Summary

Justification: Asthma is a chronic inflammatory disease associated with abnormal airways remodeling. Remodeling in asthma has been studied in detail; it includes changes in airway epithelium, lamina propria and submucosa, in which the walls become thickened. Strong involvement of PAI-1 in the pathogenesis of asthma was indicated as recent studies suggest that PAI-1 may promote the development of asthma by regulating eosinophilic airway inflammation.

Objective: to detect the changes of the level of plasminogen activator inhibitor-1 in bronchial asthma.

Design: cross sectional study.

Participants: 50 asthmatic children and 40 normal children of comparable age, sex and socioeconomic status were taken as a control group. For analysis purposes, children with bronchial asthma were classified into 2 groups, Group I: included 25 asthmatic children inbetween attacks and Group II included 25 asthmatic children with acute exacerbation of asthma.

Interventions: All the studied children were subjected to: complete clinical evaluation. Radiological work-up included plain chest X-ray examination (postero-anterior view). Laboratory work-up included plasma level of plasminogen activator inhibitor-1. Complete blood count (CBC) and Urine and stool analysis**.**

Main outcome measure: the level of plasminogen activator inhibitor-1 in cases of bronchial asthma.

Results: there was a highly significant difference in plasma level of plasminogen activatior inhibitor-1 between patients and controls (mean level in patients = 9264.0 ± 3410.5 and in controls =2860.0 ± 4628.4 Pg\ ml, P<0.01). Plasma level of plasminogen activatior inhibitor-1 was significantly higher in asthma exacerbations than inbetween attacks. Mean level during exacerbations was 11800.0±2449.5 Pg\ml while in inbetween attacks was 6728.0 ± 2085 Pg\ml, P<0.01. There was a highly significant positive correlation between plasma levels of plasminogen activatior inhibitor-1 and grading of asthma(r=0.94, P<0.001). Also, there was a significan positive correlation between plasma levels of plasminogen activatior inhibitor-1 and with the duration of the disease (r=0.34, P<0.05).

Conclusion

This work puts highlights on the relation between plasminogen activator inhibitor-1 and bronchial asthma which showed increase in PAI-1 plasma levels. Our study concludes that illuminating the biological role of PAI-1 in bronchial asthma may lead to the development of new therapeutic modalities to control asthma.