Original article

Clinico-Sociodemographic Profile And Barriers To Undergoing Liver Transplantation Among Patients Screened For Transplant: A Single-Center Study From Nepal

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Abstract

Introduction: Liver transplantation (LT) is the definitive treatment for End-Stage Liver Disease (ESLD), yet significant barriers prevent eligible patients from undergoing the procedure in low- and middle- income countries like Nepal. This study aimed to analyze the demographic and clinical characteristics of patients evaluated for liver transplantation, identify reasons for non- transplantation, and assess factors associated with these outcomes.

Methods: A descriptive cross-sectional study included 70 patients evaluated for living donor LT at KIST Medical College Teaching Hospital, Lalitpur, a tertiary care center with an established liver transplant program. Data collected covered demographics, clinical details, and transplant eligibility, including MELD scores, reasons for non-transplantation, and outcomes.

Results: The mean patient age was 52.2 ± 10.4 years, with a total of 55 (78.6%) being male. The mean MELD score at evaluation was 20.8±6.3. The primary reasons for not proceeding with transplantation were-unavailability of a suitable donor [66 (94.2%)], followed by financial constraints [47(67.1%)].

Conclusion: This study highlights that many patients evaluated for liver transplantation could not undergo the procedure due to donor unavailability, financial constraints, and disease progression.

Keywords: End-Stage Liver Disease (ESLD); Liver Transplantation (LT); Living Donor Transplantation; MELD score

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Introduction

Chronic liver disease (CLD) is a public health concern globally and in Nepal.[1-3] Liver transplantation (LT) is the definitive, life-saving treatment for patients with end-stage liver disease (ESLD), acute liver failure, and selected cases of hepatocellular carcinoma (HCC).[4-6] Despite the benefits of restoring health, improving lifestyle, and extending lifespan, access to LT remains a significant global challenge due to a persistent shortage of donor organs, with transplantation services estimated to cover only 10% of the worldwide need.[7-9]

Every year, several patients in Nepal are evaluated and admitted for a living donor liver transplant, but are unable to undergo the procedure. Apart from transplant list studies in high-income countries reporting dropout rates due to tumor progression or high MELD scores, there is little published data from low- or middle-income countries.[10-12] This gap is rarely studied in low-resource settings.

Methods

This is a cross-sectional descriptive study conducted at KIST Medical College Teaching Hospital, Imadole, Lalitpur, a tertiary care center with an established liver transplant program. This study was conducted from 1 July 2025 to 30 September 2025. All patients who were admitted to or evaluated for liver transplantation at the center between April 2023 and August 2025 were considered for inclusion. Patients who were potentially eligible for liver transplantation at the time of evaluation but did not undergo the procedure were included in the study. Patients with chronic liver disease, with evidence of liver failure, such as ascites, hepatic encephalopathy, variceal bleeding, and hepatocellular carcinoma, were considered potentially eligible. Patients who remained active on the liver transplant waiting list, and patients referred emergently for acute liver failure who did not complete the evaluation process, were excluded from the study. Patients found to have compensated chronic liver disease (MELD score <15), severe cardiopulmonary disease, severe portal vein thrombosis, or active extrahepatic malignancy were also excluded as they were ineligible for liver transplant. A census sampling method was used to include all eligible patients who met the criteria during the study period.

Data were extracted from hospital records of patients evaluated for living donor liver transplantation during the defined period using a structured data abstraction form. Missing or incomplete data were verified, where possible, through follow-up by telephone communication.

Data was analyzed using GNU PSPP version 2.0.1. Descriptive statistics (mean, median, range, and standard deviation) were calculated for continuous variables. Categorical variables were summarized as frequencies and percentages. Data are presented in tabular and graphical formats where appropriate.

Ethical approval was obtained from the Institutional Review Committee (IRC) of KIST Medical College before data collection. Permission from the hospital administration was sought for the use of patient records. Confidentiality was maintained by removing all personal identifiers, and the data will be used solely for academic purposes.

Results

A total of 91 patients were evaluated for liver transplantation at our center between April 2023 and August 2025. Twenty-one patients were excluded. Among them, 13 patients underwent liver transplantation at our center, and 2 had undergone liver transplantation at another center. Five patients were excluded due to incomplete data, and one child under 12 years was excluded.

Seventy patients were included in the study. Among them, 55 (78.6 %) were male and 15 (21.4%) were female, with a mean age of 52.2 ± 10.04 years (range: 29 – 71 years). The majority of patients resided in Kathmandu valley [48(68.6%)].

