A critical review of the health-related quality of life of children and adolescents after liver transplantation

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CRD summary
This review investigated health-related quality of life (HRQL) outcomes in children following liver transplantation. The authors tentatively concluded that there were negative influences on some aspects of HRQL in comparison with a healthy population. The tentative conclusions are appropriate given the limited evidence, and the authors’ recommendations for future research appear to be well justified.

Authors’ objectives
To investigate health-related quality of life (HRQL) outcomes in children and adolescents following liver transplantation.

Searching
Following an initial search of the Cochrane Library, MEDLINE, CINAHL, PsycINFO, EMBASE, AMED, ISI Web of Science and ASSIA were searched from January 1990 to December 2003. The database searches were supplemented by web-based sources, including the Institute for Research into Quality of Life, the National Institutes of Health Computer Retrieval of Information on Scientific Projects, the International Society of Quality of Life, the National Research Register, and the United Kingdom doctoral theses database (web addresses given). The search terms were reported. In addition, relevant conference proceedings were searched from 1990 to 2003. The studies were restricted to those reported in the English language.

Study selection
Study designs of evaluations included in the review
There were no explicit inclusion criteria for the study designs, although reviews were excluded. The included studies were descriptive and largely cross-sectional. There was one solely qualitative study involving structured interviews. Two studies did not have a comparison group and one compared pre- and post-transplant status.

Specific interventions included in the review
Studies where liver transplantation data for isolated orthotopic, auxiliary, or living related transplantation were reported separately were eligible for inclusion. Transplant procedures involving kidney or small intestine were excluded. No specific data were given on what procedures were included in the review.

Participants included in the review
Studies of children and adolescents from birth to 18 years of age were eligible for inclusion. The included studies comprised infants only, children only, adolescents only, and a mix of children and adolescents. The age ranged from 6 months to 23 years, and there was an approximately equal division of males and females. All patients received liver transplants between the years 1981 and 2002. Comparison groups comprised largely age-appropriate healthy or chronically ill populations.

Outcomes assessed in the review
Studies where patient or parent reports were available on at least two of the five HRQL domains of physical health, psychological functioning, social functioning, family functioning, or general well-being were eligible for inclusion. All but one of the studies included both physical and psychological health outcomes. Studies assessed outcomes using three to five of the HRQL domains. The included studies used eight different HRQL instruments plus four battery questionnaires. Approximately half of the studies used self-report and half relied solely upon parental responses.

How were decisions on the relevance of primary studies made?
One reviewer considered the titles and abstracts, following which two reviewers independently examined the selected...
full texts. Any disagreements were resolved by consensus.

Assessment of study quality
Study quality was assessed in terms of the adequacy of sample selection, HRQL measurements and the comparison group. Specific criteria were given in the paper. The authors did not state how the quality assessment was performed.

Data extraction
Two reviewers independently extracted the data using a designated form. Data were extracted on the various domains of HRQL measurement and a scoring system was applied. Authors were contacted for further information where necessary. For each study, the sign test was used to assess any statistically significant effects of transplantation upon each HRQL domain.

Methods of synthesis
How were the studies combined?
Due to the heterogeneity of the HRQL measurement tools, it was not possible to perform a statistical synthesis of the results. A narrative synthesis was carried out to compare the HRQL scores of children and adolescents with healthy and chronically ill populations. Qualitative data from 2 studies were excluded from the analysis because of methodological problems.

How were differences between studies investigated?
Differences between the studies were discussed in terms of study characteristics and were presented in tables according to HRQL domains.

Results of the review
Eleven descriptive studies (395 children) were included in the review: 10 cross-sectional studies and one of longitudinal design.

The general methodological quality of the included studies appeared poor, with only 5 of the 11 studies considered acceptable on all three of the quality assessment criteria. There was some evidence of HRQL improvement for post-compared with pre-transplant HRQL (1 study). When compared with a healthy population, the trend suggested a worse HRQL score in those participants undergoing liver transplantation (based on 9 studies). However, the sign test indicated that this was not significant. Although the trend was positive, there was no significant difference in scores when post-transplant patients were compared with those with other chronic illnesses (4 studies). Time since transplantation appeared to be a predictive factor in every aspect of HRQL (1 study).

Authors' conclusions
Compared with a healthy population, liver transplantation in childhood has negative influences on some areas of HRQL. The authors stated that this was a tentative conclusion based on a small number of poor-quality studies.

CRD commentary
The review question was clear and a wide-ranging search was conducted for published and unpublished studies. However, the restriction to English language literature means that potentially relevant studies might have been missed; the authors acknowledged this limitation. Appropriate steps were taken to minimise bias in the study selection and data extraction processes but, since the methods used to assess quality were not reported, it is not known whether any efforts were made to reduce errors and bias in the quality assessment. The narrative synthesis of studies using different methods to assess the outcomes was appropriate. However, a comprehensive analysis was not possible given the absence of data on all HRQL domains in the majority of studies. The authors' tentative conclusions are appropriate in view of the weak evidence presented, and their recommendations for future research seem justified.
**Implications of the review for practice and research**

Practice: The authors did not state any recommendations for practice.

Research: The authors stated that good-quality, larger, multicentre studies with the appropriate use of a generic HRQL instrument are required. Future qualitative studies should be based on strong theoretical principles. Other research is needed on the interaction between child development (particularly in adolescents) and long-term health needs after liver transplantation, together with interventions to improve HRQL in those at risk.

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