

## 289. Infections in immunocompromised patients

### P3205

#### Immunoglobulin treatment with recommended dosages does not prevent deterioration in lung function in primary hypogammaglobulinemia

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Patients with primary hypogammaglobulinemia are prone to pulmonary infections. Immunoglobulin treatment reduces the frequency and severity of bacterial infections. It is unclear whether this treatment prevents lung function impairment. The aim of this study was to address the latter.

**Method:** Spirometric and gas diffusion variables were measured at two occasions in 86 adult patients with a mean interval of 4.2 years between the first (T0) and the second (T1) registration. Up to four annual measurements of serum IgG, taken at nadir, were registered. Reference values were those of ERS 1993 update.

**Results:** Mean (SD) sIgG was 7.6 (2.4) g/L from T0 to T1. Mean (SD) FEV1 at T0 was 86.4 (24.1) % predicted, significantly lower than expected ( $p < 0.01$ ). At T1, FEV1 was further reduced to 82.8 (25.3) % predicted, giving a significant annual reduction of -0.95% (CI -1.81, -0.09) ( $p = 0.032$ ). Mean FEV1/FVC ratio decreased from 0.74 to 0.72, (increased obstruction) with a significant annual reduction of -0.09 per year (CI -1.0, -0.2) ( $p = 0.002$ ). At T0, both DLCO, VA and DLCO/VA were significantly lower than expected, (80.8, 89.6 and 90.0% predicted, respectively) ( $p < 0.001$ ). Of these, annual mean VA deteriorated significantly (increased restriction) with 0.76% (CI 1.42, 0.10) ( $p = 0.024$ ). Decline in lung function did not correlate with IgG levels.

**Conclusion:** Treatment with immunoglobulines in dosage sufficient to achieve IgG in the normal range above 7g/L does not seem to prevent further impairment of airway obstruction and restriction. Further studies are needed to clarify if more aggressive IgG substitution is superior to this standard regimen.

### P3206

#### Nontuberculous mycobacteria in non-aids patients

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**Objectives:** To evaluate the importance of isolation of nontuberculous mycobacteria (NTM) in non-AIDS adult patients.

**Methods:** Retrospective study of files from patients without known AIDS, with at least one NTM positive respiratory sample, between 1997 and 2004.

**Results:** 102 patients were found, with median age of 63 yrs; 67% were male; 63 (62%) had underlying chronic lung disease; 77 had symptoms or signs of respiratory infection (75%). Most isolates (47%) were *M. avium* complex (MAC), followed by *M. fortuitum* (20.5%), *M. goodii* (18.5%), *M. kansasii* (7%), *M. chelonae* (2%), *M. peregrinum* (2%), *M. scrofulaceum* (1%), *M. abscessus* (1%) and *M. terrae* (1%).

NTM pulmonary disease was present in 16 patients (15.7%), 14 of which fulfilled the diagnostic criteria according to ATS guidelines. Ten were male, with a median age of 65 yrs; 12 had underlying lung disease and 6 had systemic disease. All had respiratory complaints and 3 extra-pulmonary involvement. Chest x-rays showed mainly pulmonary infiltrates, linear opacities and cavitation. Thirteen patients underwent thoracic CT scan and 10 fiberoptic bronchoscopy. NTM identification was made by cultural and biochemical tests in one case and by DNA-probe in the others. MAC was responsible for disease in 12 patients (75%), *M. kansasii* in 2, *M. abscessus* and *M. fortuitum* in one each. One patient quit follow-up and 1 died for another condition. Four had therapy toxicity and 13 completed treatment which lasted for 6 to 34 months (median=13).

**Conclusion:** NTM isolation in respiratory samples did not imply the presence of pulmonary NTM disease in the great majority of cases. MAC was the most common isolated agent and its relative importance was higher when NTM pulmonary disease was present.

### P3207

#### Factors related to response to intermittent treatment of mycobacterium avium complex lung disease

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**Rationale:** *Mycobacterium avium* complex pulmonary disease (MAC-PD) is associated with substantial morbidity and standard daily multi-drug therapy is difficult to tolerate.

