

## **ORGANIC CHANGES IN THE CENTRAL NERVOUS SYSTEM IN CHILDREN RECEIVING CHRONIC INHALED CORTICOSTEROID THERAPY.**

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### **Introduction**

Treatment of asthma, the most common chronic respiratory disease in children, includes long-term inhaled corticosteroids (ICS). To our knowledge, no studies have examined the impact of ICS administration on the central nervous system (CNS). The purpose of this study was to analyze the impact of chronic inhaled steroids in children with asthma to organic changes in CNS.

### **Materials and methods**

Eleven children (8-17 years) on at least four years inhaled corticosteroids therapy were assessed with magnetic resonance imaging (MRI). All participants underwent a pediatric and neurological examination with the evaluation of psychomotor development and spirometry was performed. MRI data were obtained using a 1.5 T scanner with parallel imaging capability. Structural images consisted of axial T1,T2 using turbo spin echo, FLAIR and DWI sequences using typical parameters. Images were assessed in the three planes (axial, coronal, sagittal).

### **Results**

The pediatric physical and neurological examination were normal for all participants. In six of the patients, the MRI studies revealed small subcortical hyperintense foci. Three of these patients had more than five lesions, all of which were smaller than 3mm. Features of mild supratentorial cortical atrophy were apparent in four of the children. The cerebellum was unremarkable in all children imaged.

### **Conclusions**

Patients receiving chronic inhaled corticosteroid therapy had small subcortical hyperintense foci and features of mild supratentorial cortical atrophy. These findings could suggest that ICS exposure may be associated with changes in CNS.