allied academies

Curr Pediatr Res
ISSN 0971-9032

2020
Vol.24 No.9

Sinus bradycardia in children: Biochemical parameters depending on clinical variant, possible criteria of differential diagnostics

Olga Senatorova*, Khramova E.B *and* Lykasov A.G.

Tyumen State Medical University, Russia

Abstract

Background: Destabilization of cardiac myocyte cell membrane, its structure and function influences on the development of sinus bradycardia (SB).

Purpose: To study total cholesterol (TC) of platelet membrane as cardiac myocyte model, total intracellular calcium (Ca2+) in platelets in children with SB without organic heart disease depending on the clinical variant and with autonomic dystonia syndrome (ADS) and idiopathic (asymptomatic) syndrome.

Methods: Children aged 3-13 years matched by sex and age were divided into three groups: group 1 consisted of healthy children (control group, n=30), group 2 consisted of children with idiopathic SB (n=20) and group 3 consisted of children with SB and ADS. Diagnostic tests and procedures were carried out. Special methods included TC and $Ca2^{+}$ in platelets.

Results: TC volume in platelets of children in group 2 was significantly higher than TC volume in healthy children for 1.8 times, in group 3 – for 2.3 times ($p<0.05$). Besides, parameters of group 3 were definitely higher than values of group 2 (0.34±0.23 vs 0.27±0.15 mcM/ml, respectively, $p <0.05$). Decrease of $Ca2^{+}$ in children with SB was revealed. The value of Ca2+ in children of group 2 showed significant lowering (0.05±0.009 mcM/ml, $p<0.05$) in comparison with healthy children (0.09±0.009 mcM/ml, $p<0.05$).

Conclusion: Elevated cholesterol level in the platelet membrane can be estimated as membrane destabilizing factor, altering electrochemical potential of the cell, lowering fluidity of the platelet cell membranes; it may serve as differential and diagnostic criteria of idiopathic SB with ADS. As calcium is the key regulator of several important cell functions, change of Ca2+ concentration in the citosol leads to misbalance of the intracellular processes; it may serve as the marker of idiopathic SB.

Biography:

In 2013, Olga defended her dissertation at the age of 40. She has 24 publications in famous scientific journals. She is currently working as an assistant professor at the Department of Pediatric Diseases at the Pediatric Faculty of Tyumen State University.

7th International Conference on Pediatric Cardiology; Webinar- November 30, 2020.

Abstract Citation:

K. M. Yacob, Sinus bradycardia in children: Biochemical parameters depending on clinical variant, possible criteria of differential diagnostics, Pediatric Cardiology 2020, 7th International Conference on Pediatric Cardiology; Webinar- November 30, 2020 (https://pediatrics-cardiology.insightconferences.com/abstract/2020/sinus-bradycardia-in-children-biochemical-parameters-depending-on-clinical-variant-possible-criteria-of-differential-diagnostics)