetes type II (25% with late smear conversion versus 4%, p<0.03). This correlation was established for a delayed consultation (2 months) p 0.01. Radiological data showed that bilateral lesions and extended necrosis factor α (anti-TNF-α) treatment has led to screening for active/latent TB before anti-TNF-α is given. Marked variation in TB incidence has been noted depending on patients' ethnicity, country of birth and, for those not born in the UK, the length of time since their first entry. We aimed to evaluate our risk assessment method.

Method: Retrospective study of 227 patients (F:65.2%, M: 34.8%; median age: 53 yrs) with tuberculosis receiving anti-TNF-α (infliximab, etanercept, adalimumab) in 2001-2009. This sample represents a particularly multietnic patient population.

Results: 1 patient (0.44% of the total) underwent tuberculin skin testing (TST). All patients were on immunosuppressants interfering with the accuracy of TST. No patients underwent interferon-gamma assay testing for latent TB. 9 patients (4% of the total) received chemoprophylaxis prior to anti-TNF-α. 2 patients (0.88% of the total) who had not received chemoprophylaxis developed active TB. The first was on etanercept & adalimumab prior to developing miliary TB. The second was on adalimumab & infliximab prior to TB diagnosis. Both patients recovered with quadruple anti-TB therapy. Both patients were born in the Indian subcontinent and had been in the UK for over 5 years. The TB incidence rate was 196.8 per 100,000 patient-years.

Conclusions: TB screening prior to starting anti-TNF-α can be improved so as to facilitate appropriate chemoprophylaxis targeting. Interferon-gamma assays could be a useful tool in the diagnosis of latent TB when patients are already on immunosuppressants.
Conclusion: TB infection rate was higher in elderly, and risk of TB infection was significantly increased with close contact of TB patients.

P2664 Improvement of treatment adherence and success in homeless patients with tuberculosis in Iasi, Romania
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Aim: To assess the impact of a program for homeless patients with tuberculosis in Iasi, Romania, on treatment adherence and outcomes.

Methods: Adherence and treatment outcomes were analyzed in homeless patients with tuberculosis in Iasi, Romania, who participated in 2011 in a charity project that directed similar anti tuberculosis treatment together with free food and clothes at a central shelter. WHO recommendations on tuberculosis case definition and treatment results were used. Adherence to treatment and treatment outcomes in these patients were compared with those in homeless tuberculosis patients registered in Iasi between 1998 and 2005 when incentives were not provided.

Results: In 2011, 17 homeless (11 male, 6 female, median age 45 years) with tuberculosis were included in the project following discharge from the hospital. Of 12/17 patients who had completed the treatment at the time of analysis, cumulative adherence to treatment was 1282/1316 (97.4%) doses provided. Of 82 homeless patients with tuberculosis treated in the years 1998 to 2005 (72 male, 10 female, median age 43 years), cumulative adherence to treatment was 5837/10462 (54.4%) doses provided (p < 0.001). Treatment success in 2011 was 70.5% compared to 26.8% in 1995-2005 (p < 0.001).

Conclusions: Adherence to anti tuberculosis treatment and treatment success significantly improved when food and clothes were offered to homeless patients with tuberculosis on a regular basis at the treatment dispensary. Acknowledgement: The project for Homeless TB Patients in Iasi, Romania is supported by the Rotary Clubs of Bad Oldesloe, Germany, Henley-Bridge, UK and Iasi, Romania and the Metropolitan Church of Iasi.

P2665 Patient awareness in controlling tuberculosis
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Background: Tuberculosis is spreading specially due close living ties in vulnerable groups. We treat 250 patients/year in a very multi-ethnic community.

Aim: As part of TB control programmes, we assessed the level of our patients' awareness about TB through a written questionnaire.

Results: 60 questionnaires were sent to random patients treated for TB over last 3 years. 22 patients returned them.

Discussion: Educating people improves treatment outcomes and designed multi-professional models have proved significant improvement [2011 Sep 25(7):309; 1826-31]. Our study showed, in countries like UK, a significant number of people have limited knowledge of TB and some are taking months to seek help.

Conclusion: Without public awareness, TB control programmes will be difficult to succeed and all measures should be taken to educate general public.

Abstract P2666 – Table 1

<table>
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P2667 Tuberculosis in health-care workers: 5-year, multi-institutional analysis of the northern region of Portugal
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Objectives: The aim of the study was to evaluate the impact of social risk factors on treatment outcome among culture-positive patients treated for active pulmonary tuberculosis (PTB).

