276. Non-tuberculous and tuberculous mycobacterial infections: from epidemiology to clinical findings

P2706
The burden of tuberculosis drug resistance in Eastern Europe: The Moldavian experience
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Aims: Surveillance the TB drug resistance on the national level and its impact upon public health in the Republic of Moldova;
The objective: to characterize the evolution of tuberculosis drug resistance in Moldova (2001-2011).

Methods: The study was retrospective, being based on the assessment results of M. tuberculosis complex drugs resistance obtained in the reference laboratories from the country.

Results: Prevalence of MDRTB among New TB cases increase from 6.3% in 2001 up to 26.4% in 2011. Through previously treated patients (relapses, re-treatment after default, re-treatment after failure, chronic) prevalence of MDR TB was detected in 37.7% cases in 2001 and 64.3% cases in 2011. Extensively drug-resistant tuberculosis (XDR-TB) is present in some territories. The rate of XDR TB among the patients with MDR TB is 6.1% (2010). The prevalence of TB-HIV co-infection in country is 5.4%. The prevalence of MDRTB among all TB-HIV is higher such from HIV negative patients (67.8%). Reasons of high level of TB resistance in Moldova: poor in infection control in TB hospitals -exogenous re-infection of TB patients; low compliance of treatment; the lack of a rigid control of TB patients, TB/HIV co-infection.

Conclusions: At the current stage MDR TB is a serious problem for National TB Program, bringing serious public health and economic consequences. It is a very alarming phenomenon, because the success of treatment (with first-line drugs) for this form of TB is less effective than for the susceptible tuberculosis and the accumulation of a greater number of resistant strains in society can lead to the infection of population and to an increase in the number of patients with MDR&XDR TB.

P2707
The significance of a mycobacterial isolate in a low tuberculosis prevalence setting
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Introduction: The incidence of tuberculosis in semi-rural Staffordshire is very low, around 2.8/100,000/year (1). We reviewed the significance of identifying mycobacteria in this population.

Methods: Retrospective analysis of patients from our institution with mycobacterium isolated from 1st Jan 2007 to 31st July 2011, with follow up until 1st Nov 2011. For patients with multiple isolates, the first species isolated was recorded.

Results: 67 patients were identified. Demographics of the M. tuberculosis(MTB) and non-tuberculous mycobacteria(NTM) patient groups are in Table 1. 22/43 (51%) of the NTM samples were considered significant and treated. Patients with NTM were older and more likely to die (p<0.001). Chronic lung disease was present in 11 (50%) of the treated NTM patients, and none of the MTB patients. 3 skin biopsies and 1 urine sample were +ve for NTM. Mycobacterial species isolated included 22 M. avium intracellulare, 6 gordonae, 4 chelonae, 3 kansassii, 3 malmoense, 2 xenopi and 1 each of shimoidei, marinum and interjectum.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>MTB</th>
<th>NTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient numbers</td>
<td>24 (36%)</td>
<td>43 (64%)</td>
</tr>
<tr>
<td>Males</td>
<td>13 (54%)</td>
<td>24 (56%)</td>
</tr>
<tr>
<td>Ages (mean ± SD)</td>
<td>42±21</td>
<td>66±10*</td>
</tr>
<tr>
<td>Death at end of follow up</td>
<td>1 (0.04%)</td>
<td>10 (23%)*</td>
</tr>
<tr>
<td>Pulmonary samples</td>
<td>16 (66%)</td>
<td>40 (93%)*</td>
</tr>
<tr>
<td>Smeared +ve pulmonary samples</td>
<td>8 (33%)</td>
<td>6 (14%)</td>
</tr>
</tbody>
</table>

*p<0.001.

Conclusions: Isolates of NTM were nearly twice as common as MTB. The diagnosis should particularly be considered in older patients with underlying lung disease. Isolation of a NTM requires careful assessment of its significance and pathogenicity. The incidence of NTM infection seems to be increasing (2).

References:
P2708 Clinical analysis of pulmonary Mycobacterium avium complex disease in Japan
Masaki Ikeda, Yoshitomo Kohashi, Keiji Mouri, Yasushiro Obuse, Mikiko Oka.
Division of Respiratory Diseases, Department of Medicine, Kawasaki Medical School, Kurashiki, Okayama, Japan.