**Objectives:** To characterize response to a three-times-weekly (TIW) regimen of clarithromycin, ethambutol, and rifampin.

**Methods:** A 1-year prospective non-comparative trial of TIW treatment was conducted during 2000-2003 in 17 US cities. Participants were 91 HIV-negative adults, diagnosed with moderate to severe MAC-PD, who originally participated in a trial of an inhaled interferon-gamma treatment. Improvement in sputum culture, high-resolution computerized tomography (HRCT), and symptoms were assessed.

**Results:** Treatment response rates (and median response times) were 44% (2 months or longer) for culture, 60% (5.5-11.5 months) for HRCT, and 53% (8.5 months) for symptoms. Having non-cavitary, compared to cavitary, disease increased culture response by 4.0 times (95% CI: 1.7-9.2) and HRCT response by 4.9 times (95% CI: 1.9-13.0). Culture response was 1.5 times (95% CI: 1.1-2.2) higher for older subjects and 2.2 times (95% CI: 1.0-4.7) higher for previously untreated subjects. Being smear-negative increased culture response by 2.3 times (95% CI: 1.1-5.2) but decreased HRCT response by 4.4 times (95% CI: 1.7-11.5). Increasing ethambutol use by 5 months increased culture response by 1.5 times (95% CI: 1.0-2.1) but decreased symptom response. Not having COPD, bronchiectasis, or poor lung function increased symptom response by 1.9-3.9 times.

**Conclusions:** TIW therapy was less effective for MAC-PD patients with cavitary disease and COPD, bronchiectasis, or previous treatment for MAC-PD. Further research is needed to study the long-term outcomes of TIW treatment.

### P3208

#### Retrospective analyse of the episodes of pneumonia in patients with common variable immunodeficiency syndrome (CVID)

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Common variable immunodeficiency syndrome (CVID) is the most frequent cause of the primary hypogammaglobulinaemia in adult. The main disorder is an impaired function of lymphocytes B which results in low immunoglobulin production. The clinical manifestations of the disease are recurrent, severe upper and lower respiratory tract infections and also infections of the ear, digestive system and skin, mainly caused by bacterial agents.

The most severe lower respiratory tract manifestation is pneumonia. In this work we present a retrospective study on 25 patients with CVID, who were treated with intravenous immunoglobulins (IVIG) in our Department in years 1987-2003. We have analysed history of pneumonia episodes before the treatment had started and during the period of systematic treatment.

Between 25 patients only in 3 cases (12%) there was no evidence of pneumonia in the past. The rest of them had at least one (6 people - 24%) or more (16 people - 64%) episodes of severe pneumonia before they had started immunoglobulin supplementation. During the treatment (intravenous infusions of immunoglobulins) the frequency of severe lower respiratory tract infections dropped substantially, 4 patients (16%) had one and 5 patients (20%) more than one episode of pneumonia. The rest of patients (16 persons - 64%) had no evidence of pneumonia during the treatment.

According to this study we concern, that regular, properly - dosed (250 - 400 mg per kilo every 21 day, which maintained the IgG concentration above the lowest normal level) IVIG is the best way to prevent recurrent pneumonia in patients with CVID.

### P3209

#### Residential bathroom is a candidate for source of pulmonary mycobacterium avium complex infection

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Pulmonary *Mycobacterium avium-intracellulare* complex (MAC) disease has been

MONDAY, SEPTEMBER 4TH 2006

increasing and hard to cure. The environmental MAC, which can be isolated from water, soil, animals and aerosols, appears to be a source of infection. However, no direct evidence of infection from sources has been found yet.

**Objectives:** To clarify this transmission, we investigated the identity between MAC bacilli in sputum specimens and those in residences of patients with pulmonary MAC disease.

**Methods:** We detected the distribution of MAC in residences of 49 patients with pulmonary MAC disease and 43 healthy volunteers by the culture method. And we evaluated the identity of MAC isolated from sputum specimens and the residences using genotypic analysis, phenotypic analysis and antimicrobial susceptibility.