Material and methods: We retrospectively reviewed all medical records of patients notified in 1995 and 2000 in three separate districts in Poland in years 1995 and 2000. The relation between both alcohol abuse and homelessness and poor treatment outcome was evaluated. Treatment outcome was categorized as: cured, treated, default, failure.

Results: 708 patients with culture positive PTB were included to the study (373 in 1995 and 335 in 2000). There were 85 patients with risk factors in 1995 and 101 patients in 2000. 80 of participants in 1995 and 69 in 2000 abused alcohol, 5 and 32 were homeless, respectively. Among alcohol abusers treatment success rate were 45.1% in 1995 and 53.6% in 2000. Among patients not abusing alcohol treatment success rates were 63.8% and 54.1%, respectively (p < 0.005 in 1995 and p = 0.0186 in 2000). In 1995 40% of homeless patients had succeeded treatment, while the rate of treatment success among non-homeless was 60%. The difference was not statistically significant (p = 0.6352) probably because of small number of homeless patients. In 2000 treatment success rate among homeless patients was 25% and among non-homeless 57.1%, which was highly statistically significant (p = 0.001).

Conclusions: Alcohol abuse and homelessness were associated with no success of treatment outcome among patients with PTB. Interventions to improve treatment adherence in patients considered to be at risk for default are necessary.
Objective: To assess the annual incidence TB and its epidemiology

Material and methods: Retrospective study on patients diagnosed of tuberculosis during the decade 1999-2009. Data collection was possible thanks to the “Programa Galego de Prevención y Control de Tuberculosis”. The usual descriptive study was then performed based on these data; quantitative variables were expressed as mean ± SD, whereas the qualitative ones as absolute frequencies or percentages, using the χ^2 test to assess associations among them.

Results: The whole series included a total of 1746 cases, with a greater incidence among males and those between 24-35 yr. Exposure to infected persons, smoking habit, alcoholism and immunosuppression were the main risk factors. The most common site of infection was pulmonary (67.5%), followed by pleural (14%), lymphadenopathies (7.1%) and others (9.3%). With regard to microbiology, the best yield could be obtained from culture (positive in 80% of cases), whereas the detection of AFB was positive only in 41% of patients. The chest X-ray was pathologic in 93.3%, even though cavitations were only present in 27.6% of cases.

The scheduled therapy was completed and microbiological cure was attained in 85.6%, which fares favourably compared to other published series. The global death rate was 10.63%, but only 1.1% were attributable to TB.

Conclusions: - The incidence of pulmonary TB has clearly decreased in the preceding years, although it still prevails in males and in the 24-35 yr-old group. - The “pathological X-ray with cavitation” was observed in 28% of cases. - The death rate was 10.63%, but TB just accounted for 1.1%.

Analysis of risk factors of recurrent tuberculosis in Han and Tibetan populations in Southwest China

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Background: Recurrent tuberculosis (TB) poses significant threats, including drug resistance, to TB control programs. However, the causes of TB recurrence, particularly in Southwest China, which is the high burden area, have not been well described.

Objectives: To investigate the risk factors of recurrent TB, and analyze the differences between Han and Tibetan populations with TB recurrence in Southwest China.

Methods: A population-based retrospective case-control study was carried out in Southwest China. All patients with culture-confirmed TB and drug susceptibility testing were included between 2000 and 2001 and followed until December 2010. Two category logistic regression was used in the statistical analysis.

Results: We found that, among 80 patients (40 Han patients and 40 Tibetan patients) with recurrent TB who completed adequate therapy for a first episode of TB, factors independently associated with a greater risk of recurrent TB were not receiving directly observed therapy (HR 5.867, 95% CI 2.557-13.461), diabetes (HR 3.288, 95% CI 1.328-8.391), and malnutrition (HR 1.910, 95% CI 1.110-3.285). The independent risk factors for recurrent TB for the Han patients included diabetes and smoking while the independent risk factors for the Tibetan patients included not receiving directly observed therapy and malnutrition.

Conclusions: Our results establish that not receiving directly observed therapy, diabetes, smoking and malnutrition are associated with recurrent TB in Southwest China. To reduce the relapse rate of TB, especially for Tibetan populations, pursuing high-quality DOTS is essential.