EDITORIAL

QTc Interval in non-ST Segment Elevation Acute Coronary Syndrome: Repolarization Beyond the ST Segment

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Although clinical practice guidelines suggest use of an invasive strategy in most patients with non-ST segment elevation acute coronary syndromes (NSTSEACS), (1) its clinical stratification is still relevant for two reasons: 1) it is a heterogeneous population with a highly variable incidence of adverse effects (2) and 2) some patients without traditional risk criteria develop complications. In fact, in 34% to 54% of NSTESACS patients, the ST segment shows no alterations on arrival to the hospital, with an outcome which is, again, very heterogeneous. (3, 4) Hence the interest in studying other electrocardiographic variables that might provide additional and complementary information to that of the ST segment, such as QRS complex duration, (5, 6) presence of T-wave anomalies, (7) corrected QT interval (QTc) duration (8-10) or P-wave morphology (11), whose usefulness has become manifest in recent years.

The QT interval includes ventricular depolarization and repolarization duration and is related with action potential duration. Its prolongation is the first electrocardiographic alteration after epicardic coronary artery occlusion, a phenomenon that, additionally, has been shown to be universal.(12) Such prolongation persists for some time after the end of the ischemic impact, with maximum values almost always within the first hours after onset of symptoms, (10) allowing its implementation as a risk stratification tool on the patient's arrival to emergency. (Figure 1) Although the biological bases of QT interval prolongation in coronary syndromes have not been fully clarified (mainly those involving myocyte membrane permeability changes to potassium and sodium), two physiopathological aspects seem clearly established: 1) QTc is directly correlated with induced ischemia in NSTESACS patients (13) and 2) the magnitude of myocardial damage is, also, parallel to QTc prolongation. (10) Such associations are especially significant in QTc values over 450 ms, thus turning it in the cut-off point that is more consistently associated with greater incidence of events

Llois et al, (14) by demonstrating in their interesting work a positive and significant correlation between QTc and maximum troponin T, point in the right direction: to establish the pathogenesis of the relationship between QTc and NSTESACS prognosis.

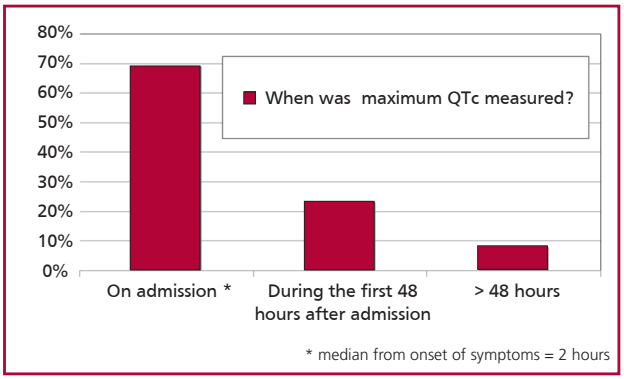

Fig. 1. Graph showing the moment in which maximum QTc was acquired in a series of 427 NSTESACS patients. QTc on admission was similar in ECGs performed at < 2 h vs.> 2 h from onset of pain: 466 ± 60 vs. 476 ± 61 s (p = ns). Adapted from quote 10

In this sense, it is encouraging to have a variable that relatively quickly offers functional (induced ischemia) and biological (magnitude of myocardial damage) information.

Thus, although QTc acquisition and reproducibility has its limitations, (15), there is promising news: repolarization in NSTESACS electrocardiogram offers information beyond the ST segment. Let us keep that in mind.

Conflicts of interest

None declared.

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