**Results:** MAC recovered only from bathrooms including shower water (3 samples), showerheads (2 samples), bathtub water (4 samples) and drainage of bathroom (2 samples), but not from kitchens, washbasins and dusts of air conditioner. Ten isolates were detected from nine patients' residences and one isolate was from a healthy volunteer's one with a significantly high frequency in patients' residences ( $P = 0.01$ ). In two patients, strains isolated from the bathrooms were identical with those from the corresponding patients' sputum specimens by restriction fragment length polymorphism and pulsed field gel electrophoresis.

**Conclusion:** These facts indicate that MAC bacilli frequently colonize in the family residential bathroom and could transmit to individuals at every bathing. Therefore, it is necessary to disinfect MAC bacilli in patients' bathroom for the treatment of pulmonary MAC disease.

### P3210

#### Primary immune deficiencies presenting in adult: seven years of experience from Iran

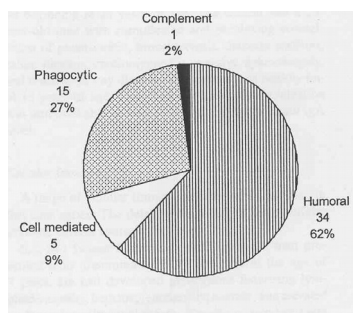
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Primary immunodeficiencies (PIDs) are not solely disease of childhood. We describe the clinical presentation, pulmonary manifestation and outcome for 55 adult patients with previously unrecognized PIDs. This series provides unique data regarding PIDs presenting in adulthood, and serves as a timely reminder that physicians must consider the diagnosis of PIDs in their adult patients.

A total 55 adult patients were diagnosed with PIDs at single center in Iran during 7-year period between October 1998 and September 2004

Humoral	34(62%)
CVID	28
Selective IgA deficiency	2
HYPHER IgM syndrome	1
X-linked agammaglobulinemia	2
IgG subclass deficiency	1
Cell mediated	5(9%)
Idiopathic Tcell CD4 deficiency	1
T cell(Cd3)deficiency	1
IL-12p40 deficiency	1
Ataxia Telangiectasia	1
Wiskott Aldrich Syndrome	1
Phagocytic	15(27%)
CGD	10
LAD	1
Hyper IgE syndrome	3
Cyclic Neutropenia	1
Complement	1(2%)
C1qINH	1
Total	55(100%)

Characterization of the specific PIDs diagnosed in this series



Using the experience gained from these patients, we outline key "warning signs" suggestive of an underlying PID. Only through increased physician awareness will patients with PIDs receive timely diagnosis and optimal management.

### P3211

#### Rapid immunochromatographic serum assay of nontuberculous mycobacterial infections

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We are proposing a rapid immunochromatographic serologic assay on patients infected with nontuberculous mycobacteria (NTM), which could evidentiate the infectant species and allow the beginning of the treatment. The test is based on the principle of immunoblotting chromatography, a rapid membrane-based assay (Stavri H. et al, J.Microbiol.Meth., 52, 285-296, 2003), capable of diagnosing NTM infections in serum, in less than 1 h, with no need of special equipment or skilled staff. The assay was performed on cassette devices, with a membrane disk on which the antigen could be fixed and utilizing a SpA-gold colloid conjugate which turn red when a positive result is reached. The secreted extracellular antigens have been isolated from the unheated culture filtrates of the clinically significant NTM (*M. avium*, *MAI*, *M. kansasii*, *M. xenopi*, *M. chelonae*, *M. scrofulaceum*, *M. marinum*, *M. fortuitum*, *M. abscessus*, *M. szulgai*).

The patients sera have been tested against these antigens, as well from *M. tuberculosis* H37Rv, since the possibility of co-infection with tuberculous bacilli. When, in a patient serum there were antibodies to a certain mycobacteria, a red dot development was observed.

