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Impact of African immigration on drug resistance to *Mycobacterium tuberculosis* in Portugal

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Background: Several works pointed immigration as a risk factor for drug resistance in Western countries. In Portugal immigration is responsible for 13,6% of tuberculosis cases, 75% of those cases being originated from Sub-Saharan African countries.
Aim: To evaluate the role of immigration from African countries in drug resistance to *Mycobacterium tuberculosis* (Mt) in Portugal.
Methods: Comparative retrospective study between African immigrants (I) and native (N) patients with positive-culture to Mt and who realized susceptibility tests, admitted in a Pneumology unit from 2000 to 2010. Clinical-demographic characteristics, aetiopathogenic factors, drug resistance profiles and inhospital outcomes were evaluated.
Results: 1328 patients were enrolled, 240 (18,1%) being immigrants, most of them from Portuguese spoken countries. Statistically significant differences were found on the following variables: drug addition (I:6,7% vs N:28,8%); WHO classification; number of previous treatments (I:0,21 vs N:0,37); duration of previous treatments (I:0,88 vs N:1,83); inhospital mortality (I:4,2% vs N:8,5%).The variables with predictive value for resistance in this population were HIV co-infection, number of previous treatments and chronic TB infection.The total incidence of drug resistance was similar in both groups (I:20,8% vs N:21,0%), but secondary resistances were less frequent in immigrants (I:5,4% vs N:9,7%).
Conclusion: African immigration was not associated with increased prevalence of drug resistance to Mt. These findings can be explained by the reduced access to antituberculosis drugs in Sub-Saharan countries.

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Double impact: Difficulties in treating patients with liver diseases from tuberculosis

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Background: Tuberculosis and liver disease are both endemic in many parts of the world. Many anti-TB drugs have hepatotoxic side effects and should be used cautiously during its use in liver disease patients.
Objectives: To assess the frequency and risk factors of anti-TB-Drug-Induced-Hepatotoxicity (Anti-TB DIH) among patients with viral hepatitis and liver cirrhosis.
Patients & Methods: This prospective study included 26 TB patients of pulmonary and extrapulmonary TB associated with liver cirrhosis or viral hepatitis in addition to, 46 TB patients without liver disease as controls. All patients were followed up clinically and biochemically before and during their treatment.
Results: Anti-TB-DIH was noticed in 30.8% patients with liver disease (46.2% and 15.4% in liver cirrhosis and viral hepatitis respectively; P=0.089) and in 8.7% of control group (P< 0.05 versus liver disease). Anti-TB-DIH developed within 15-60 days from the onset of therapy. Liver functions normalized in 25% of patients with liver disease within 2 weeks from cessation of therapy. By univariate analysis, liver diseased patients with anti-TB-DIH had lower body mass index (P=0.049) and lower serum albumin (P=0.008). Using multivariate regression analysis proved that lower serum albumin was independent predictors of anti-TB-DIH (P=0.018) in liver diseased patients while the presence of other co morbid diseases was the only risk factor in patients without liver disease (P=0.024).
Conclusion: Anti-TB-DIH is common among patients with liver diseases and is more in patients with lower serum albumin while the presence of other co morbid diseases is only risk factor for DIH in TB patients without liver disease.

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Hepatitis C virus infection among tuberculosis patients in Sohag Governorate: Seroprevalence and associated risk factors

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Setting: Tuberculosis (TB) and hepatitis C virus (HCV) infection have emerged as major public health problems in Egypt.
Objective: To determine the prevalence and risk factors for the HCV infection among patients with TB in Sohag.
Material and methods: A cross-sectional study was carried out at Sohag university hospital. Hundred thirty five tuberculosis patients were fulfilled the inclusion criteria. age more than 15 years old, patients with all form of tuberculosis either pulmonary or extra pulmonary. Anti-HCV antibodies were done for all patients. A case-control study was performed to identify risk factors for HCV infection. Cases were defined as patients with TB who were HCV-seropositive, and controls were defined as patients with TB who were HCV-seronegative.
Results: HCV infection was diagnosed in 21/135 (6.4%). Goza smokers (P value 0.01 Odd's Ratio 3.75, 95% confidence interval 0.24 - 0.44), history of operation (P value 0.001 ORs 7.67, 95% CI 0.165 – 0.263), blood transfusion (P value 0.004 ORs 7.2, 95% CI 0.103 – 0.362), presence of tattoos (P value 0.03 ORs 3.4, 95% CI 0.168 – 0.338), extra pulmonary tuberculosis (P value 0.004 ORs 3.5, 95% CI 2.341- 3.384), low serum albumin (P value 0.002 ORs 0.5, 95% CI 0.068 – 0.317) were the main risk factors associated with HCV infection.
Conclusion: Universal screening for HCV infection in TB patients is highly recommended. There is an urgent need to detect HCV infection in high-risk groups to prevent future HCV transmission as well as morbidity and mortality associated with TB.

