Title: Usefulness of induced sputum eosinophil count to assess severity and treatment outcome in asthma patients

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Body: Introduction: Sputum eosinophil, being a marker of airway inflammation, can serve as a tool for assessing severity and response to treatment in asthma patients. Aims and objectives: To establish correlation between change in sputum eosinophil count and forced expiratory volume in one second (FEV1) % predicted value of asthma patients in response to treatment. Methods: A longitudinal study was conducted to determine the treatment outcome among newly diagnosed asthma patients who were classified into A (n = 80) and B (n = 80) groups on the basis of initial sputum eosinophil count (A ≥ 3% and B < 3%). After starting treatment according to Global Initiative for Asthma (GINA) Guideline, both A and B groups were evaluated every 15 days interval for the 1st month and monthly thereafter for a total duration of 12 months. In each follow-up visit detailed history, induced sputum eosinophil count and spirometry were done to evaluate severity and treatment outcome.

RESULTS: There was statistically significant negative correlation between FEV1 % predicted and sputum eosinophil count (%) in of group A patients in each follow-up visit, with most significant negative correlation found in 8th visit (r = -0.9237 and P value = <0.001). Change in mean FEV1% (predicted) from baseline showed strong positive correlation (r = 0.976) with change in reduction of mean sputum eosinophil count at each follow-up visits in group A patients.

CONCLUSIONS: Sputum eosinophil count, being an excellent biomarker of airway inflammation, can serve as a useful marker to assess disease severity, treatment outcome, and prognosis in asthma patients.