A number of 385 tests, on patients sera have been performed (10, with suspicions of NTM infections, with or without *M. tuberculosis* co-infections, 5 with confirmed diagnosis of mycobacteriosis, 10 with tuberculosis, 10 with other respiratory diseases). The results indicate that the rapid assay on patients infected with NTM, combined with clinical and radiographic evidence, could evidentiate the infectant species and allow the start of an earlier the treatment, but it must be confirmed on a higher number of patients.

### P3212

#### Effect of clarithromycin alone and clarithromycin containing regimen for mycobacterium avium complex pulmonary disease

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**Purpose:** Mycobacterium avium complex (MAC) pulmonary disease is the most common nontuberculous mycobacterial infection in Japan. There are only few reports that show the clinical efficacy of the clarithromycin(CAM)-containing regimen for pulmonary disease without AIDS.

**Materials and Methods:** Thirty four among 93 patients in whom MAC pulmonary disease without AIDS was newly diagnosed at Mitoyo General Hospital were enrolled sequentially from January 1996 to December 2000. Seventeen MAC patients were treated by CAM alone and the other 17 patients were treated by CAM-containing regimens.

**Results:** The patients of the combined chemotherapy group were 7 males and 10 females with a mean age of 69.6 yr. Eleven patients were treated with a combination of CAM, EB, RFP and SM, which was a most frequently used regimen in this study. After the one year treatments, the acid-fast bacterial culture of the sputa from the 8 patients converted to negative. Five patients among these 8 bacteriologically effective patients showed radiological improvement evaluated by the chest CT scan.

On the other hand the patients of the CAM -alone group were 2 males and 15 females with a mean age of 71.2 yr. After one year treatment, the acid-fast bacterial culture of the sputa from 11 patients converted to negative. However, only 2 patients among these 11 bacteriologically effective patients showed radiological improvement.

**Conclusion:** Both the CAM-containing regimens and CAM alone were effective for the MAC lung disease of the immunocompetent patients. However, a duration of the effect was short and a radiological improvement was not fully satisfied.

### P3213

#### Long term treatment with azithromycin in chronic respiratory infections with pseudomonas aeruginosa

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**Purpose:** establishing the efficiency and duration of long term treatment with azithromycin in patients with bronchiectasis (without cystic fibrosis) and chronic respiratory infections with *Pseudomonas aeruginosa* (PA) admitted between oct. 2004 - jan. 2006 on the pulmonary diseases ward.

**Material and method:** prospective clinical, spirometric and bacteriological study

MONDAY, SEPTEMBER 4TH 2006

of 11 patients treated 6 months with azithromycin, and another 3 months after the interruption of azithromycin.

**Results:** 11 patients were evaluated at 3, 6 and 9 months: 6/11 had polyglutulinable strains; the number of CFU of PA in sputum has been reduced from  $1.724,09 \times 10^7$  CFU/ml to  $20,32 \times 10^7$  (median values,  $p < 0,05$ ). The antibiogram on alginate registered chemiosensitivity instead of resistance in 9/11 patients, and in 4 patients chemiosensitivity was reinstated to some antipseudomonadic antibiotics. During the treatment the clinical, activity and impact scores of the St. George Clinical Questionnaire improved. There were no significant modifications on spirometry.

**Conclusions:** The prolonged treatment with azithromycin ameliorates the quality of life of the patients, and reduces the mucoids strains from sputum. The antibiogram on alginate is useful in the conduction of the treatment. Extending the study to more patients will clarify the utility of azithromycin in chronic respiratory infections with PA.