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Detection of active TB among people living with HIV/AIDS and vulnerable population groups (commercial sex workers and injecting drug users)

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Background: Vulnerable groups (persons living with HIV/AIDS, migrants, homeless, commercial sex workers, and substance users) are at greater risk of developing TB, including MDR-TB, and are likely to have worse treatment outcomes. They experience longer delays in seeking care, increased suffering from disease and higher risk of community transmission.
Objectives: To increase coverage of preventive TB screening and assess prevalence of TB among vulnerable groups in Tomsk, Russia.
Methods: During 2010, a cohort of 703 persons was identified as a risk group for TB. Screening was conducted twice a year and included basic evaluation of symptoms, PPD (DIASKIN-TEST) and chest fluorography. Evaluation involved qualitative interviews with suspects to detect chronic cough, weight loss, night sweats and hemoptysis and other symptoms of TB. Outreach workers of Tomsk-AntiAIDS Foundation provided field counseling, TB and HIV education, phlebotomy, PPD with further referral to TB Services for medical evaluation. Nutritional support, hygiene packages and accompaniment used as incentives to complete screening.
Results: Out of 703 people at risk screened for TB, 30 suspects were sent for medical examination to TB Services (4.3%). Out of them, 6 were diagnosed with active TB (20.0%), including 2 MDR–TB cases.
Conclusion: Enhanced preventive screening and further medical assessment of TB suspects from vulnerable population resulted in high prevalence of active disease (850/100,000). There is a need to continue and expand coverage of preventive screening for the rest of risk group in Tomsk Oblast.

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Tuberculosis screening among intravenous drug users (IDU) in Georgia

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Background: IDU is widespread in Georgia and regardless of HIV status it is at increased risk of developing active TB. It is necessary to identify the screening and effectively address the TB cases among IDUs.
Aim: To assess the prevalence of TB among IDUs.
Methodology: Using the data of prospective cohort study: from April 2008 to January 2011 IDUs at harm reduction and VCT sites were screened for TB symptoms using the questionnaire.
TB suspect cases were referred to TB units for further investigation and diagnosis.
Results: 4985 IDUs were screened for TB symptoms, 79 (2%) from them were female and 4906 (98%) –male. Mean age was 33. 81 (1.6%) from the screened IDU-s were HIV-positive and 2304 (46%) were diagnosed to have Hepatitis B or C. 436 (8.7%) were defined as TB suspects. They were presented at TB unites for further examinations. TB was confirmed in 175 cases, 109 (62%) had pulmonary TB and 66 (38%) – extrapulmonary. The prevalence of TB among IDU-s was 3510 per 100.000 which is 26 times greater as compared to TB prevalence in general population.
Conclusions: Given the high risk for TB among IDUs, interventions such as active case finding, is urgently needed to detect TB cases as early as possible and treat them adequately.

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Managing tuberculosis in chronic kidney disease: An evaluation of patient treatment regimens

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Introduction: Balancing side effects against effective tuberculosis (TB) treatment

in Chronic Kidney Disease (CKD) can be difficult leading to variations in management. We reviewed patients with CKD and TB to investigate compliance with new treatment guidelines by the British Thoracic Society. 1

Methods: Retrospective review of patient case notes with CKD who developed TB between 1994-2010 in a single tertiary hospital. Categories included drug dosage, side effects, treatment duration, respiratory team input and outcome.

Results: We reviewed the notes of 40 patients. 11 had incomplete data. In 73% (52/71) of prescriptions dosing regimens were consistent with BTS guidelines. Errors included over-dosing of Rifater and Isoniazid in 2 patients, and under-dosing of ethambutol and isoniazid in 13 patients. Daily dosing of ethambutol (10/14) and pyrazinamide (10/12) in haemodialysis patients was common and not ideal. Side effects were recorded in 22/29 patients: 3 rifampicin, 5 isoniazid, 3 ethambutol, 4 pyrazinamide, 1 streptomycin and 6 to any/combination drugs. Increased treatment duration (12/29 cases) due to side effects was common. All patients were cured and 23/29 (79%) received specialist respiratory physician input.

Conclusion: Management of TB in CKD patients was variable. Side effects from anti- TB drugs were common. Overall outcome was good, but not all patients received respiratory physician input. The new BTS guidelines for drug regimens will hopefully standardise management of CKD patients with TB.

1.BTS Standards of Care Committee, Guidelines for the prevention and management of Mycobacterium TB infection and disease in adult patients with CKD. Thorax 2010: 65: 559-570

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Prednisolone treatment does affect the performance of the QuantiFERON in-tube test and the tuberculin skin test in patients with autoimmune disorders screened for latent tuberculosis

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Background: During screening for latent tuberculosis infection (LTBI), before anti-TNF-alpha treatment, most patients are already receiving immunosuppressive therapy. Objective was to evaluate the performance of the QuantiFERON In-Tube (QFT-IT) and the Tuberculin Skin Test (TST) in these groups

Methods: We included 248 patients with Ulcerative Colitis, Crohns disease, rheumatoid arthritis, and spondylo-arthropathy.

Results: QFT-IT was positive in 7/248 (3%), negative in 229 (92%), and indeterminate in 12 (5%). TST was positive in 54/238 (23%) patients. Chest X-ray was suspect in 5/236 (2%), and 35/167 (21%) had risk-factors.

We found a pronounced negative effect on QFT-IT and TST performance associated with prednisolone treatment; the IFN- response to mitogen stimulation was impaired (median IFN- response 4.9IU/ml (IQR0.8-10.0)) compared to patients a) not receiving corticosteroids (median 10.0 (IQR 5.0-10.0) (p=0.0015) or b) receiving long-acting corticosteroids (median 10.0 (IQR 9.7-10.0) (p=0.0058).

Prednisolone treatment was strongly associated with negative TST, AOR 0.22 (0.1-0.8 (p= 0.018), and with an increased risk of indeterminate QFT-IT results AOR (16.1-69.0) p=0.001). No negative effect was found for long-acting corticosteroids. Prednisolon doses above 10 mgresulted in 27% indeterminate results.

Conclusion: Oral prednisolone severely suppressed QFT-IT and TST performance whereas long-acting corticosteoroids, Metotrexate, Azathioprin and 5-ASA did not have similar detrimental effect. Patients should be screened for LTBI with QFT-IT or TST prior to initiation of prednisolone.