EP072

ePoster Session

Fungal epidemiology today

Prediction of survival in patients with invasive pulmonary aspergillosis using volumetric analysis of computed tomography scans, galactomannan and absolute neutrophil count

J.J. Vehreschild[1,2], C. Heussel[3], M. Brecht[3], M.J.G.T. Vehreschild[4], P. Köhler[4], O.A. Cornely[5]

[1]*University Hospital of Cologne- Department I for Internal Medicine, Cologne, Germany*

[2]*German Centre for Infection Research, Cologne, Germany*

[3]*Diagnostic and Interventional Radiology with Nuclear Medicine- Chest Clinic at University Hospital Heidelberg, Heidelberg, Germany*

[4]*Department I for Internal Medicine- University Hospital of Cologne, Cologne, Germany*

[5]*Department I of Internal Medicine- University Hospital of Cologne- Clinical Trials Center Cologne, ZKS Koeln BMBF 01KN1106, University of Cologne, Cologne, Germany*

Center for Integrated Oncology CIO KölnBonn, Cologne, Germany

[CECAD]*Cologne Excellence Cluster on Cellular Stress Responses in Aging-Associated Diseases , University of Cologne, Cologne, Germany*

Background: Invasive pulmonary aspergillosis (IPA) is a common and severe complication in immunocompromised patients. There are currently no universally recognized criteria for evaluating treatment success or predicting outcome.

Methods: We evaluated CT images from a clinical trial (NCT00158730) testing different doses of liposomal amphotericin B for treatment of IPA and compared results with available biomarkers. Lung-infiltrate volume was added up after manual measurement of each infiltrate using a window/level setting of 1600/-600 H.U. Relative trends were determined at each follow-up in the time series.

Results: At least two consecutive CT scans in acceptable quality were available for 67 patients with a total of 377 visits. At treatment start, 48 patients were neutropenic and 18 had a positive galactomannan. Surviving patients had a baseline galactomannan of 0.5 (95% CI: -0.25–0.75) compared to patients not surviving of 1.45 (95% CI: 0.48–2.42; P=0.06). Between day 0 and day 14, mean relative increase of absolute neutrophil count (ANC) was 9,338 (95% CI 2,598 – 16,077) /µl and 1,608 (0,769 – 2,448) /µl, respectively (P=0.026). At baseline, logistic regression indicated independent associations of low galactomannan and/or high lesion count with survival, while at day 14, only ANC increase was associated with survival.

Conclusion: In this study, changes in volume and count of pulmonary lesions were not predictive of outcome. A low galactomannan and high lesion count at baseline were predictors of survival. At day 14, ANC recovery was the only significant predictor of outcome.