CORRESPONDENCE

Young adults born preterm below 30 weeks of gestation and risk of QT tract prolongation

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Dear Editor,

We read with interest the article by Gervais et al.,¹ who compared QT interval length in a group of young subjects who had been born preterm <30 weeks of gestation with that in their healthy peers born full term. Using exercise stress test on a cycle ergometer, they did not found any significant difference in QT tract corrected for heart rate (QTc)—a well established marker of potential development of ventricular arrhythmias—between the two groups. So, in the Authors' opinion, avoidance of QT-prolonging medications in individuals born preterm is not supported by scientific evidence. These suggestions are decidedly in contrast with those proposed by our research group a few years ago.² However, in our opinion, several additional issues should be considered when interpreting their results, namely:

Marked difference in gender distribution. In our sample size, 83.3% of the recruited patients were female, while only 38.7% in the study by Gervais. This striking difference is likely to have influenced the results. In fact, it is well known that QTc in the female gender is longer than in males. This disparity in recruiting patients was due to the fact that in the initial stages of neonatal intensive care, in Italy a considerably higher number of preterm female infants survived for reasons still to be clarified.²

The impact of posture. When an exercise stress test is done on a cycle ergometer, the patient is in a sitting position. It often leads to the appearance of signal artifacts which make the ECG difficult to interpret. Objectively, it is not easy to discriminate the ECG curves and make sophisticated calculation, QTc included. Mistakes are quite frequent.³ Interestingly, the Authors reported the same QTc value in both groups at peak exercise (387 ms) as well as the same standard deviation (34–35 ms) at baseline/peak exercise/post recovery regarding preterm group. Again, the same QTc (409 ms) is at baseline and at minute 3 of recovery in the control group! This sequence of coincidences appears somewhat unlikely from a statistical standpoint and raises serious concerns in relation to the accuracy in measuring QT tract.

Different genetic background between the two populations, as honestly pointed out by the Authors. The inhabitants of the island of Sardinia in Italy constitute an "ethnic group" and a genetically determined predisposition to QT prolongation cannot be excluded at all.⁴

Our previous findings have robust underlying supportive evidence in literature, since repolarization abnormalities were widely described in this setting. In newborns with intrauterine growth restriction, QT dispersion—a marker of electrical instability of myocardial cells which highlights the risk of potential life-threatening arrhythmias—is

significantly higher than in born at term peers.⁵ Again, cisapride, which is a drug widely administered in the past to treat gastroesophageal reflux, is related to a harmful increase of QTc prolongation mainly in those born preterm and/or with intrauterine growth restriction.^{6,7} Not only, but prematurity at birth seems to be a risk factor for developing atrial fibrillation at an age earlier than usual as well.^{8,9}

In summary, despite the above-mentioned limitations, we think that the Authors gave their contribute to the debate about the cardiovascular risk linked with being born preterm and the results of their study will undoubtedly trigger further research in this field. In this respect, in our opinion a multicentric study should be needed to clarify definitely this intriguing issue.

AUTHOR CONTRIBUTIONS

P.P.B.: substantial contributions to conception and design. V.F.: revising it critically for important intellectual content. G.M.: final approval of the version to be published.

ADDITIONAL INFORMATION

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