## 11. HYPOTHALAMIC ABNORMALITIES IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

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**Introduction**. The effect of inflammation causes delayed growth in children, ranging from mild to severe short stature. Factors responsible for growth retardation in chronically ill children include frequent infections, primary and secondary malnutrition, long-term stress related to being chronically ill or handicapped, and side effects of therapy.

**Aim of study.** Growth retardation in children with JIA is associated with high levels of the pro-inflammatory cytokines IL-1, IL-6 and TNF-α. To identify the endocrine comorbidities in idiopathic juvenile arthritis aims to prevent and limit the impact of the disease on the child's development. It is insufficient data to elucidate peripheral hormonal resistance in the process of delayed growth in children with juvenile idiopathic arthritis. The aim of our study is to analyze the impact of the autoimmune inflammatory processes on different levels: clinical, laboratory, hormonal disorders such as hypothalamic-pituitary-peripheral features in children with idiopathic juvenile arthritis.

**Methods and materials.** The study included the data of 90 patients younger than 16 y.o. with the diagnosis confirmed of JIA; we examine them at baseline and follow-up at 6, 12 and 18 months. Inclusion criteria represented admission on the nominal lists from the Rheumatology unit; confirmed JIA diagnosis according to ILAR criteria; age of the patient at the time of enrollment in the study <16 y.o.; voluntary participation; informed consent of parents. The study included observational methods to assess anthropometric data on baseline and in time. Simultaneously, on baseline were assessed hormonal profile on central and peripheral stage. For the first time antipituitary antibodies were assessed through an indirect immunofluorescence method. The study was approved positively by the Research Ethics Committee of the State University of Medicine and Pharmacy "*Nicolae Testemitanu*".

**Results**. Demographic analysis revealed a mean age of 9.95±0,49 y.o. [CI1.56; 15.95]; average age at disease onset – 4.31±0,46 y.o. [CI 0.51; 10.37]; disease duration in years was 5.73±0.43 [CI 0,04; 14,27]. In 14,58% cases were presented a growth delay. Girls were represented with a ratio of 1.36:1. They are younger at the onset of the disease. Also, girls are thinner and shorter than boy's presentation at baseline. Analyzes by age revealed that children younger than 3-years-old at the onset present the worst parameters for height and weight, as well. Laboratory analysis revealed normal hormonal release at the central level, but with some abnormalities on peripheral control. 17.39% had low insulin growth factor values for age and sex. 3.26% had low levels of growth factor 3-binding protein insulin. One third of patients with growth disorders had low values of STH, but only in 2 cases both STH and FRI-1 were reduced. 15.5% patients of pubertal age revealed abnormal values of serum gonadotropic sex hormones. Subclinical hypothyroidism was diagnosed in 9.27% of patients. Laboratory studies revealed prolactin abnormalities in 6.7% of cases. Serum prolactin abnormalities correlate with disease activity (JADAS score> 25 points in all cases with hyperprolactinemia) and early age of disease onset. No central autoimmune process was detected. All antipituitary antibody tests in stunted children were negative. Thus, the hypothesis of peripheral hormonal resistance could be due to chronic inflammation.

**Conclusion**. Analyzing growth in relation with age, set some risk factors which can impair the growth process in children. Those are: younger age at onset of the disease and longer duration of the inflammatory process itself. According to disease subtype, we observed that children diagnosed with systemic onset of JIA are the youngest one and, also, those more affected by growth impairment. Further studies to identify correlation with IL1, IL6 and TNFα are still needed.