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Thyroid Hormones Interpretation in Children with Juvenile Idiopathic Arthritis

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Abstract

It is well known that thyroid hormones are extremely important for the linear growth of the human body and skeletal maturation. There are substantial changes in thyroid-stimulating hormone (TSH) and thyroid hormone levels over childhood. Little is known about the association between juvenile idiopathic arthritis and thyroid dysfunction or autoimmune thyroid disease itself. Juvenile idiopathic arthritis (JIA) is a chronic inflammatory arthritis of unknown origin which can be considered an autoimmune disease. On the other side, autoimmune thyroid disease is the most common thyroidopathy in children and adolescents. Routine biochemical examination of thyroid function in rheumatic patients should be strengthened. In this paper we discuss the relationship between JIA and thyroid dysfunction. Through our study we revealed significant differences in the interpretation of thyroid hormones according to percentiles by age and sex compared to the results obtained by applying the standard references of the laboratory. Furthermore, we proved a highly significant, directly dependent correlation between the absolute and categorical values of the percentile for TSH ($r = 0.936$) and thyroid hormones, as well as for free thyroxine (fT4) ($r = 0.955$), and free triiodothyronine (fT3) ($r = 0.752$). Thus, we highlight the importance of age- and sex-specific reference intervals for TSH, fT3 and fT4 in pediatric population, especially in those with a chronic condition, like in JIA.

Keywords: juvenile idiopathic arthritis, thyroid dysfunction, thyroid-stimulating hormone, thyroid hormones, percentile method



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