

Amiodarone-associated thyroid function abnormalities in children with arrhythmias

Svintsova L.(1), Plotnikova I.(1), Kovalev I.A.(2), Suslova T.(1)

1. FSBI "Research Institute for Cardiology" SB RAMS, Tomsk, Russia

2. Research and Clinical Institute for Pediatrics at the Pirogov Russian National Research Medical University, Moscow, Russia

It is well-known that amiodarone being one of the most effective antiarrhythmic drugs causes different extracardiac effects, particularly, changes of thyroid function that are disclosed in 15-20 % of patients. The aim of the study was to assess the thyroid hormone levels during prolonged amiodarone therapy in 0–7-year-old children with arrhythmias.

Materials and Methods: A total of 42 patients with WPW syndrome (n=19), atrial tachycardias (n=16), and ventricular tachycardias (n=7) received amiodarone therapy. The duration of amiodarone administration varied from 0.7 to 24 months (Me 6.00; IQR 1.83-9.00). The thyroid hormone levels were estimated at the following time points: before treatment, during the amiodarone treatment at least 3 weeks after the beginning of therapy, and 6 months after amiodarone discontinuation.

Results: The levels of thyroid-stimulating hormone (TSH), total thyroxine, free thyroxine, thyroglobulin increased during amiodarone therapy. The increases in the total and free thyroxine levels were statistically significant ($p=0.043$ and $p=0.037$, correspondingly) whereas TSH and thyroglobulin increased insignificantly during amiodarone therapy. All these indices significantly decreased 6 months after discontinuation of amiodarone therapy ($p=0.006$ and $p=0.036$ correspondingly).

Comparison of the initial values with the tests results 6 months after amiodarone discontinuation did not show any statistically significant differences. No clinical sings of hypertyrosinemia were observed in our patients during amiodarone treatment. The most significant changes in the levels of thyroid hormones were found in infants. During the entire course of amiodarone treatment, the median values of thyroid hormones did not exceed the upper reference ranges even when statistically significant changes in hormonal status occurred.

Conclusions: Amiodarone-associated changes in thyroid status were reversible and thyroid hormone values normalized 6 months after discontinuation of therapy.

Key words: tachyarrhythmias, children, amiodarone, thyroopathy.