Objective: To analyze the clinical characteristics of patients who diagnosed pulmonary Mycobacterium com-plex (MAC) disease recently in the affiliated several hospitals.

Patients and methods: The subjects consisted of 150 patients who satisfied the diagnostic criteria of ATS between 2003 and 2010. We evaluated the backgrounds, diagnostic methods, microbiological findings, radiological findings, treatments, and prognosis.

Results: The average age of 150 patients with pulmonary MAC disease was 65.0 years old. The detection method was most frequently recognized by bronchoscopy (50%). The macrobiological findings were smear positive for acid-fast bacilli in 98 patients (65%) and the sensitivity of isolated MAC for antituberculosis drugs and other antibiotics was comparatively good for clarithromycin (CAM) and rifampicin (RFP). The clinical disease type of pulmonary MAC disease consisted of nodular/bronchiectatic type in 101 patients (67%), fibrocavitary type in 43 patients (29%), and solitary nodular type in 6 patients (4%). Concerning the treatment for pulmonary MAC disease, the combined chemotherapy including CAM was performed for 76 patients (51%). Sputum conversion rate was 76%, the sputum conversion rate between those controls (0.1 x 10^4) and 0.8 x 10^4/ml (p=0.01, respectively). Among the MAC group, HRT scores of the lobe in which BAL was performed in the neutrophil-dominant group (8.0 ± 15.4) were significantly higher than the lymphocyte-dominant group (7.1 ± 13.4) (p<0.01).

Conclusion: Neutrophil-dominant inflammation due to pulmonary NTM infection was related to severity of HRT findings in patients with NTM infection. These results will help in understanding the biological defense mechanism against NTM.

P2711 Recovery rate of nontuberculous mycobacteria over a 10-year period at a tertiary referral hospital in Korea
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The incidence of nontuberculous mycobacteria (NTM) infection is increasing in Korea. The aim of this study was to evaluate the recovery rate of NTM from respiratory specimens over a 10-year period in a tertiary referral hospital in Korea with a intermediate tuberculosis burden.

Methods: We divided into two groups: a neutrophil-dominant and a lymphocyte-dominant group. The HRT scores indicating the extent and severity of airway disease were divided into two groups: a neutrophil-dominant and a lymphocyte-dominant group. The HRT scores indicating the extent and severity of airway disease was related to severity of HRCT findings in patients with NTM infection. These results will help in understanding the biological defense mechanism against NTM.

Table 1. Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cases</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>64.3 (45.85)</td>
<td>52.9 (29.25)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Caucasian (100%)</td>
<td>Caucasian (97.4%)</td>
</tr>
<tr>
<td>Mean Weight (kg)</td>
<td>71.01</td>
<td>68.21</td>
</tr>
<tr>
<td>BMI (range)</td>
<td>23.4 (19.0-30.3)</td>
<td>22.9 (18.0-29.3)</td>
</tr>
</tbody>
</table>

Table 2. Main pharmacokinetic parameters

<table>
<thead>
<tr>
<th>Drugs used</th>
<th>n</th>
<th>Mean dose/kg</th>
<th>Mean Cmax</th>
<th>Mean AU0-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rifampicin</td>
<td>14</td>
<td>8.5 ± 0.74</td>
<td>12.8 ± 0.64</td>
<td>28.7 ± 3.3</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td>5</td>
<td>7.1 ± 0.81</td>
<td>0.06 ± 0.25</td>
<td>2.74 ± 0.76</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>2</td>
<td>4.7 ± 0.92</td>
<td>0.18 ± 0.12</td>
<td>2.03 ± 0.85</td>
</tr>
<tr>
<td>Ethambutol</td>
<td>13</td>
<td>15.9 ± 1.92</td>
<td>3.27 ± 1.21</td>
<td>26.39 ± 1.13</td>
</tr>
</tbody>
</table>

Results: The numbers of neutrophils and lymphocytes were significantly higher in patients with NTM (17.4 ± 6.7 and 6.9 ± 2.1 x 10^4/ml) than those in healthy controls (0.1 ± 0.1 and 0.8 ± 0.2 x 10^4/ml) (p=0.01, respectively). Among the NTM group, HRT scores of the lobe in which BAL was performed in the neutrophil-dominant group (8.0 ± 15.0) were significantly higher than the lymphocyte-dominant group (7.1 ± 13.4) (p<0.01).