#### P3214

##### Usefulness of measurement of serum (1→3)β-D-glucan in the diagnosis of pneumocystis jirovecii pneumonia

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(1→3)β-D-glucan (BG) is a cell wall (or cyst wall) polysaccharide component specific for fungi including *Pneumocystis jirovecii*, except for zygomycetes. Several groups have reported that serum BG titer is elevated in patients with deep-seated mycosis and *Pneumocystis jirovecii* pneumonia (PCP). We evaluated the titer of serum BG in patients with PCP (Male:8, Female:2, AIDS:5, non-AIDS:5) and invasive pulmonary aspergillosis (IPA) (Male:6, Female:1). BG was measured by FungiTec G-Test (normal range: <20pg/ml) (Seikagaku Kogyo Corp., Tokyo, Japan). Serum BG titers ranged between 54.1 and 1590 (n=10, mean:531)pg/ml in PCP patients, whereas in IPA patients between 14.7 and 384 (n=7, mean:227)pg/ml. Chest HRCT taken in PCP patients (n=10) on admission demonstrated relatively uniform, diffuse ground glass opacification and consolidation in contrast with a variety of patterns in IPA patients (n=7). We performed bronchoalveolar lavage (BAL) in 9 PCP patients and obtained positive PCR for *Pneumocystis jirovecii* in all the BAL specimens. However, we were able to detect *Pneumocystis jirovecii* cysts in only three BAL specimens. We concluded that markedly elevated serum BG titer combined with diffuse ground glass opacities on chest HRCT can be diagnostic for PCP without direct detection of *Pneumocystis jirovecii* cysts by invasive approach with BAL.

#### P3215

##### Apparent absence of *Pneumocystis jirovecii* in healthy subjects

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We prospectively investigated 30 healthy subjects with normal blood CD4<sup>+</sup> T cell counts, normal spirometry and chest radiographs, for the presence of *P.jirovecii*, by performing PCR on sputum specimens. A group of 50 patients with chronic obstructive pulmonary diseases (COPD) was contemporaneously investigated in the same manner, and used as a control for the diagnosis of pulmonary colonization with *P.jirovecii*. None of the healthy subjects tested positive, whereas the fungus was detected in 8 COPD patients.

The results suggest that, in our region, Amiens, France, *P.jirovecii* is apparently uncommon in healthy subjects and this population therefore plays a minor role in circulation of the fungus within human communities.

#### P3216

##### Serum indicators for the diagnosis of pneumocystis pneumonia

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**Background:** The diagnosis of pneumocystis pneumonia (PcP) is difficult, because it usually requires microscopical examination to identify pneumocystis in induced sputum or bronchoalveolar lavage (BAL) fluid. We aimed to evaluate the usefulness of serum markers, including LDH, β-D-glucan, KL-6, and CRP, in the diagnosis of PcP.

**Methods:** We reviewed medical records of 295 consecutive patients who underwent BAL for the diagnosis of PcP. In BAL fluid, total cell count and differentials were evaluated. In sera, the levels of LDH, β-D-glucan, KL-6, and CRP were examined. Oxygenation index was determined by arterial oxygen tension and inspiratory oxygen concentration.

**Results:** Based on the microscopical examination of BAL fluid, 57 patients were diagnosed as PcP, whereas 238 were negative. There was no significant difference in cell counts and differentials in BAL fluid between PcP patients and those without PcP, but CD4<sup>+</sup>/CD8<sup>+</sup> ratio was significantly lower in the PcP patients ( $p < 0.05$ ). Serum levels of LDH, β-D-glucan, and KL-6 were significantly higher in PcP patients than in those PcP-negative ( $p < 0.01$ ). CRP did not differ between the groups. ROC curves for these markers revealed that the area under the curve value for β-D-glucan was highest, suggesting β-D-glucan is most reliable among those evaluated. In PcP patients, oxygenation index was decreased compared with those PcP-negative and correlated with serum LDH level. Both LDH and β-D-glucan levels were correlated with the proportion of neutrophil in BAL fluid.

**Conclusion:** Serum β-D-glucan is reliable marker for the diagnosis of PcP. It was also suggested that LDH, which may not be as dependable as β-D-glucan in the diagnosis of PcP, is a good indicator for the disease severity.

#### P3217

##### Morphology of bronchial wall, lungs, myocardium and blood vessels for HIV-infection

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**Aim:** to investigate relationship between morphological changes of bronchial wall, lung and myocardium and blood vessels for HIV-Infection.

