

## Prognostic Variables and Their Powers Change Over Time in Fontan Survivors

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**Introduction:** Unique impaired hemodynamics and exercise capacity may predict morbidity and mortality in Fontan survivors (F). However, the prognostic power (PP) may change over time in the long-term postoperative course in those patients.

**Objectives:** To clarify whether the PPs of major hemodynamic variables, brain natriuretic peptide (BNP), and exercise capacity change during the long-term follow-up.

**Methods and Results:** In 362 F, we have undergone catheterizations at postoperative years of 1 (n = 362, group 1), 5 (n = 280, group 2), 10 (n = 193, group 3), and 15 (n = 112, group 4), and compared the hemodynamics (central venous pressure: CVP, cardiac index: CI, ventricular ejection fraction, and arterial oxygen saturation: Sat), BNP, and peak oxygen uptake (PVO<sub>2</sub>) with clinical events that required unscheduled hospitalization (USH), including all-cause death, and calculated the all hazard ratios (HR) as an index of PP. We encountered 128, 78, 61, and 30 USHs in the groups of 1, 2, 3, and 4, respectively. The HRs for all variables in all groups were as follows: CVP (1.13\*\*, 1.18\*\*, 1.22\*\*, 1.08), CI (0.81, 0.59\*\*, 0.49\*\*, 1.02), EF (0.99, 0.97\*, 0.97\*, 1.00), SaO<sub>2</sub> (0.94\*\*, 0.90\*\*, 0.92\*\*, 0.93), PVO<sub>2</sub> (0.97, 0.95\*\*, 0.94\*\*, 0.94\*\*), BNP (1.02\*\*, 1.07\*\*, 1.08\*\*, 1.10\*\*) (\*: p < 0.05, \*\*: p < 0.01).

Those results indicated that CVP and Sat had strong PP in the early postoperative phase, however, the PPs disappeared in the late phase. BNP had significant PP during the entire postoperative phase. In contrast, PVO<sub>2</sub> had a stronger PP in the late postoperative phase.

**Conclusions:** Prognostic variables and the PPs significantly change over time in F. Our results indicate that, after intensive management strategies for impaired hemodynamics in the early postoperative period, additional interventions to improve physical fitness may be required for the better long-term outcome.