Congenital left ventricular aneurysms or diverticula: Impact of age, gender, and ethnicity on prognosis

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Objectives: Congenital left ventricular aneurysm (LVA) and diverticulum (LVD) are rare cardiac anomalies. We sought to investigate the impact of age, gender, and ethnicity on the outcome in such patients.

Methods: Scientific databases and reference lists of relevant articles were searched for publications reporting on patients diagnosed with LVA/LVD. Full text articles were analysed for cardiac events (arrhythmic events, rupture, sudden cardiac death, congestive heart failure, cardio-embolic events, syncope, and change in size) during follow-up (FU).

Results: We identified 374 patients published since 1816 [185 (49.5%) LVA, 189 (50.5%) LVD] providing at least 1 year (y) FU. Mean age at diagnosis was 34.1±27y (LVA) and 29.7±27.6y (LVD; p=0.05). 56.4% were male. Mean FU was 5.2±4y (LVA) and 4.1±3.1y (LVD). There was a trend for higher incidence of cardiac death in LVA patients (14.1% versus 7.9%; p=0.06). Cardiac death was significantly more frequent in the younger (≤18y versus >18y) age groups (LVA: 22.0% versus 10.3%; p=0.04, and LVD: 16.1% versus 1.9%; p<0.001) Figure 1. Cardiac event rate per year (CER) differed with respect to type of anomaly (LVA/LVD) and age group (Figure 2). Symptoms (arrhythmia-related symptoms, syncope, and embolic events) at time of diagnosis increased the incidence of adverse events during FU in both groups (LVA: 35.4% vs. 11.6%; p<0.001, and LVD: 22.6% versus 6.6%; p=0.004). Black patients with LVA had a significantly increased CER compared to Caucasians (39.3% versus 14.3%; p=0.006); gender was not predictive for cardiac events in LVA/LVD groups.

Conclusions: Young patients (<18y), black patients, and symptoms at diagnosis were associated with worse outcomes in LVA or LVD.

Fig. 1: Mortality in LVA/LVD patients related to age group

Fig 2: Event rate per year in LVA/LVD patients related to age group