

# INFLUENCE OF AMIODARONE ON THYROID FUNCTION IN CHILDREN

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**Background:** Unlike to adults, the side effects of long-term administration by amiodarone (A) of life-threatening arrhythmias (LThA) on thyroid function still is not studied exactly in children.

**Methods:** 26 children with LThA aged one week to 16 years (mean 10 year) treated by A were examined. The mean duration of oral treatment ranged from 1 month to 47 months (mean 12,5 months). We estimated serum level of T4, T3, TSH, antibodies (TPO-Ab, TSH-Ab) and performed ultrasound diagnostics of thyroid before and during the therapy and then in 6 months after stop of therapy.

**Results:** All patients had not any thyroid pathology before starting of the therapy and thyroid function during A treatment did not change in majority of them (85%).

Transient subclinical hypothyroidism non-required T4 treatment has been observed in 7,5% (2 children) and we found out the same amount cases (2) of amiodarone induced hyperthyroidism (AIH). One of them was mild AIH began 1,5 month later stopping oral A. Another case was presented by severe AIH type 2 in 17<sup>th</sup> year old boy with arrhythmogenic right ventricular cardiomyopathy. At the beginning the dose of A was 500 mg per day and the duration of the therapy was more than 3 years. His hormones were increased (FT4 58,87 pmol/l, FT3 6,82 pmol/l, FT4/FT3 – 8, no TPO-Ab, TSH-Ab). He has been treated by prednisolone (0,6mg/kg) and methimazole (20 mg), A was stopped, but life-threatening ventricular tachycardia progressed. Surgical treatment is considering.

**Conclusion:** AIH can accompany and complicate the treatment of LThA in children. It may be caused by long-term duration or/and high doses of amiodarone.

## Thyroid function

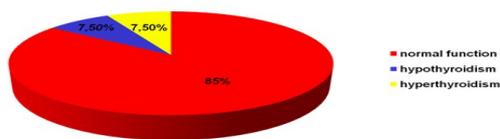


Fig. 1.Characteristics of the thyroid function in children administrated by Amiodarone.

## Diagnosis:

*Arrhythmogenic right ventricular cardiomyopathy. Mutation in PKP-2 gene.  
 Chronic myocarditis.  
 Polymorphic ventricular tachycardia. HF II NYHA.  
 Implantation of ICD 2 (26.04.2012).  
 Amiodarone induced hyperthyroidism.*

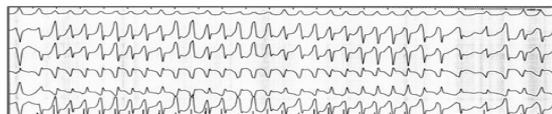


Fig.2. Patient with arrhythmogenic right ventricular cardiomyopathy (ARVC) and severe Amiodarone induced hyperthyroidism (AIH).

## Dynamics of the level of TSH

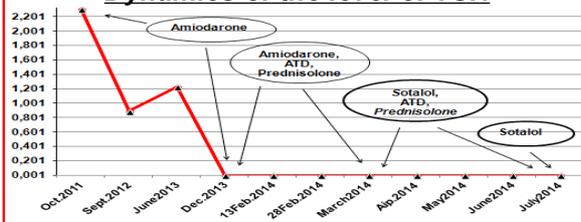


Fig.3. The same patient, serum level of TSH. ATD - Antithyroid drugs.

## Dynamics of the level of FT4, FT3

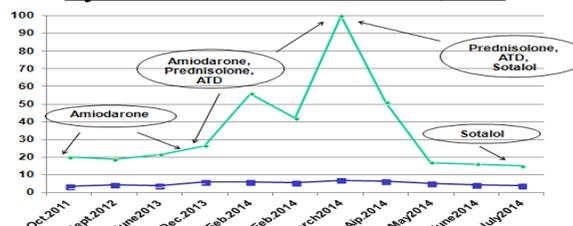


Fig.4. The same patient, serum level of FT4 and FT3.