

# Clinical characteristics of exacerbation-prone adult asthmatics identified by cluster analysis / Mi-Ae Kim, Seung Woo Shin, Jong Sook Park, Sootaek uh, Hun Soo Chang, Da Jeong Bae, YouSook cho, Hae Sim Park, Ho Joo Yoon, Byoung Whui Choi, Young Hoon Kim, Choon Sik Park

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20471964&lokasi=lokal>

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## Abstrak

### <b>ABSTRACT</b><br>

**PURPOSE:** Asthma is a heterogeneous disease characterized by various types of airway inflammation and obstruction. Therefore, it is classified into several subphenotypes, such as early onset atopic, obese non eosinophilic, benign, and eosinophilic asthma, using cluster analysis. A number of asthmatics frequently experience exacerbation over a longterm follow up period, but the exacerbation prone subphenotype has rarely been evaluated by cluster analysis. This prompted us to identify clusters reflecting asthma exacerbation. **METHODS:** A uniform cluster analysis method was applied to 259 adult asthmatics who were regularly followed up for over 1 year using 12 variables, selected on the basis of their contribution to asthma phenotypes. After clustering, clinical profiles and exacerbation rates during follow up were compared among the clusters. **RESULTS:** Four sub phenotypes were identified: cluster 1 was comprised of patients with early onset atopic asthma with preserved lung function, cluster 2 late onset non atopic asthma with impaired lung function, cluster 3 early onset atopic asthma with severely impaired lung function, and cluster 4 late onset non atopic asthma with well preserved lung function. The patients in clusters 2 and 3 were identified as exacerbation prone asthmatics, showing a higher risk of asthma exacerbation. **CONCLUSIONS:** Two different phenotypes of exacerbation prone asthma were identified among Korean asthmatics using cluster analysis; both were characterized by impaired lung function, but the age at asthma onset and atopic status were different between the two.