Frontiers of Nursing • 10(1) • 2023
DOI: 10.2478/fon-2023-0009

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Frontiers of **Nursing**

Health-related quality of life of pediatric living donor liver transplantation donors who undergone donation surgery for 10 years†

Original Article

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Received: 8 July 2022; Accepted: 3 November 2022; Published: 20 March 2023

Abstract: **Objective:** To investigate the quality of life (QOL) of living donor liver transplantation (LDLT) donors.
Methods: The EuroQol 5-dimensional questionnaire (EQ-5D) was used to measure the QOL of donors.
Results: One donor reported "a little problem" of mobility (MO), and 2 donors (9.1%) reported "a little problem" of usual activities (UA). Moreover, there were 8 donors (36.4%) and 7 donors (31.8%) declaring "a little problem" of pain/discomfort (PD) and anxiety/depression (AD), respectively. And both dimensions have a donor reporting "moderate problem." The mean visual analog scale (VAS) was 83.1 ± 12.4.
Conclusions: Donors can gain a stable and preferable QOL after donation in both the short and long terms. ED-5D application in the field of liver transplant could be an effective choice in QOL studies.

Keywords: *donation surgery • donor • liver transplantation • pediatric • QOL*

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1. Introduction

Living donor liver transplantation (LDLT) has been one of the most popular options for pediatric patients with end-stage liver diseases. While most of the donors were parents who were in a condition of sound health, it is still necessary to assess the post-operation health situation. Health-related quality of life (QOL) is a persuasive indicator to measure donors' physical condition. However, there are comparatively fewer studies in the literature reporting the long-term QOL of parental donors among the Chinese population. It was reported that donors of adult-to-adult LDLT had adverse physical and socioeconomic effects 3–10 years after donation.[1] Meanwhile, Ladner[2] reported that the QOL of living donors 11 years after donation was better than the average level reckoned using the SF-36 scale. The present study aims to perform a cross-sectional survey to obtain knowledge about the long-term QOL of donors in China.

The EuroQol 5-dimensional questionnaire (EQ-5D) is a widely used instrument to measure QOL worldwide,[3] which has been demonstrated to exhibit a good reliability and validity in individuals of Chinese ethnicity. Additionally, the results measured by EQ-5D will be comparable

† This study was sponsored by the Natural Science Foundation of Min Hang District (grant no. 2021MHZ021).

# These are co-first authors and contributed equally to this study.

How to cite this article: Lu YF, Gao LQ, He K, Xi HQ. Health-related quality of life of pediatric living donor liver transplantation donors who undergone donation surgery for 10 years. *Front Nurs*. 2023;1:81–84.

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and referable with respect to other populations. In this study, QOL was measured by EQ-5D, and the results will be referable indicators for long-term follow-up. EQ-5D has 5 dimensions: mobility (MO), self-care (SC), usual activities (UA), pain/discomfort (PD), and anxiety/depression (AD), and each dimension is defined at 5 levels (roughly equal to no problems, a little problems, moderate problems, severe problems, and extreme problems). Besides, EQ visual analog scale (EQ-VAS, full score 100) was measured by visual measuring scale for the evaluation of general health condition.

2. Methods

This study was a retrospective cohort study in Renji Hospital, School of Medicine, Shanghai Jiao Tong University, Shanghai, China. Donors who had received the donation surgery 10 years previously were recruited into this study, and 22 cases were finally analyzed. We developed the questionnaire based on EQ-5D, accompanied with demographic information collection. The donors were convened to hospital, and then, to ensure the quality of the filled-in questionnaires, it was ensured that they completed their responses to the questionnaire in the same time and place. Informed consent was obtained from every participant in the study. In accordance with their requirements applying to studies performed involving live human participants, the study program was reviewed and approved by the hospital's ethical committee (RA-2021-489).

3. Results

Among 22 donors, there were 12 (54.5%) males and 10 (45.5%) females. As for educational background, individuals holding a bachelor's degree or above accounted for 31.8% (7 cases). With regard to marriage status, 20 (90.9%) were married and 2 (9.1%) were divorced. One donor reported "a little problems" of MO, and 2 donors (9.1%) reported "a little problems" of UA. Moreover, there were 8 donors (36.4%) and 7 donors (31.8%) declaring "a little problems" of PD and AD, respectively. And both dimensions have 1 donor reporting "moderate problem." The mean VAS was 83.1 ± 12.4.

4. Discussion

A survey by Shi et al.[4] that assessed parental donors who had undergone the donation surgery 2 years previously reported good results of QOL using SF-36, and scores higher than Chinese norms were obtained for several dimensions of SF-36. However, the follow-up period was relatively short, and there was no reference to long-term QOL in this population. In this study, we recruited 22 long-term donors after donation surgery. The follow-up period was at least 10 years. The mean VAS of the population in this study was 83.1 ± 12.4, which means they had a relatively good QOL. Combining the results of this study and literature review,[5] we think donors can gain a stable and preferable QOL after donation in both the short and long terms. LDLT has been conducted since 2006 in our center, and there were few cases meeting the requirement of 10 years after donation due to learning curve. The results of this study need further study to verify.

It was reported that abdominal pain was associated with lower sexual desire, and the sense of not feeling back-to-normal was associated with sexual dissatisfaction.[6] Besides, anxiety and alcohol abuse were more common than in the general population.[7] To acquire the overall QOL of the donors, it is indispensable to conduct a larger-sample survey that assesses the QOL after considering the aspects of sexual function and mental health.

Janik declared that LDLT had no impact on donors' physical health, while physical activity was lower than that observed in the general population.[8] However, only 1 donor reported "a little problems" of MO in this study. Since the measurement scale in Janik's study was different from EQ-5D and had a shorter follow-up period, more research is needed before an answer can be had for the above question.

EQ-5D showed remarkable psychometric properties within the general population,[9] and gained similar and better validity among patients with chronic hepatitis C infection.[10] However, EQ-5D costed less time to finish than SF-36, which will help to improve patients' compliance. ED-5D application in the field of liver transplantation could be a good choice for QOL studies.

5. Conclusions

In this study, donors of LDLT who underwent the operation 10 years previously were assessed for QOL using EQ-5D. The results were relatively good. However, further study is warranted before a conclusive understanding can be had on whether or not this population has a stable and favorable QOL. A larger-sample size or multicenter study will answer this question better.

Ethical approval

This study was approved by the Ethics Committee of Renji Hospital (IRB approval No. RA-2021-489).

Conflicts of interest

All contributing authors declare no conflicts of interest.

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