

European Respiratory Society Annual Congress 2012

Abstract Number: 1515
Publication Number: P1959

Abstract Group: 5.3. Allergy and Immunology

Keyword 1: Asthma - management **Keyword 2:** No keyword **Keyword 3:** No keyword

Title: Phenotypes of adult-onset asthma by cluster analysis

Ms. Marijke 11477 Amelink m.amelink@amc.uva.nl MD ¹, Ms. Selma B. 11480 de Nijs S.B.denijs@amc.uva.nl ¹, Ms. Jantina C. 11482 de Groot christa.de.groot@ZNB.nl MD ², Dr. Peter M.B. 11486 van Tilburg PvanTilburg@tergooziekenhuizen.nl MD ³, Dr. Paul 11491 van Spiegel paul.vanspiegel@slz.nl MD ⁴, Dr. Frans H. 11500 Krouwels FKrouwels@spaarneziekenhuis.nl MD ⁵, Dr. Rene 11506 Lutter r.lutter@amc.uva.nl MD ⁶, Prof. Dr A.H. 11530 Zwinderman a.h.zwinderman@amc.uva.nl MD ⁷, Dr. Els J.M. 11536 Weersink E.J.Weersink@amc.uva.nl MD ¹, Dr. Anneke 11546 ten Brinke A.ten.Brinke@ZNB.NL MD ², Prof. Dr Peter J. 11550 Sterk p.j.sterk@amc.nl MD ¹ and Prof. Dr Elisabeth H. 11552 Bel E.H.bel@amc.uva.nl MD ¹. ¹ Respiratory Medicine, Academic Medical Centre, Amsterdam, Netherlands ; ² Respiratory Medicine, Medical Centre Leeuwarden, Leeuwarden, Netherlands ; ³ Respiratory Medicine, Tergooi Hospital, Blaricum, Netherlands ; ⁴ Respiratory Medicine, Slotervaart Hospital, Amsterdam, Netherlands ; ⁵ Respiratory Medicine, Spaarne Hospital, Hoofddorp, Netherlands ; ⁶ Respiratory Medicine and Experimental Immunology, Academic Medical Centre, Amsterdam, Netherlands and ⁷ Clinical Epidemiology, Bioinformatics & Biostatistics, Academic Medical Centre, Amsterdam, Netherlands .

Body: Rationale: Asthma phenotyping is of increasing importance to identify patients who could benefit from personalised therapeutic strategies. Several studies suggested that adult-onset asthma is a specific phenotype. In order to explore underlying mechanisms of adult-onset asthma, we aimed to identify subphenotypes by using unsupervised clustering. methods Methods: 200 patients with adult-onset (>18yr) asthma (60.5%female; age54(26-75)yr, 45%atopic) were characterized with respect to clinical, functional and inflammatory markers. Initial variable reduction was achieved by elimination of redundant data and factor analysis. K-means non-hierarchical cluster analysis was performed to identify clusters Results: We identified three clusters of adult-onset asthma. Cluster 1 (n=41) consisted of predominantly females, with higher BMI and more often of non-Caucasian descent. They showed higher symptom scores, higher health care utilization and frequent exacerbations. However, they had lower sputum eosinophils and normal exhaled nitric oxide (FeNO) levels. Cluster 2 (n=69) consisted of predominantly females with severe asthma. They showed high symptom scores and frequent exacerbations, with reduced lung function, elevated sputum eosinophils and relatively high FeNO levels. Cluster 3 (n=90) consisted of predominantly males with mild-moderate asthma, normal lung function, minimal symptoms and health care utilization. Conclusions: Non-hierarchical cluster analysis identifies three subphenotypes of adult-onset asthma that can be distinguished by gender, symptom severity, BMI, lung function and airway inflammation. Identifying these subphenotypes can help to investigate the associated pathobiology and provides new directions to

personalized management.