**Material and methods:** We examined bronchial wall, lung parenchyma and myocardium during HIV-Infection. We investigated the bronchial wall, lung parenchyma, myocardium and blood vessels during at stages of HIV-Infection/ Light microscopy of semi-thin sections as well as transmission electron microscopies were performed.

**Results:** We found that at different stages for HIV-Infection the changes were seen in bronchial epithelium and lung parenchyma. The most prominent changes can be seen in ciliary epithelial cells. The irregulation of cilli, decrease of cilia amount, enlargement of intercellular space, organelles desorganization were observed. The myocardiocytes were changed too. The distension of perinuclear space were the feature of myocardiocytes and endotheliocytes of blood capillaries. In all studied cells were observed the viral particles and membrane-granular structures (MGS). MGS in ciliary epithelial, pulmonary cells, myocardiocytes and endotheliocytes were found from all secondary lung disorders.

**Conclusion:** Based on these data, we connected common changes of bronchi, lungs, myocardium, endotheliocytes of blood capillaries for HIV-Infection, that was designed to test the hypothesis relationship between infection cells of different organs and cells: respiratory and heart-vessels systems.

#### P3218

##### Computer tomography findings in immunosuppressed non-HIV related patients with respiratory infection

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**Purpose:** Evaluation of computer tomography findings in immunosuppressed patients with infection of the lower respiratory system.

**Materials and Methods:** A two-year study (2003-2005) referring to 42 cases, i.e. 25 males and 17 females, with an age range around  $65 \pm 2$  years. The study included patients who undergo haemodialysis, leukemic patients, lung cancer patients, patients undergoing chemotherapy or patients receiving corticosteroids on a daily basis (prednisolone >10mg/24hr).

**Results:** see Table 1.

**Conclusion:** The most common imaging finding in non-HIV related immunosuppressed patients with infection of the respiratory system is cavity lesions.

Abstract P3218 – Table 1. Computer tomography findings

CT-scan findings	Causes
Focal cavity lesion; 83.33%	Pseudomonas aeruginosa, Klebsiella, E. coli, Proteas, Staphylococcus; 35 patients
Enlargement of hilum and mediastinum lymph nodes 7.14%	Tuberculosis in patients undergoing haemodialysis; 3 patients
Cavitative nodular opacities; 47.6%	Candida albicans in kidney transplant patients; 2 patients
Diffuse interstitial and alveolar opacities Extending from the perihilar region, 2,38%	Pneumocystis carini in leukemic patients; 1 patient
Interstitial pneumonitis, 2,38%	Aspergillus fumigatus in leukemic patients; 1 patient

MONDAY, SEPTEMBER 4TH 2006

**P3219****Pulmonary infection with *nocardia* species in chronic respiratory patients: a report of 12 cases**

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Pulmonary Nocardiosis (PN) typically occurs in patients who present a cell-mediated immunodeficiency (ID). Aim: to evaluate the clinical characteristics and comorbidities of the patients assessed in our department due to PN. Twelve patients were diagnosed of PN from Jan 2000 to Jan 2006. Five patients were referred to us from others specialties and/or suffered from some ID.

Table 1: Demographic and clinical characteristics

Age/Sex	Department	Concurrent illness	Steroids/immunosuppressant
58M	Nephrology	Alport-kidney transplantation	Prednisone, tacrolimus, mycophenolate
9M	Paediatrics	URTI	-
72M	Pneumology	COPD, BE	-
28F	Pneumology	Cystic fibrosis	Prednisone 15
73M	Pneumology	COPD, BE	-
75M	Pneumology	Pneumectomy due to bronchogenic carcinoma, COPD, BE	-
81M	Pneumology	COPD, BE	-
37F	Pneumology	hemodialysis, CVID, BE	-
49M	Internal Med.	HIV infection, COPD	-
80M	Pneumology	COPD	Prednisone 15
34M	Haematology	LAM, Marrow transplantation	Beclometasone 8, cyclosporin, azathioprine
41M	Pneumology	Emphysema bullous, BE	-

BE: bronchiectasis; CVID: Common Variable Immunodeficiency; URTI: upper respiratory tract infection

**Conclusions:** 1)The most commonly diseases associated were: COPD and bronchiectasis. 2)Although just one COPD patient was on corticosteroids, it was no neither a long-term therapy nor a high dose treatment as to consider it a risk factor of ID. 3)Microbiologist must be informed about patients without ID and the risk factors above described, to include routinely specific stains and cultures to investigate the presence of *Nocardia ssp* in samples in which no other microorganisms have been identified. However, further studies are necessary to examine the efficiency and effectiveness of a routine screening in this kind of patients.

