UTILITY OF RESEARCH THE DISPERSION OF QT AND QTc INTERVALS IN ADOLESCENT ATHLETE

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INTRODUCTION: Heart rhythm disorders, often severe, occurring with an increased incidence in adolescent athlete and requires identification of risk factors, especially by precompetitional screening, for the purpose of prevention. QT dispersion is considered to be closely associated with the severity and prognosis of cardiac disorders. QT dispersion: the difference between the longest (QTmax) and the shortest (QTmin) QT intervals within a 12-lead ECG. QTc dispersion: the difference between QTc max and QTc min. QTc determination: because the QT interval may vary according to the heart rate, it may be corrected using Bazett’s formula to obtain the QTc intervals: QTC = QT/VRR interval.

OBJECTIVE: to evaluate the QT interval dispersion in adolescent athletes regarding on the type of physical effort.

METHODS. Subjects: 51 sporting adolescents (14 - 17 years old) organized in 2 groups:
** First group: 25 endurance-trained athletes (runners, football-players)
** 2nd group: 26 strength-trained athletes (wrestlers, boxers).
** Control group: 20 cases in the same age group, without any sign of CV suffering.

ECGs were assessed on all the patients, athletes and non-athletes and used to calculate QT interval dispersion during periodic controls, like indicator of the risk of the ventricular arrhythmia.

RESULTS: The average values of QTD and QTcD in the 1st and 2nd group were superior than the values in the control group, the difference is not statistic significant.

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<tr>
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<th>1st group</th>
<th>2nd group</th>
<th>control group</th>
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<tbody>
<tr>
<td>QTD</td>
<td>43.54±21.03 ms</td>
<td>48.23±12.56 ms</td>
<td>35.88±10.22 ms</td>
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<tr>
<td>QTcD</td>
<td>50.81±19.34 ms</td>
<td>53.59±17.21 ms</td>
<td>39.23±14.81 ms</td>
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The highest values of QT interval were found in strength-trained sporting teenagers. The highest values of QTD and QTcD were found in sporting teenagers from the 2nd group that it might be possible to have a higher ventricular arrhythmia risk. There wasn’t any case with QT interval value longer than the normal.

DISCUSSIONS.
- QT dispersion is considered to be closely associated with the severity and prognosis of cardiac disorders.
- a further population-based study involving over 3000 adults and children suggested that QT dispersion ≤50 ms indicates normality, age or gender having no impact on it.
- several studies involving teenage athletes show increased QT dispersion in athletes with ventricular hypertrophy.

CONCLUSIONS.
At side of other parameters ECG, it is useful research screening of the QT interval and QTc interval dispersion during periodic controls, like indicator of the risk of the ventricular arrhythmias at sporting adolescents.