Conclusion: Neutrophil-dominant inflammation due to pulmonary NTM infection was related to severity of HRT findings in patients with NTM infection. These results will help in understanding the biological defense mechanism against NTM.

P2712 Risk factors for pulmonary Mycobacterium avium-intracellulare complex disease deterioration in immunocompetent patients
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Rationale: Pulmonary NTM infections are being recognized worldwide with increasing frequency in immunocompetent patients. The clinical course of this disease varies among patients. However, the mechanism and factors associated with disease deterioration is not completely understood. The aim of this study was to evaluate the association between cell differentiation status in bronchoalveolar lavage (BAL) fluids and the severity of HRT findings in patients with NTM infection.

Methods: Twenty immunocompetent patients who were diagnosed with a lung NTM infection by positive cultures and 20 healthy controls were enrolled. Based on the preferential percentage of neutrophils and lymphocytes in BAL fluids, patients were divided into two groups: a neutrophil-dominant and a lymphocyte-dominant group.

Results: The numbers of neutrophils and lymphocytes were significantly higher in patients with NTM (17.4 ± 6.7 and 6.9 ± 2.1 x 10^4/ml) than those in healthy controls (0.1 ± 0.1 and 0.8 ± 0.2 x 10^4/ml) (p=0.01, respectively). Among the NTM group, HRT scores of the lobe in which BAL was performed in the neutrophil-dominant group (8.0 ± 15.0) were significantly higher than the lymphocyte-dominant group (7.1 ± 13.4) (p<0.01).

Conclusion: Neutrophil-dominant inflammation due to pulmonary NTM infection was related to severity of HRT findings in patients with NTM infection. These results will help in understanding the biological defense mechanism against NTM.

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Detection of volatile organic compounds in cattle naturally infected with Mycobacterium bovis

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We report a novel method in detecting Mycobacterium bovis infection in cattle based on identifying unique VOC (volatile organic compounds) profiles in the breath of cattle. The study was conducted on breath samples collected from cattle on an M. bovis-infected dairy in southern Colorado, USA. All animals were skin test positives; the presence of disease was either confirmed or inferred after necropsy. Negative controls included breath samples from animals on two tuberculosis-free dairies in northern Colorado. Gas-chromatography/mass-spectrometry analysis revealed significant differences between M. bovis-infected and non-infected animals in the concentrations of 15 VOCs, allowing for distinctly different VOC patterns.

Based on these results, a nanotechnology-based array of sensors was tailored for detection of M. bovis-infected cattle via breath. The tailored system successfully identified all M. bovis-infected animals (8/8) while 21% (3/14) of non-infected animals were misclassified as M. bovis-infected.

The method shows promise in identifying unique VOC patterns in cattle with bovine tuberculosis. Applicability in humans warrants further study.

Mycobacterium avium complex disease

P2714
Clinical evaluation of GPL core IgA antibodies for serodiagnosis of MAC pulmonary disease
Yoshihiro Kobashi, Masaki Ibeda, Keiji Mouri, Yasushi Obase, Mikio Oka. Division of Respiratory Diseases, Department of Medicine, Kawasaki Medical School, Kurashiki, Okayama, Japan

Objective: To evaluate the clinical usefulness of GPL core antibodies for diagnosing MAC-PD and distinguishing MAC-PD from other lung diseases.

Methods: GPL core antibody levels were measured in 57 patients with MAC-PD, 18 with clinically suspected MAC-PD but who did not satisfy the diagnostic criteria of MAC-PD proposed by ATS, 10 with MAC contamination, 18 with pulmonary tuberculosis (TB), 9 with other nontuberculous mycobacterial (NTM) disease, 18 with other lung diseases.

