Long-term Survival, Exercise Performance and Quality of Life in patients after Fontan Surgery – Results From a Single Centre

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Objective: Several modifications of the Fontan procedure evolved throughout the last decades. This single-center study evaluates survival, as well as functional outcome on long-term follow-up in the context of the different surgical modifications.

Patients and Methods: All of the 308 patients born before the year 2000 and having undergone a Fontan procedure in our institution were included into the study. From October 2006 to February 2011 we prospectively studied 146 of the 215 eligible survivors with a median age of 20.7 years (13.8; 28.0 years, 58 female). Patients completed the health-related quality of life questionnaire SF-36 and afterwards they performed a cardiopulmonary exercise test.

Results: After a median follow-up of 11.7 years (6.2; 20.1) 91 (29.5%) patients had died and 5 patients (1.6%) had undergone heart transplantation. Survival free from transplantation after 30 day and 5, 10 and 20 years was 90.2%, 84.1%, 78.4% and 63.6%, respectively. The recent techniques improved survival (p=.007).

Peak oxygen uptake was reduced to 23.8 ml/min/kg (18.9; 28.9 ml/min/kg) corresponding to 64.7% of predicted. There were no differences in-between the different Fontan types (p=.975). Quality of life in the fields of physical functioning, general health and vitality were reduced in Fontan patients.

Conclusions: This study shows that patients profited from the experience and modification of the Fontan procedure in terms of short- and long-term survival due to a decrease in perioperative mortality. Further profits with regard to exercise performance and quality of life could not be detected.