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Sputum but not blood periostin levels correlate with sputum eosinophil counts in asthma

Marie-Chantal Larose, Anne-Sophie Archambault, Véronique Provost, Jamila Chakir, Michel Laviolette and Nicolas Flamand
Université Laval, Canada

Objective: Periostin is increasingly recognized as a biomarker, notably in atopic dermatitis. Recent studies underscored that serum periostin was one of the best biomarkers of severe asthmatics with persistent airway eosinophils and symptomatically uncontrolled despite high doses of corticosteroids. However, given that the role of periostin to identify eosinophilic asthma is still debated, we evaluated whether blood and sputum periostin levels link to sputum eosinophil counts and asthma severity.

Methods & Measurements: Blood and induced sputum samples were obtained from healthy and asthmatic (mild, moderate, severe non-eosinophilic, severe eosinophilic) subjects, and blood samples from atopic dermatitis subjects. Human bronchial epithelial cells (BECs) obtained from healthy subjects and mild or severe eosinophilic asthmatics were treated with IL-13. Periostin and CCL26 levels were quantitated by ELISA.

Main Results: In sputum, eosinophil counts, CCL26 and periostin levels significantly correlated. Plasma periostin levels were similar in healthy and asthmatic subjects. In asthmatics, they correlated with sputum eosinophil counts in severe eosinophilic asthma, but weakly in the whole group. Of note, BECs of severe eosinophilic asthmatics released greater amounts of periostin than those of mild asthmatics and healthy subjects. Blood eosinophil counts did not correlate with plasma periostin levels and showed a slightly better correlation with sputum eosinophil counts.

Conclusions: Except for severe eosinophilic asthma, plasma periostin levels weakly correlated with sputum eosinophil counts and could not predict the degree of bronchial eosinophilic inflammation. Both sputum periostin and CCL26 levels showed better correlation with sputum eosinophil counts.

Biography

Marie-Chantal Larose has completed her Master's from Laval University. She is completing her Doctoral studies at the Laval University, under the supervision of Dr. Michel Laviolette and Dr. Nicolas Flamand.

marie-chantal.larose@criucpq.ulaval.ca