Results: The positive response rate for MAC-PD was 77%, that for suspected MAC-PD was 39%, and that for MAC contamination was 10%, and that for pulmonary TB, other NTM diseases, and other lung diseases was 0%, respectively. GPL core antibody levels were significantly higher in patients with MAC-PD, including patients with clinically suspected MAC-PD, than in those in the other groups (p<0.01). The sensitivity and specificity of the antibody for diagnosing MAC-PD were 77% and 100%, respectively. Although thirteen patients with MAC-PD showed false negative responses for the GPL core antibody, five patients had immunosuppressive conditions due to underlying diseases. No significant correlations between the antibody level and species of MAC, clinical disease types, and extent of the disease on chest computed tomography were found in patients with MAC-PD.

Conclusions: The EIA kit is a useful supportive method for the rapid and convenient diagnosis of MAC-PD using a small dose of serum, and for the differentiation of MAC-PD from other lung diseases.

P2715
Clinical evaluation of interferon-gamma release assay (IGRA) in patients with nontuberculous mycobacterial disease
Yoshihiro Kobashi, Masaki Ibeda, Keiji Mouri, Yasushi Obase, Mikio Oka. Division of Respiratory Diseases, Department of Medicine, Kawasaki Medical School, Kurashiki, Okayama, Japan

Objective: To evaluate the clinical usefulness of two IGRA (Quantiferon-TB and T-SPOT.TB) in patients with nontuberculous mycobacterial (NTM) disease.

Materials and methods: The study consisted of 180 patients with NTM disease who satisfied the diagnostic criteria proposed by American Thoracic Society (ATS). Tuberculin skin test (TST) was also performed for these patients as much as possible.

Results: The causative microorganism was Mycobacterium avium in 76 patients, M. intracellulare in 60, M. kansasi in 22, M. avium-genius in 7, M. marinum in 7, others in 7, respectively. While the positive response rate for M. kansasi, M. marinum, and M. szulgai (30 patients) which possess the ESAT-6 and CFP-10 (Mycobacterium tuberculosis (MTB)-specific antigens) was 60% for TST, 33% for QFT, and 46% for T-SPOT.TB, the indeterminate response rate was 7% for QFT and 0% for T-SPOT.TB, respectively. On the other hand, while the positive response rate for M. avium and M. intracellulare etc. (150 patients) was 58% for TST, 7% for QFT, and 11% for T-SPOT.TB, the indeterminate response rate was 7% for QFT and 2% for T-SPOT.TB, respectively.

Conclusions: Although IGRA may be a useful diagnostic method to differentiate TB disease and MAC disease, there are several problems to be resolved before it can be used as a diagnostic method for M. kansasi disease etc. We also would like to describe the results of QFT for M. kansasi disease in other hospitals in Japan.

P2716
Pharmacokinetics and drug susceptibility testing implied limited activity of current regimens for Mycobacterium avium complex disease
Jakko van Ingen, Marin Boeree, Charles Peloquin, Charles Daley. Medical Microbiology, Radboud University Nijmegen Medical Center, Nijmegen, Netherlands Pulmonary Medicine, Radboud University Nijmegen Medical Center, Nijmegen, Netherlands Emerging Pathogens Institute, University of Florida, Gainesville, FL, United States Mycobacterial and Respiratory Infections, National Jewish Health, Denver, CO, United States

Background: Treatment outcome in Mycobacterium avium complex (MAC) lung...
Abstract P2716 – Table 1. Average serum concentrations and pharmacokinetic calculations.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Mean Cmax</th>
<th>Mean AUC</th>
<th>PD target</th>
<th>Median MIC</th>
<th>% above PD target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rifampicin (n=299)</td>
<td>18.55 ± 6.75</td>
<td>68.42 ± 24.26</td>
<td>AUC/MIC &gt; 271</td>
<td>Free AUC/MIC &gt; 24.14</td>
<td>2</td>
</tr>
<tr>
<td>Ethambutol (n=421)</td>
<td>2.41 ± 0.02</td>
<td>10.18 ± 4.35</td>
<td>Free Cmac/MIC &gt; 1.23</td>
<td>1</td>
<td>57%</td>
</tr>
<tr>
<td>Azithromycin (n=367)</td>
<td>0.32 ± 0.23</td>
<td>1.47 ± 1.00</td>
<td>n.a.</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>Clarithromycin (n=59)</td>
<td>2.26 ± 0.87</td>
<td>10.67 ± 9.53</td>
<td>T50% &gt; MIC</td>
<td>≤ 4</td>
<td>n.a.</td>
</tr>
<tr>
<td>Moxifloxacin (n=96)</td>
<td>4.23 ± 1.51</td>
<td>18.81 ± 6.46</td>
<td>Cmax/MIC &gt; 10</td>
<td>AUC/MIC &gt; 100</td>
<td>2</td>
</tr>
</tbody>
</table>

Conclusions: Serum rifampicin, ethambutol and moxifloxacin concentrations attain effective levels in a majority of patients; rifampicin use exerts detrimental effects on pharmacokinetics of macrolides and moxifloxacin. This may partly explain the poor outcomes of MAC disease treatment.

