

## T Cell Immunity Profile in Pediatric Obesity and Asthma

**Authors :** Mustafa M. Donma, Erkut Karasu, Burcu Ozdilek, Burhan Turgut, Birol Topcu, Burcin Nalbantoglu, Orkide Donma

**Abstract :** The mechanisms underlying the association between obesity and asthma may be related to a decreased immunological tolerance induced by a defective function of regulatory T cells (Tregs). The aim of this study is to establish the potential link between these diseases and CD4+, CD25+ FoxP3+ Tregs as well as T helper cells (Ths) in children. This is a prospective case control study. Obese (n:40), asthmatic (n:40), asthmatic obese (n:40), and healthy children (n:40), who don't have any acute or chronic diseases, were included in this study. Obese children were evaluated according to WHO criteria. Asthmatic patients were chosen based on GINA criteria. Parents were asked to fill up the questionnaire. Informed consent forms were taken. Blood samples were marked with CD4+, CD25+ and FoxP3+ in order to determine Tregs and Ths by flow cytometric method. Statistical analyses were performed.  $p \leq 0.05$  was chosen as meaningful threshold. Tregs exhibiting anti-inflammatory nature were significantly lower in obese (0,16%;  $p \leq 0,001$ ), asthmatic (0,25%;  $p \leq 0,01$ ) and asthmatic obese (0,29%;  $p \leq 0,05$ ) groups than the control group (0,38%). Ths were counted higher in asthma group than the control ( $p \leq 0,01$ ) and obese ( $p \leq 0,001$ ) groups. T cell immunity plays important roles in obesity and asthma pathogenesis. Decreased numbers of Tregs found in obese, asthmatic and asthmatic obese children may help to elucidate some questions in pathophysiology of these diseases. For HOMA-IR levels, any significant difference was not noted between control and obese groups, but statistically higher values were found for obese asthmatics. The values obtained in all groups were found to be below the critical cut off points. This finding has made the statistically significant difference observed between Tregs of obese, asthmatic, obese asthmatic, and control groups much more valuable. These findings will be useful in diagnosis and treatment of these disorders and future studies are needed. The production and propagation of Tregs may be promising in alternative asthma and obesity treatments.

**Keywords :** asthma, flow cytometry, pediatric obesity, T cells

**Conference Title :** ICO 2015 : International Conference on Obesity

**Conference Location :** London, United Kingdom

**Conference Dates :** May 25-26, 2015