European Respiratory Society
Annual Congress 2012

Abstract Number: 3119

Publication Number: P3344

Abstract Group: 7.7. Paediatric Bronchology

Keyword 1: Monocyte / Macrophage **Keyword 2:** Bronchoalveolar lavage **Keyword 3:** Orphan disease

Title: Pulmonary alveolar proteinosis due to a novel mutation in CSF2RA

Dr. C. 21174 Happle Happle.Christine@mh-hannover.de MD [1], Dr. M. 21175 Wetzke Wetzke.Martin@mh-hannover.de MD [1], Dr. A.M. 21176 Dittrich Dittrich.Anna-Maria@mh-hannover.de MD [1], Prof. G. 21177 Hansen Hansen.Gesine@mh-hannover.de MD [1] and Dr. N. 21178 Schwerk Schwerk.Nicolaus@mh-hannover.de MD [1]. [1] Department of Paediatric Pneumology, Allergology and Neonatology, Hannover Medical School, Hannover, Germany .

Body: Pulmonary alveolar proteinosis (PAP) is a rare disease characterized by pulmonary accumulation of surfactant protein. Congenital forms can result from mutations in granulocyte macrophage-colony stimulating factor (GM-CSF) receptor genes, leading to a terminal differentiation block of alveolar macrophages. We present the case of a 3yr-old girl born to consanguineous parents presenting with progressive dyspnoea, cough and failure to thrive. Her arterial oxygen saturation was 80% while breathing ambient air and dropped to 50% during agitation. Chest radiographs showed bilateral opacities, and high-resolution computed tomography (CT) revealed interlobular densification with typical “crazy paving” pattern. Due to a milky, opaque appearance of bronchioalveolar lavage fluid (BALF) and a strongly PAS-positive staining in histology, the diagnosis of PAP was suspected. After whole lung lavage (WLL), significant clinical improvement occurred. Oxygen saturation increased to >90% and follow-up chest radiographs showed partial clearance. Currently, the patient is undergoing WLL every 4-6 weeks. After 10 months of treatment, she has gained 9 kg of weight, visits kindergarten, and has a good quality of life. The patient's serum- and BALF- GM-CSF concentrations were significantly elevated. Functional analyses of neutrophils and monocytes showed significantly reduced GM-CSF responsiveness. Sequencing revealed a novel mutation in exon seven of the GM-CSF receptor alpha chain gene (CSF2RA). Regarding long-term perspectives, hematopoietic stem cell transplantation (HSCT) has to be considered. However, only one case HSCT in paediatric PAP has been described, with fatal outcome due to a transplantation-associated infection.