**P3220****Ultrastructure of blood and lymphate vessels in bronchi and lungs for inflammatory and lung's opportunist diseases for HIV-infection**

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**Aim:** To assess the blood and lymphate vessels of respiratory organs (RO) for bacterial pneumonia (BP), bronchitis (BC) comparatively with the vessels for lung's opportunist diseases (OD).

**Material and methods:** We studied auto- and biopsies of RO of indicated nosologic forms. Semi-thin sections, transmitting (TEM) and scanning (SEM) electron microscopy were performed in both groups.

**Results:** Blood and lymphate microvessels were with thickened or thin-walled. These changes were characteristic for inflammatory diseases: BP and BS. TEM was showed, that clasmatosis and organelles destruction were found in endotheliocytes; basal membrane was thickened; thrombocytes were seen in lumen. SEM was showed, that surface of blood and lymphate capillaries were uneven and changes of cellular processes were found. The studied changes especially blood vessels were found for pneumocystic pneumonia (PP), cytomegalovirus-infection (CMVI) and visceral form of Kaposi's sarcoma (KS). Most injury of vessels by AIDS, which were peculiarity on dependence from OD. All studied endotheliocytes were consisted viral particles, specific for HIV-infection. Difference of these changes were depended from origin lung's diseases organelles destruction were found in endotheliocytes; basal membrane was thickened; thrombocytes were seen in lumen. Difference of these changes were depended from origin lung's diseases (PP, CMVI, KS).

**Conclusion:** These data prove that lung's inflammatory and opportunist diseases for HIV-infection were peculiarities of changes different vessels in dependence from their origin.

**P3221****PET's importance in chronic pulmonary aspergillosis**

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Chronic Pulmonary Aspergillosis (CPA) is a chronic fungal infection of the low respiratory tract, due to a mycetes of *Aspergillus* species, in patients with no immunitary impairment.

TC (Computerized Tomography) only permits the evaluation of the lesions which morphologically seem identical both in case of fibrotic (non sovrainfected) lesions and in active aspergillar infection.

From this point of view PET (Positron Emission Tomography) seems useful since it is able to detect metabolically active lesions.

PET has been executed in 13 patients clinically suspected of CPA. Specific antibody (Ab) and antigen (Ag) were positive as well as CT aspects. We have seen furthermore an increased metabolism in correspondence of the fibrosis like opacities.

In conclusion we can hypothesize the possibility of assuring localization, diagnosis, activity, follow up and correct therapy of CPA through the combination of CT, PET, *Aspergillus* Ag, *Aspergillus* Ab and clinical data, without the employment of lung biopsy or FNAB (Fine Needle Aspiration Biopsy) that are presently the only mean, unfortunately invasive, that permits the diagnosis.

**P3222****Pulmonary cryptococcosis in immunocompetent patients: HRCT and pathologic**

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**Background:** Pulmonary cryptococcosis is rare form of pneumonia among immunocompetent patients. They, usually with asymptomatic symptoms, tended to have a single or multiple nodules, which usually mimic pulmonary tuberculosis or cancer. The aim of this work was to analyze the findings of HRCT and pathologic findings of pulmonary cryptococcosis in immunocompetent patients to search for the imagine characteristics.

