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**Title:** Clinical characteristics, pulmonary function, and response to  $\beta$ 2-agonist: Patients with asthma vs. patients with asthma/COPD overlap syndrome

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**Body:** Introduction. Asthma/COPD overlap syndrome is a clinical condition that includes characteristics of both diseases. Objective. To compare clinical characteristics, pulmonary function, and response to β2-agonist between patients with asthma and patients with asthma/COPD overlap syndrome. Methods. The study included 97 patients, 52 patients with asthma and 45 patients with asthma/COPD overlap syndrome. Asthma was diagnosed according to the GINA 2011 criteria, whereas the overlap syndrome was diagnosed according to the criteria of Soler-Cataluna et al. (2012). Results. We found significantly lower prevalence of current smokers and subjects with history of exposure to noxious particles and gases other than tobacco in the asthma group then in the overlap syndrome group (13.7% vs. 37.8% and 9.8% vs. 31.1%, respectively). There was no significant difference between two groups regarding sex, age, body mass index, and history of upper airway disease. The mean peripheral eosinophil count (cells/mm3) was higher in the asthma group but statistically significant difference was not reached (473 vs. 421, P = 0.072). The mean values of all spirometric parameters were higher in the asthma group with significantly higher mean value of MEF25-75 (78.9% vs. 56.7%, P < 0.05). The response to β2-agonist expressed as a percentage of the change in the post-bronchodilator FEV1 was significantly higher in the asthma group (23.7% vs. 14.2%, P < 0.05). Conclusion. Our findings indicate some phenotype features of the overlap syndrome of asthma and COPD.