Coronary artery disease and the risk of life-threatening cardiac events after age 40 in long QT syndrome

A. Barsheshet¹, I. Goldenberg², M. Bjelic¹, K. Buturlin¹, A. Erez¹, G. Goldenberg¹, A.Y. Chen², B. Polonsky², S. McNitt², M. Aktas², W. Zareba², G. Golovchiner¹

¹Rabin Medical Center, Petah Tikva, Israel
²University of Rochester Medical Center, Rochester, United States of America

Funding Acknowledgements: None.

Background: Long QT syndrome (LQTS) and coronary artery disease (CAD) are both associated with increased risk of ventricular tachyarrhythmia. However, there are limited data on the incremental risk conferred by CAD in adult patients with congenital LQTS.

Objective: We aimed to investigate the risk associated with CAD and life threatening events (LTEs) in patients with LQTS after age 40 years.

Methods: The risk of LTEs (comprising aborted cardiac arrest, sudden cardiac death, or appropriate defibrillator shock) from age 40 through 75 years was examined in 1020 subjects from the Rochester LQTS registry, categorized to CAD (n=137) or no-CAD (n=883) subgroups.

Results: Survival analysis showed that patients with CAD had a significantly higher rate of LTEs from 40 through 75 years (35%) compared with those without CAD (7%; p<0.001 for the overall difference during follow-up [figure]). Consistently, multivariate analysis showed that the presence of CAD was associated with a 2.5-fold (HR=2.47; p=0.02) increased risk of LTEs after age 40 years. Subgroup analyses showed that the presence of CAD vs. no CAD was associated with a pronounced >4-fold (p=0.008) increased risk of LTEs among LQTS patients with a lower-range QTc (<500 msec). The increased risk of LTEs associated with CAD was not significantly different among the 3 main LQTS genotypes.

Conclusions: Our findings suggest that CAD is associated with incremental risk of life threatening cardiac events in patients with LQTS. The incremental risk associated with the presence of CAD is pronounced in lower risk LQTS patients with QTc<500 msec.