SHORTER TELOMERES IN SEVERE ASTHMATIC CHILDREN

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Introduction: Telomeres, the terminal structures of linear chromosomes, are responsive to environmental changes and appear to play an essential role in the setting of pathophysiological and social responses. In this regard, telomere length is been proposed as a new biomarker of cellular senescence and aging, associated to several chronic diseases. Asthma is increasingly recognized as an aging disease. Preliminary data suggests an association between chronic obstructive pulmonary disease (COPD) or persistent asthma and shorter telomeres in adults. However, to our knowledge, no data has been published concerning telomere shortening among children with asthma. In this regard, the aim of this work is to evaluate telomere shortening in leukocytes from children with mild or severe asthma.

Materials and Methods: Two hundred thirteen children aged from 8 to 14 year-old were recruited. After informed written consent from their parents. Demographic data and clinical history was recorded. Genomic DNA (gDNA) from whole peripheral blood was purified. Relative mean telomere length (T/S) was determined by qPCR.

Discussion and Results: Children with severe asthma (n = 17/17, mean 0.79 CI 95% 0.601 – 0.981) had significantly shorter telomeres when compared to mild asthma (n = 123/123, mean 1.34 CI 95% 1.163 – 1.517) and controls (n = 67/73, mean 1.37 CI 95% 1.095 – 1.676); (Kruskal-Wallis test, P = 0.0426).

Conclusions: To our knowledge this is the first report in the literature that shows shorter telomeres in children with severe asthma. This result suggests that telomere length could be proposed as a new biomarker in asthma.

Key words: Telomere shortening, asthma, qPCR
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