Abstract: 1163

**Diagnostic performance of a new echocardiographic method for coronary arteries abnormalities assessment**

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Background: The echocardiographic assessment of coronary arteries abnormalities (CCA) has always been challenging. In this view, we aimed to assess the performance of a new echocardiographic-based diagnostic method for CAA in pediatric and young adults’ population.

Methods: over 5 years, we examined all the outpatients undergoing routine echocardiography in our department. Our method consisted of 4-focused specific view scan: parasternal short-axis, parasternal long-axis, both left and right outflow tract, and apical 5-chamber view. Coronary-CT confirmed the CAA diagnosis. Two independent physicians retrospective reviewed the echocardiographic images, in a double-blinded fashion (coronary-CT and diagnosis), for performance analysis.

Results: in 2014-18, 5,998 outpatients underwent echocardiography (median age 14 years [6, 21 - IQR]). A total of 27 CAA were diagnosed: overall prevalence 0.0045%, 0.022% of incidence. N=17/27 were anomalous aortic origin of coronary arteries (AAOCA), N=3/27 anomalous coronary arteries from the pulmonary artery (ACAPA), and 7/27 fistulas. After the implementation, we found a progressive increment of CAA diagnosis (P for Trend=0.038), in particular of AAOCA: both left and right coronaries (P=trend=0.021 and P=trend 0.010, respectively). Our method showed better sensitivity than traditional CAA echocardiographic evaluation: 85% vs 55%, P=0.032 [AUC 0.77, 95% CI (0.68, 0.87) and AUC 0.92, 95% CI (0.85, 0.99), respectively], with a good interobserver agreement for the adjudicated double-blinded retrospective diagnosis (99.75%, K=0.73, P<0.001).

Conclusions: the application of a new echocardiographic-based method for CAA-detection led to a significantly increased rate of identified anomalies. This approach demonstrated better sensitivity than traditional echocardiographic assessment. Implementing this protocol in clinical practice may improve the CAA diagnosis, and probably reduce the occurrence of CAA-related sudden cardiac death.