

**Characteristics and outcomes of heart failure-related hospitalization in adults with congenital heart disease**

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Background: Heart failure (HF) is the main cause of death in adult patients with congenital heart disease (ACHD). We aimed to characterize HF-related hospitalization of ACHD and to determine HF risk factors and prognosis in this population.

Methods: We prospectively included 471 ACHD admitted in our unit during 24 months. Clinical and biological data and HF management were recorded. Major cardiovascular events were recorded for HF ACHD.

Results: HF was the main reason for hospitalization in 13% (n=76/583 hospitalizations). HF ACHD were significantly older (median age  $44 \pm 14$  vs.  $37 \pm 15$  years old,  $p < 0.01$ ), with more complex congenital heart disease ( $p = 0.04$ ) and had more frequent pulmonary arterial hypertension (PAH) (29.1%,  $p < 0.01$ ), past history of HF (45.5%,  $p < 0.01$ ) and atrial arrhythmia (61.8%,  $p < 0.01$ ) than in patients without HF. Mean hospital stay of HF patients was longer (12.2 days vs. 6.9 days,  $p < 0.01$ ) and 25% of patients required intensive care. Twenty percent (11/55 HF-patients) died, 18% (n=10/55) were readmitted for HF, and 11% (6/55) had heart transplantation during the median follow-up of 18 months 95% CI[14-20]. In multivariate analysis, past history of HF (OR= 9,8 95%CI[5,7-16,8],  $p < 0.01$ ), PAH (OR=6,2 95%CI[3,5 - 10,7],  $p < 0.01$ ) and atrial arrhythmia (OR=3,6 95% CI[2,2 - 5,9],  $p < 0.01$ ) were the strongest risk factors of HF in ACHD. The risk of cardiovascular events was 19-fold higher after HF-related hospitalization.

Conclusions: HF is emerging as a leading cause of morbidity and mortality in ACHD population. Earlier diagnosis and more active management are required to improve outcomes of ACHD HF.