The main cause of end-stage liver disease was alcoholic liver disease, which was present in 51 (72.9%), followed by viral hepatitis in 12(17.1%) patients, as shown in **Table 1**. The median MELD (Model for End-Stage Liver Disease) score at evaluation was 20.79 ± 5.53 (IQR: 17–24).

Table 1. Causes of End stage Liver Disease

ESLD CAUSES	Frequency	Percent
Alcoholic Liver Disease	51	72.9 %
Viral Hepatitis	12	17.1 %
Metabolic disease	6	8.6 %
Wilsons Disease	1	1.4 %

A suitable living donor was identified in only 12(17.1 %) cases, out of which 8 donors did not qualify for donation. Among 4 patients with suitable donors, 3 had financial issues, and 2 patients' disease progressed and became unsuitable for LT.

The principal reasons for not proceeding with transplantation were: no suitable donor in 66 (94.2%), financial issues in 47 (67.1%), and disease progression in 37 (52.8 %), as shown in **Table 2, Figure 1**.

Table 2. Reason for not proceeding with transplantation

Reason for not proceeding with transplantation	Financial Issue	Disease Progression	No Suitable donor
Planned Donor available	8	6	8
Planned Donor not available	39	31	58

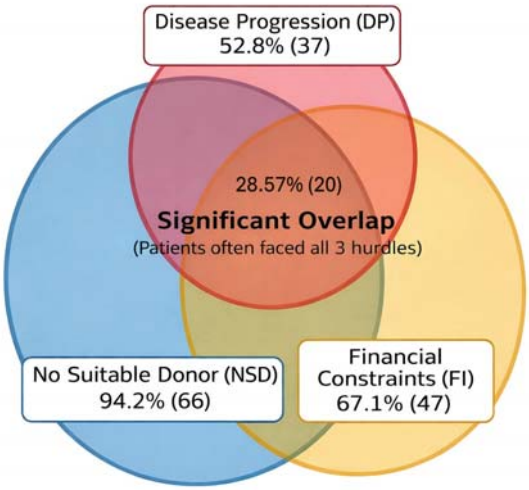

Figure 1. Multifactorial Barriers to Liver Transplantation in Potentially Eligible Patients

On evaluation of outcomes of the patients not transplanted, 48(68.6%) were lost to follow-up, 11(15.7%) remained under follow-up, and 11 (15.7%) patients are deceased.

Discussion

This study examined the demographic profile, clinical characteristics, and key barriers encountered among patients evaluated for liver transplantation at our center over the past three years who ultimately did not undergo the procedure. The findings provide a unique window into the real- world challenges faced by liver transplant candidates in Nepal, where living donor liver transplantation (LDLT) remains the only viable option due to the not well-developed deceased donor program.

In our cohort, the majority of patients were male (78.6%), with a mean age of 52.9 years, and most resided in Kathmandu Valley. This demographic pattern aligns with existing studies from South Asia and other low- and middle-income countries (LMICs), which have consistently reported a predominance of middle-aged male patients with cirrhosis as the leading indication for liver transplantation.[2,9,13] However, the underrepresentation of female patients in our data echoes gender-related disparities previously noted in the literature, where sociocultural and economic factors limit women's access to advanced healthcare interventions such as transplantation.[13,14]

The leading cause for end-stage liver disease requiring transplantation in our study was alcoholic liver disease [51(72.9%)], followed by viral hepatitis [12(17.1%)], which are consistent with global and regional trends where viral hepatitis, alcohol-related liver disease, and cryptogenic cirrhosis constitute the primary etiologies of end-stage liver disease.[2,7,9] The median MELD (20.79 ± 5.5) in our cohort suggests that most patients presented at an advanced stage of liver disease, reflecting delayed referral and limited early access to specialized care—an issue similarly documented in other LMICs.[13,14]

A crucial finding from our study was that 94.2 % and 67.1% of patients could not proceed to transplantation, primarily due to a lack of suitable donors and financial reasons, respectively. These results align with prior literature emphasizing the multifactorial nature of barriers to transplantation. Financial constraints remain a predominant obstacle, similar to findings from other South and Southeast Asian studies, where the high out-of-pocket costs of surgery and postoperative care severely limit access to transplantation.[8,11,15] In the absence of comprehensive insurance or state-supported programs, patients in Nepal face similar economic hardships that often halt the transplant process despite medical suitability.

