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**Title:** Role of phospholipase-A2 in pediatric patients with tonsillar hyperplasia and chronic tonsilitis

**Authors:** R. Ezzeddini* 1, 2, 8 MSc- M. Darabi 1 PhD- B. Gasemi 2 MD- Y. Jabbari 2 MD- S. Abdollahi 2 MD- A. Gareh daghi 3 MD- N. Rashtchi zadeh1 PhD- A. Samadi 2 BSc- S. Madadi 2 BSc- H. Sadeghi 2 BSc- R. Safar zadeh 2 BSc- H. Ezzeddini 6 BSc- M. Ansarin 5 PhC- A. Saleki 7 MSc- H. Sadeghi 2 MSC - J. Karam ravan 4 MA- M. Amir khizi 5 Msc- M. Shaker 1 BSc

**Abstract:** Background and aims: The plasma of patients with various inflammatory diseases, contains high concentrations of the isoform PLA2-IIA, and clinical studies reveal a correlation between circulating levels of the phospholipase and growth regulation, differentiation and inflammation, and specific isoforms of phospholipase A2 (PLA2) appear to be critical mediators in amyloid-beta (Abeta)-induced pathogenesis, leading to learning, memory, and behavioral impairments in mouse models of (AD) Alzheimer's disease.

IIA sPLA2 is involved in the specific synthesis of lysophosphatidic acid, unesterified fatty acids, and prostaglandins, and most of its biological activities have been attributed to its capacity to generate biologically active lipids, which may sustain inflammation.

The concentration of group IIA phospholipase A2 increases markedly in blood plasma of patients with severe acute diseases such as sepsis, peritonitis and bacterial infections and it has been known as an evaluating marker for infection and inflammation.

Anti-bacterial role of sPLA2, due to degradation of phospholipids in the lipid membrane of gram-positive infectious agents, is also possible.

Group IIA sPLA2 demonstrates a predilection for negatively charged membranes such as those present in bacterial cell walls and has been implicated in host defense against Gram-positive bacteria.

Chronic tonsillitis is inflammation of the tonsillar tissue, which may be viral or bacterial in origin.

Hyperplasia itself is not a disease, but only a result of increased immunologic activity, and it does not necessary be due to inflammation or tonsillitis. We have investigated the activity of serum PLA2 in chronic tonsillitis and tonsillar hyperplasia.

**Materials & Methods:** Serum was obtained from 186 children who underwent tonsillectomy and specific activity of serum PLA2-IIA was determined. We measured the concentration of PLA2-IIA in serum by the standard assay with Diheptanoyl Thio-Phosphatidylcholin as substrate. All removed tonsils were subjected to histological evaluation and were examined by the heamatoxylin-eosin histological technique, 60 had chronic tonsillitis and 126 tonsillar hyperplasia.

**Results:** In chronic tonsillitis, the specific PLA2-IIA activity of serum was significantly higher than in tonsillar hyperplasia (P<0.001). Age and BMI were similar between these two groups and were not changed by gender. When males and females were investigated separately, the same correlation was obtained in males (P=0.006) but not females (P=0.06).

**Discussion:** The results show that Serum phospholipase A2-IIA mass and activity appear to be predictive in pediatric population with chronic tonsillitis. An increased serum PLA2 activity was obtained in patients with chronic tonsillitis compared to those with tonsillar hyperplasia.

**Keywords:** phospholipase-A2, tonsillitis, hyperplasia, tonsillectomy, inflammation, infection, children

**Presentation:** Poster