P2717
PCR based method for accurate diagnosis of mycobacterial disease and description of clinical profile of disease caused by non tuberculous mycobacteria

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Introduction: Sri Lanka uses direct microscopy to diagnose tuberculosis. This introduction was made by high performance liquid chromatography and gas chromatography. Isolates were identified as MAC by AccuProbe assays. MICS were determined by the BacTec460 macrodilution method; synergy between rifampicin and ethambutol was assessed.

Results: Pharmacokinetic data, median MICS and pharmacodynamic calculations are given in Table 1. Simultaneous use of rifampicin significantly lowered serum concentrations of macrolides (30-60%) and moxifloxacin (10-15%).

Conclusions: Serum rifampicin, ethambutol and moxifloxacin concentrations attain effective levels in a majority of patients; rifampicin use exerts detrimental effects on pharmacokinetics of macrolides and moxifloxacin. This may partly explain the poor outcomes of MAC disease treatment.

P2718
High incidence of the Beijing strains among multi drug resistance isolates of Mycobacterium tuberculosis from extra pulmonary tuberculosis cases in northern India

Anand Kumar Maujua1, Surya Kant1, Vijaya Lakshmi Nag2, Ram Awadh Singh Kushwaha1, Tapen N. Dhole1, 1Department of Pulmonary Medicine, Chhatrapati Shahaji Maharaj Medical University UP (Erstwhile King George’s Medical University), Lucknow, UP, India; 2Department of Microbiology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, UP, India

Background: The emergence and spread of drug resistance tuberculosis has worsened the global resurgence of tuberculosis. Beijing strains are responsible for massive spread and outbreaks of Multidrug resistance Mycobacterium tuberculosis (MDR-TB) in worldwide as in India.

Objectives: The aim of study presented here was to investigate incidence of Beijing genotypy among MDR-TB isolates from extra pulmonary tuberculosis cases (EPTB) in Northern India.

Methods: A total of 756 specimens from patients of EPTB cases with varied presentation were studied. A total of 164 M. tuberculosis complex (MTBC) isolates recovered during the period Sept 2007-Dec 2010 were tested for drug susceptibility against STRBEI by radiometric BACTEC method. MDR-TB isolates were sequenced in rpoB and katG gene for mutation analysis. All MDR-TB strains were processed by new multiplex polymerase chain reaction (PCR) for identification of Beijing strains and non Beijing strains.

Results: Of these 164 MTBC, 100(60.9%) strains were fully susceptible and 64(39.1%) strains were resistance. 21 (12.8%) strains were confirmed MDR-TB by genotypic method. The proportion of Beijing strains was significantly higher among MDR-TB strains (72.7%, p < 0.05). Genotypic analysis of rpoB gene revealed significantly higher rate of Ser531Leu mutation rate among Beijing vs. non Beijing strains (50% vs. 33.4%, p < 0.05). While mutation for Ser315Thr in katG gene was common among Beijing vs. non Beijing strains (68.2% vs. 50%, p < 0.05)

Conclusion: We found high incidence of Beijing strains among MDR-TB strains from EPTB cases in Northern India.
P2721

Follow-up of TB cases failing or defaulting the first TB treatment, in Romania

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Introduction: New pulmonary smear positive TB patients who fail or abandon the first treatment have a high potential to develop drug resistance, to become difficult to cure and to spread resistant mycobacteria strains for a long time.