**Objective:** 12 patients of pulmonary cryptococcosis, who eligible for study enrollment.

**Methods:** Retrospective study.

**Results:** 9 males and 3 females. Their HIV antibody was negative. 4 patients were asymptomatic, and 8 patients presented with nonspecific symptoms such as cough (n=70), chest pain (n=4), fever (n=2), and dyspnea (n=1), disproportional with their CT findings. The main manifestations of HRCT were classified in two patterns: single nodule (n=4) and multiple mixed lesions (n=8); associated findings included air bronchogram (n=7), cavity (n=2), and CT halo sign (n=1). Pathology of lung specimens obtained by open biopsy or resection (n=5) and by CT-guided percutaneous biopsy (n=7) was reviewed by two dedicated pulmonary pathologist. Pathological reports of pulmonary cryptococcosis revealed nodules and consolidation with a mucoid or gelatinous appearance caused by the presence of a large number of heavily encapsulated organisms that may spread through alveolar spaces with minimal cellular reaction. Well-defined granulomas, with or without necrosis, are usually sparse.

**Conclusion:** Pulmonary cryptococcosis should be considered in the differential diagnosis of solitary or multiple pulmonary nodules, particularly in immunocompetent hosts.

**P3223****Respiratory infections in autologous stem cell transplantation**

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High dose chemotherapy (HDC) followed by autologous stem cells transplantation (SCT) is an effective treatment option for some malignancies resistant to conventional therapy or in advanced stage. However, posttransplant inadequate immunity makes the patients highly susceptible to infections.

In our study we evaluated respiratory infections developed in posttransplant period. 65 patients with Hodgkin's disease and 32 patients with breast cancer treated by HDC with autologous SCT were followed up for the period of 182 (16 - 474) posttransplant days.

Seven patients developed pneumonia in early (30 days) posttransplant period. Five of them quickly responded to empiric antibiotics, the causative organisms were not detected. Two other patients with proven causes of pneumonia (*Pseudomonas aeruginosa*, *Pneumocystis carinii*) developed respiratory failure. One of them with pneumonia caused by *Pseudomonas aeruginosa* died on day 16 after transplantation. In the late posttransplant period (after 30 days) the following respiratory infectious diseases were diagnosed: tuberculosis (2), invasive aspergillosis (2), pneumonias caused by *H. influenza* (1), *S. pneumoniae* (1), *Chlamidia pneumoniae* (1) and of unknown origin (n=3).

The results of our study provide the information regarding the high risk of res-

MONDAY, SEPTEMBER 4TH 2006

piratory infections development in patients with malignancies treated with SCT suggesting a consideration of special monitoring and preventive measures.

**P3224****Pulmonary aspergilloma (about 13 cases)**

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**Introduction:** Pulmonary aspergilloma usually results from the ingrowth of colonized *Aspergillus* from a damaged bronchial tree, a pulmonary cyst, or from the cavities of patients with underlying lung diseases.

In the present study, we analyzed the clinical features, diagnostic methods, and managements of 13 patients with pulmonary aspergilloma.

**Methods:** Thirteen patients were diagnosed as having pulmonary aspergilloma at La Rabta University Hospital between 1991 and 2005. Their medical records were reviewed retrospectively.

**Results:** The age of patients (median  $\pm$  SD) was  $53.3 \pm 11.8$  years, the male to female ratio was 11:2, and the most frequent symptom was hemoptysis, which occurred in patients (61%). The most common underlying disease was pulmonary tuberculosis (85%), and the upper lobes of both lungs were the most frequently involved sites. Nine patients received a chest CT in the prone position and seven of these showed a movable fungus ball. All patients were positive for the precipitin antibody to aspergillus. One patient underwent surgical resection and three received antifungal drugs. The remaining patients were out of operation indication. A good outcome was observed in two cases and a worsening of clinical state in 4 cases.

**Conclusion:** Pulmonary aspergilloma usually develops in the patients with underlying lung diseases. The diagnosis is usually based on radiological findings such as thickened cavitary wall and fungus ball, and on positive serum antibody. The efficacy of antifungal treatment is controversial. Resectional lung surgery is considered the mainstay of therapy for pulmonary aspergilloma. However, this operation is associated with significant complications.