

EXHALED BREATH TEMPERATURE IN ASTHMATIC AND HEALTHY CHILDREN: A CASE-CONTROL STUDY

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Introduction

Assessing asthmatic disease is not always easy in pediatric patients. Since asthma is associated with airway flogosis, and inflammation is characterized by vasodilation and heating, Exhaled Breath Temperature (EBT) may be an indirect marker of asthmatic condition.

Objective

The aim of this study was to compare the EBT of asthmatic children and adolescents versus healthy controls, and to evaluate correlations with spirometry and exhaled nitric oxide (ENO).

Methods

56 patients were enrolled (36 M 20 F, aged 7-16 ys), 44 asthmatics and 12 controls. Anamnestic data, physical examination, and tidal-breathing EBT values with "X-halo" (Delmedica Investments, Singapore, see **Figure 1**), along with body and air temperature were evaluated. In asthmatic children we performed pulmonary function tests and ENO, too.

Table 1

	Asthmatic patients	Healthy Patients	p
N° of subjects	44	12	
Median EBT	33.35	29.14	0.001
Average body temperature	36.55	36.37	> 0.05
Average air temperature	18.9	23.1	<0.01

Results

The mean age was not statistically different in the 2 groups. The median EBT was greater in asthmatics compared to controls (33.35° C vs 29.14° C, p=0.001). The average body temperature was similar in both groups (36.23° C vs 36.38 ° C, p> 0.05) but the average air temperature was different (18.9° C vs 23.1° C, p<0.01), see **Table 1**. In the asthmatic group we found no correlation between EBT and FEV1 (R =-0.15, p= 0.34) or EBT and ENO (R=-0.16, p=0.3).

Conclusions

Tidal-EBT measurements were easy to perform. We found a significant difference in median EBT between asthmatic and healthy children and adolescents. We couldn't find any correlation between EBT and FEV1 or ENO, possibly because these markers detect different types or phases of airway inflammation.

Bibliography

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Figure 1