Aim: To follow-up the new pulmonary smear positive TB cases registered in Hospital, Masih University of Medical Sciences, Mashad, Islamic Republic of Iran; Department of Thoracic Surgery, Ghaem University Hospital, Mashad University of Medical Sciences, Mashad, Islamic Republic of Iran; Center for Communicable Diseases Control, Ministry of Health and Medical Education, Tehran, Islamic Republic of Iran; Department of Thoracic Surgery, Ghaem University Hospital, Mashad University of Medical Sciences, Mashad, Islamic Republic of Iran; Department of Medical Microbiology, Faculty of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Islamic Republic of Iran; Immunology Research Center, Bu-Ali Research Institute, Mashhad University of Medical Sciences, Mashad, Islamic Republic of Iran; Department of Medical Virology, Faculty of Medicine, Alzah, Jondishapour University of Medical Sciences, Alzah, Islamic Republic of Iran; Section for Diagnostic Microbiology, Private General Clinical Laboratory, Mashad, Islamic Republic of Iran

Methods: Retrospective, descriptive, observational study of the new pulmonary smear positive TB cases registered in Romania in 2009, who failed or defaulted the first treatment, followed-up for a 3 years period. Information has been extracted from the electronic National TB Register.

Results: Out of 9,111 new pulmonary smear positive TB cases notified in Romania in 2009, 4.4% failed and 6% abandoned the first treatment. Of these, 62% have been retreated (92.5% of failures and 39.7% of defaulthers). Most were males (82.5%), in 40-44 years age group (16.3%), living in rural area (55.6%). More than half (52.4%) had no occupation, 27.9% have been tested for HIV and of them 3.6% were positive. Out of 9.4% culture positive cases, 9.7% were MDR-TB (57 cases). The outcome rates of the first retreatment were: 48% success, 8.3% decease, 11.9% failure and 23% default; 8.8% are still continuing treatment. Of 205 cases failing or abandoning the first treatment, 129 (63%) restarted a second retreatment regimen, with 17.8% success rate and 34% still continuing treatment.

Conclusions: The patients failing or abandoning TB treatment should be closely followed-up in order to retreat and cure as much as we can.

P2722

Comparative performance of interferon gamma release assays in detection of latent tuberculosis infection among health-care professionals

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Latent tuberculosis infection (LTBI) presents as the immersed part of the iceberg. Since health-care professionals (HCPS) are a group at increased risk of LTBI, the aim of this study was to clarify the role of IFN-γ response based on QuantiFERON-TB GOLD in Tube (QFT-GIT) and T-SPOT.TB assays in HCPS screening, comparing with the tuberculin skin test (TST).

In this cross-sectional comparative study, HCPs were interviewed according to a risk factor questionnaire from July 2011 to January 2012. Subjects who had a history of household contact with a pulmonary tuberculosis (PTB) case or had an underlying immunosuppressive disorder were excluded from the study. A total of 95 eligible HCPS working in a university hospital in northeast of Iran and in hospital wards with the highest number of admissions for patients with PTB were evaluated. The mean age of participants was 33.7 ± 6 years with a female/male ratio of 57/38. 84 HCPs (88.4%) were bacille Calmette-Guérin (BCG) vaccinated at birth. Of the 95 HCPS, 43.2% were positive by TST, and about 29% by each of the IGRAAs. Of 53 (55.8%) individuals with a positive test, 15 (28.3%) were positive to all three tests and 26 (49.1%) were simultaneously positive to at least two tests. The global agreements (k) between QFT-GIT and T-SPOT.TB with TST, and between the two IGRAAs were 0.737, 0.684, and 0.737 respectively. BCG vaccination and prevalence of nontuberculous mycobacteria associated with reactivity to TST reagent could explain a part of discordance observed between the tests. In a lesser concerns about interpretation of the results, we would recommend concordance application of at least two tests for LTBI.

P2723

Risk factors for extrapulmonary tuberculosis

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Introduction: Tuberculosis (TB) remains a major public health problem and 20% of all cases are extrapulmonary. The purpose of this study was to identify risk factors associated with extrapulmonary tuberculosis.

Methods: We performed a transversal study involving all patients with extra-pulmonary tuberculosis registered in a TB reference centre in northern Portugal, between January 2008 and January 2012. We evaluated demographic data, co-morbidities, BCG vaccination and anterior tuberculosis treatments. Multivariable logistic regression was used to identify independent risk factors (p < 0.05).

