Reviewer’s report

Title: Psychological adjustment and quality of life in children and adolescents following open-heart surgery for congenital heart disease: a systematic review

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Reviewer: Hedwig Hoevels-Guerich

Reviewer’s report:

The authors reported on a systematic review on psychological adjustment and quality of life in children and adolescents aged between 2 and 17 years after open-heart cardiac surgery for congenital heart disease. This is a very interesting article to the reader being occupied with this subject, helpful to get an overview with respect to the body of literature available.

In general, the article is clearly structured, the methods are adequate and clearly described. Most of the data are sound. The discussion and the conclusions -with a few exceptions- are supported by the data. The limitations are appropriate. In the discussion section, some current literature should be added. The title is of the article is adequate. The abstract should be changed with respect to one aspect. The writing is clear.

In particular, the following comments and recommendations emerge:

1. minor revisions:
   a. Page 4, bottom: terms with *asterix as “p*ediatrics or behavio*r” are not clear to the reader. What does the asterix stand for?
   b. Page 8, line 9: “relationship” is correct.
   c. Page 17, ref. 19: “psychosocial” is correct.
   d. Page 18, ref. 30: “Fontan operation” is correct.

2. major revisions:
   a. Abstract (Results): “…..except for children with transposition of the great arteries”: this statement is not sufficiently supported by the literature and should be modified (look at d.). Even in children after homogeneous neonatal arterial switch operation, parental ratings are inhomogeneous across the studies (ref. 24 and 28 versus 31, 32 and 35 from the Boston circulatory arrest study group). This should be considered in the abstract.
   b. Methods, page 4: “… period between 1990 and Jan. 2007…”: During the last time, a considerable body of current literature has been published with respect to the subject of the manuscript, comprising long-term follow-up studies in homogeneous patient groups other than TGA patients. The variance of outcomes due to time-dependent advances in surgical techniques is not augmented by considering long-time studies. The studies considered in this work should comprise at least all the year 2007!
c. Results, page 6: “…with surgically corrected transposition of the great arteries [18] and children with severe cyanotic defects after surgery [19]…”: Ref. 18 deals with patients after atrial switch (Senning or Mustard procedure), a physiological rather than anatomical “corrective” surgical procedure from the era of the 1970 and 1980s. In general, if TGA patients are mentioned, the kind of surgical procedure must be described (in the whole manuscript). Patients after atrial redirection therapy compared to those after anatomically corrective arterial switch operation mostly undergo a different follow-up with respect to neurodevelopment, cardiac health and exercise capacity. Ref. 19 deals with adolescents (mean age 16 years), not with children.

d. Page 6-7 (proxy-reported psychological functioning): As already mentioned for the abstract (a.), studies for TGA patients after arterial switch operation show different results (worse in ref. 24, 28; equal in ref. 23, 31; better in ref. 32) with respect to normal children.

e. Page 8, bottom (quality of life): Ref. 38: It should be mentioned that these were patients with TGA independent of the surgical procedure (as well after atrial as after arterial switch).

f. Discussion, page 10 (proxy-reported long-term outcome): “…In the same line, studies assessing… … As an exception, parents of children with …”: Again, it should be discussed that in TGA patients after arterial switch operation, parental ratings are different (ref. 24, 28 versus ref. 31, 32, 35).

g. Discussion, page 12, top: “…As current data are scarce…”: More systematic studies with respect to cardiac defects other than TGA exist, e.g. for VSD or Fallot patients, and should be considered.

h. Discussion, page 14, top: “… no such scale exists for the assessment…”: Recently, a specific pediatric cardiac QoL instrument has been developed (by B. Marino, Qual. Life Res., 2008). This should be additionally considered.

i. Conclusions, page 14: “…and children with cognitive impairment…”: Not only children with cognitive, but in general, with neurodevelopmental impairment, are at risk.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.