

Research article

Significance of inflammatory biomarkers in assessment of weight reduction in obese children with Down syndrome

Mohamed E. Elhadidy^{*1}, Ayman Kilany¹, Hend Rashad², Fateheya M. Metwally², Adel Hashish¹, Ahmed Mashaal¹, Ehab Abdelraouf^a

¹Department of Research on Children with Special Needs, National Research Centre, Giza, Egypt.

²Department of Environmental and Occupational Medicine, National Research Centre, Giza, Egypt.

Key words: Secondary obesity, diet intervention, physical therapy, Down syndrome, inflammatory biomarkers.

***Corresponding Author: Mohamed E. Elhadidy**, Department of Research on Children with Special Needs, National Research Centre, Giza, Egypt.
Email: elhadidymohamed064@gmail.com
Mobile: + 202 01099317137.

Vol. 6 (2), 06-09, Apr-Jun, 2019.

Abstract

Objectives: The present study is designed to evaluate the effect of diet alone or in combination with physical therapy in obese children with Down syndrome. **Material and Methods:** 60 obese children (30 males+30 females) with Down syndrome (DS) before diet and therapy was subjected to clinical examination. They were divided into three groups matched in age and sex, group I (control), included 20 of them. The other 40 were divided into 2 groups, group IIA and group IIB, each of them 20. Group IIA was subjected to diet intervention program only while group IIB was subjected to both diet and physical therapy programs. Blood samples were obtained from all groups before and after therapy. Plasma levels of leptin, IL-1 and IL-6 were determined. **Results:** The study found significant weight reduction in both groups favoring combined diet and physical activity. Diet lowered but not significantly the plasma levels of leptin hormone, IL-1 and IL-6. While the diet and physical therapy in combination reduced significantly the plasma levels of leptin, IL-1 and IL-6. **Conclusions:** The combination of physical activity with nutritional intervention is an effective method for weight reduction in obese children with DS. One of the most objective parameter for the benefit of weight reduction is the inflammatory biomarkers, leptin, IL-1, and IL-6 in the early school age (6-9 years).