Results: Among the 386 patients studied, 260 (67.4%) had pulmonary tuberculosis (PTB) and 126 (32.6%) had extrapulmonary TB (EPTB). Being older than 40 years (OR=2.09, 95%CI: 1.23-3.8, female (OR=1.43, 95%CI=1.02-2.6) and HIV positive (OR=2.5, 95%CI: 1.25-5.0) were independent risk factors for EPTB. Alcoholism (OR=0.30, 95%IC: 0.12-0.75) is associated with higher risk for TB. Previous liver disease (OR=22.36, 95%IC: 1.89-263.57) was an independent risk factor for peritoneal TB. HIV co-infection (OR=12.97, 95%IC: 1.71-48.42) and the presence of previous TB treatment (OR=7.62, 95%IC: 1.00-57.9) increase the risk of disseminated disease.

Conclusions: We identified independent risk factors for EPTB compared with TB. Recognizing risk factors associated with EPTB is essential to suspect of disease and may help to get an accurate diagnosis.

P2724

Clinical characteristics and treatment outcomes of tuberculosis in the elderly

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Background: The purpose of this study was to describe the differences clinical characteristics and treatment outcomes between elderly TB patients and young TB patients.

Methods: The medical records of 271 young(aged 20 to 64 at diagnosis) and 199 elderly(aged 65 and older) TB patients, who were newly diagnosed with and treated for TB from May 2008 to April 2011 were reviewed.

Results: Respiratory symptoms such as cough, sputum, and dyspnea and comorbid medical conditions such as cardiovascular disease, diabetes mellitus and chronic obstructive pulmonary disease were more frequent in elderly TB patients. In chest CT scan of pulmonary TB patients, findings of active TB such as nodules (< 30 mm in diameter), masses (≥ 30 mm in diameter), and cavities were less frequently found in elderly TB patients except consolidations. However in microbiological diagnosis, positive TB culture rates were higher in elderly TB patients. Of those with known results of drug sensitive test, resistance to any drugs were more frequently found in younger TB patients. In adverse drug reactions, the incidences were not different between two groups except severe GI troubles which were more frequently developed in elderly TB patients. There were no significant differences in the rates of treatment success (97% vs. 93.7%, p=0.161), failure (0% vs. 0.7%, p=0.19), and deaths due to TB (0.5% vs. 1.1%, p=0.844) between two groups.

Conclusions: Elderly TB patients presented more frequent respiratory symptoms and showed less frequent active TB findings on chest CT scan. Treatment success rates of elderly TB patients were not inferior to those of younger TB patients without development of more frequent adverse drug reactions.

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The ratio of non-tuberculosis mycobacteria and co-morbidities in our hospital in the last five years

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Non tuberculosis mycobacterial infections (NTM) with chronic pulmonary diseases have increased in recent years. HIV infections and other co-morbid pulmonary diseases seems to be responsible for this increase as well as improvement in diagnostic techniques. Prolonged life time in COPD and cystic fibrosis generates special risk. NTM colonisation may cause clinical infection and progression in immunocompromised patients. The objective of this study is to evaluate the NTM growth ratio and clinical features of these patients. In our laboratory, approximately 25.000 specimens are cultured yearly with classic method (Lowenstein-Jensen). In this retrospective analysis, 185 NTM (5.8%) were identified in 11.681 tuberculosis culture positive specimens between 2004 and 2009.

Results: 33 patient files were examined out of 55 patients with NTM infection. Seven patients were female, 26 were male patients. Fifteen patients were ≤ 65 years old and the others were < 65 years old. COPD, bronchiectasis. diabetes mellin

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nus, malignancy, HCV infection were diagnosed in 10, 10, 6, 8 and 1 patients, respectively. Nodules, cavitary lesions and fibrosis were seen in computerised tomographies of 31 patients and in x-rays of two patients. In only 7 of 55 patient’s cultures were identified as M. abscessus (2), M. szulgai (3), M. intracellulare (1), M. xenopi (1). Thirty-one patients with NTM (93.39%) had chronic systemic or pulmonary diseases.

Conclusion: In future, the ratio of diagnosing and treatment of NTM infections in older immun-competent patients with chronic diseases are going to be increased with developing laboratory tests, CT and the awareness of togetherness of NTM infections and chronic diseases.