TUMOR NECROSIS FACTOR ALPHA IN METABOLIC SYNDROME DEVELOPMENT IN CHILDREN

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Background:

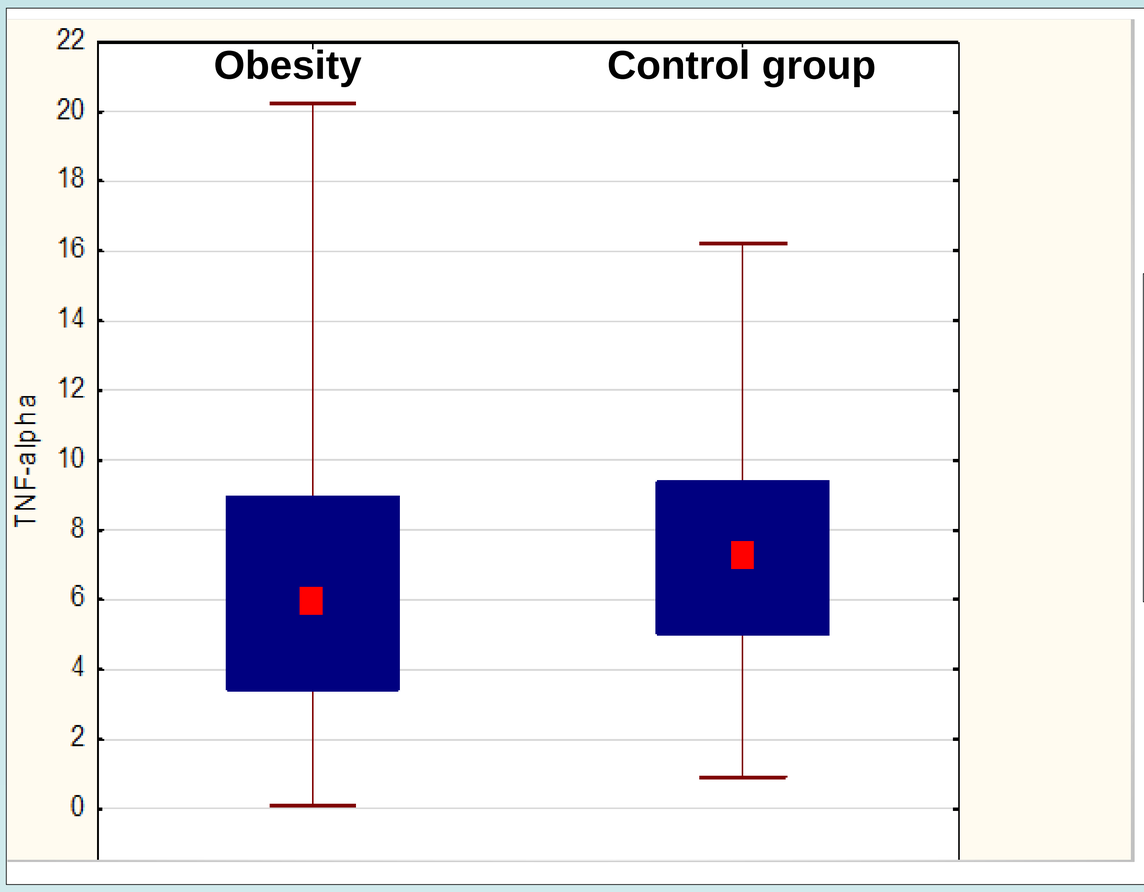
Tumor necrosis factor alpha (cachexin) is a cell signaling cytokine involved in systemic inflammation process. It is produced chiefly by activated macrophages, although it can be produced by many other cell types such as CD4+ lymphocytes, NK cells, neutrophils, mast cells, eosinophils, and neurons. The primary role of TNF alpha is the regulation of immune cells. TNF, being an endogenous pyrogen, is able to induce fever, apoptotic cell death, and inflammation, inhibit tumorigenesis and viral replication, and respond to sepsis via IL1 & IL6 producing cells. TNF alpha is connected with a body mass decrease and cachexia development.

The aim of the study. The correlation of TNF alpha levels with elements of metabolic syndrome in obese children.

