



Discussion

Comment on the original paper entitled “Can a home-based cardiac physical activity program improve and sustain quality of life and exercise capacity in children with Fontan circulation?”

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ABSTRACT

Commentary on the original paper entitled “Can a home-based cardiac physical activity program improve and sustain quality of life and exercise capacity in children with Fontan circulation?”

The warranty of an appropriate quality of life (QoL) and the possibility of conducting an active lifestyle are key-points during long-term care of Fontan palliated patients. Jacobsen et al. provide new clinically relevant testable hypotheses in the context of prior literature.

Precisely, the results of the parent proxy-reported QoL are of great interest. The analysis of this data sets a focus on the importance of a multidisciplinary family-care: an appropriate long-term management of a Fontan patient revolves, in fact, not only on the treatment and evaluation of the mere cardiac and hemodynamic parameters of the patients but on the family and the patient as a whole. Going along with this assumption, previous studies demonstrated that the physical exercise limitation only marginally explains the reduction of the general functional health status in Fontan patients [1]. Several other factors such as a reduced lung function [2] and an inadequate psychological [3,4] and motoric [5] development also play a major role. Comparing to other studies in congenital heart disease patients, in which parents reported a worse QoL compared to their children [6], the divergence between parents and patients in the QoL scores shown by Jacobsen et al. describes, in this context, a novel finding. It would be interesting to define the role of the social environment in which the study was run. Did the patients and their families remain in contact with the other study candidates after the 12-weeks program? Given the decline of the scores at the 6-month follow-up, the presence of a “group of peers” seems to have a positive influence on the patients' motivation, suggesting that a “social” program accompanying the specific aerobic training could be beneficial. In fact, the efficacy of ludic-educational activities, which promote the personal motivation, have been described before [7]. On the other hand, the positive trend in the parent-proxy

scores highlights an increased confidence in the families. Considering the negative influence of the over-protecting attitude of the parents on the daily-activities of these patients [8], this might enhance the chances of Fontan patients for an adequate development. In fact, the described improvement applies to categories that not merely reflect the physical function of the patients.

Concerning physical exercise capacity, given the small cohort of patients in this study, the authors could mention more details concerning the level of physical activities of the subjects before and after the start of the training. Did the patients actually increase their daily physical activity during of the training? Since 10 of the patients regarded themselves as physically active [9] prior to the start of the program this could create a relevant bias in data interpretation. Moreover, it is not clear if (and how) the patients continued their physical training after the 12-weeks program. This is a key-information for the interpretation of the failing improvement in exercise capacity at the six-month follow-up. Since Fontan patients do not experience normal increase in cardiac output during exercise, their exercise capacity may have already reached its maximum after the 12-weeks program. On the other hand, it might have stopped increasing due to the lack of training after the end of the program. The suggestion of the authors that the negative trend of the scores might reflect the natural history of the clinical decline of the Fontan patients seems unrealistic to us giving the good clinical condition and the age of the population during the very short observation period [8]. In contrast, other factors influencing exercise capacity, with special focus on lung function, needs to be addressed in more detail in this patient group [2].

Taken together, this study confirms the necessity of an early

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interdisciplinary approach during care of Fontan patients. The definition of novel interventions such as physical-motoric trainings, lung rehabilitation programs or personalized psychological support could provoke a knock-on effect on many levels, improving not only mere physical aspects (such as exercise capacity and survival), but also the general attitude towards life in this patient group. This raises a provocative question: is the cardiologist enough to handle such an intricate therapeutic pathway?

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Conflict of Interest

All authors have no potential conflicts of interest to disclose.

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