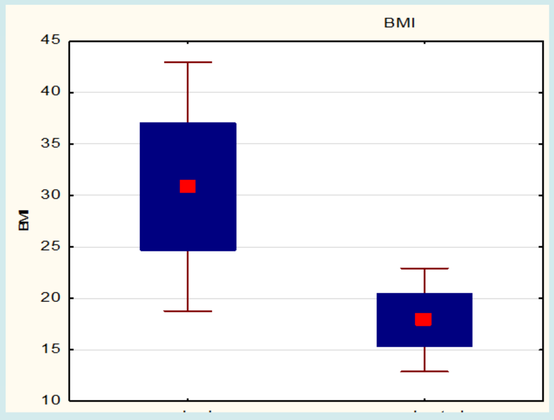
Patients and methods:

TNF alpha in serum was measured in 462 obese and 60 healthy children (ELISA). In all patients, BMI was calculated, blood pressure was measured, and lipidogram, insulin, and glucose level were estimated in peripheral blood samples (ELISA Abbott). HOMA-IR was calculated as a marker of insulin resistance. The results were statistically analyzed using Statistica 10.

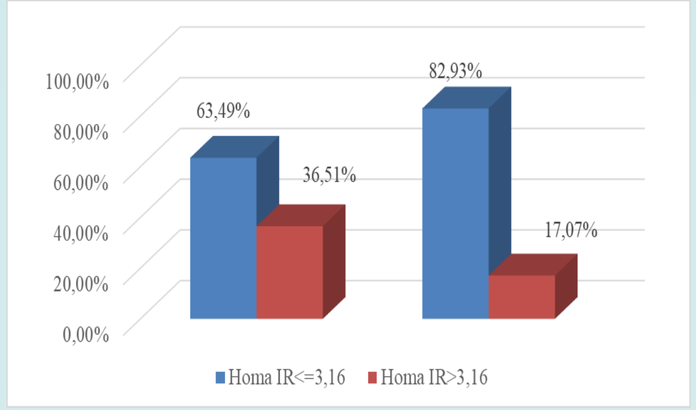
Results:



TNF-alpha levels were statistically significantly lower (5,41±1,09 pg/ml) in children with obesity in comparison to the control group (7,89±1,02 pg/ml) (p<0,02). A negative correlation with the BMI, HOMA-IR, LDL cholesterol, and triglyceride levels was observed. A low level of TNF alpha was observed in children with elevated systolic blood pressure over 95 percentile.



Obesity **Control**



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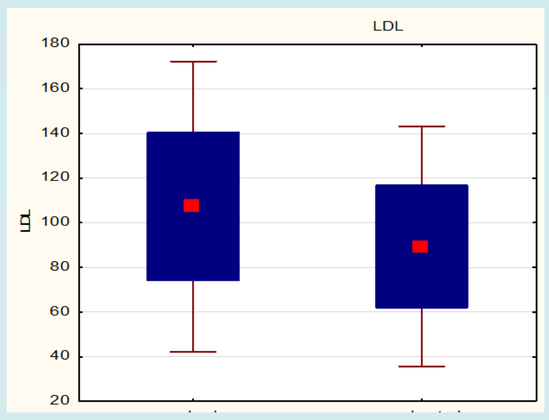
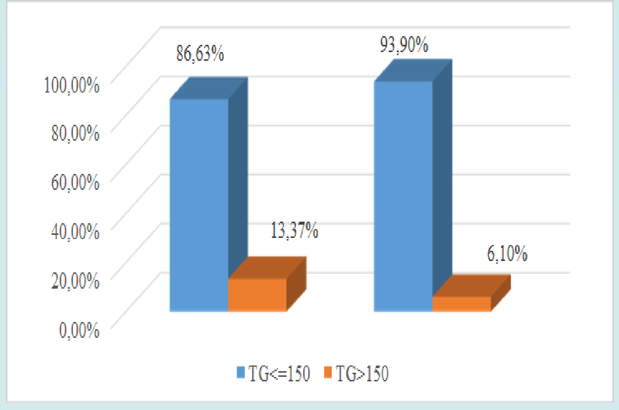


Obesity **Control**



Obesity **Control**

Conclusions:

The low TNF alpha level is connected with development of metabolic syndrome in children..

The authors declare no conflict of interest.