Donor unavailability emerged as another major limiting factor in our study (94.2 %), comparable to reports from other Asian centers where cultural reluctance, fear of surgical risk, and inadequate awareness of donor safety contribute to limited donor pools.[9-11]

Medical unsuitability and disease progression accounted for 52.8% of non-transplant cases in our cohort. The reported rates of medical contraindications and disease progression observed in high- income countries are approximately 18% of waitlisted patients who either die or become too sick for transplant before an organ becomes available.[16,17] However, unlike these settings, our center relies entirely on LDLT, and delays due to donor evaluation or financial mobilization may exacerbate clinical deterioration, highlighting the time-sensitive nature of transplant readiness in low-resource contexts.

The disease progression among evaluated but non-transplanted patients in our study was 52.8 %, underscoring the urgent need for strategies to expedite evaluation and decision-making. Similar findings from other LMICs emphasize that delays, both systemic and patient-related, significantly impact survival outcomes among transplant candidates.[13,18]

Overall, our findings reinforce that the barriers to successful transplantation in Nepal are not merely medical but are deeply embedded in socioeconomic, cultural, and infrastructural realities. This echoes prior literature from other LMICs, emphasizing the need for national transplant frameworks, public awareness campaigns, donor support programs, and health financing reforms to improve access and equity in liver transplantation.[2,8,11,13]

This study is one of the few from Nepal to describe patients evaluated for transplantation but not operated upon. Identifying and categorizing the barriers within our local context provides actionable insights for clinicians, policymakers, and transplant program administrators.

Efforts to improve financial accessibility, streamline evaluation pathways, and enhance donor counseling could substantially reduce dropout rates and improve outcomes.

Being a single-center, retrospective study, our findings may not be generalizable to all transplant centers in Nepal. Some data were reliant on medical records and may be incomplete. Nonetheless, this study provides an important foundation for larger, multicenter prospective research to further explore these barriers and their solutions.

Conclusion

This study highlights that many patients evaluated for liver transplantation could not undergo the procedure due to donor unavailability, financial constraints, and disease progression.

References

1. Mishra A, Shrestha P, Bista N, et al. Pattern of Liver Diseases. J Nepal Health Res Counc. 2009;7:14–8.
2. Shrestha PC, Joshi N, Gurubacharya DL, et al. Initiation of Liver Transplant in Nepal: A Milestone. J Transplant. 2022;2022:1–7.
3. Cheemerla S, Balakrishnan M. Global Epidemiology of Chronic Liver Disease. Clin Liver Dis (Hoboken). 2021;17:365.
4. Russo FP, Ferrarese A, Zanetto A. Recent advances in understanding and managing liver transplantation. F1000Research. 2016:5:F1000 Faculty Rev-2895.
5. Hill AL, Khan M, Kiani AZ, et al. Global liver transplantation: emerging trends and ethical challenges. Langenbecks Arch Surg. 2023;408:418.
6. Trotter JF. Liver transplantation around the world. Curr Opin Organ Transplant. 2017;22:123–7.
7. Liver Transplantation - StatPearls - NCBI Bookshelf n.d. https://www.ncbi.nlm.nih.gov/books/NBK559161/ (accessed July 16, 2025).
8. Jones O, Li Z, Magyar CTJ, et al. A scoping review of nonmedical barriers to living donor liver transplant. Liver Transpl. 2025;31:287–97.
9. Khalil A, Quaglia A, Gélat P, et al. New Developments and Challenges in Liver Transplantation. J Clin Med. 2023;12:5586.
10. Sokolich J, Buggs J, LaVere M, et al. HCC Liver Transplantation Wait List Dropout Rates Before and After the Mandated 6-Month Wait Time. American Surgeon. 2020;86:1592–5.
11. Kaplan A, Aby ES, Scott S, et al. Financial toxicity in living donor liver transplantation: A call to action for financial neutrality. American Journal of Transplantation. 2024;24:1742–54.
12. Praharaj DL, Giri S, Jena SK, et al. Barriers to Live Donor Liver Transplantation (LDLT) in a Tertiary Care Center in Eastern India. J Clin Exp Hepatol. 2024;14.
13. Atreya A, Bastola P, Bhandari S, et al. Brain Death and Organ Transplantation in Nepal: Navigating Cultural, Legal, and Ethical Landscapes. Transpl Int. 2023;36.
14. Andraus W. Barriers and Limitations to Access to Liver Transplantation in Latin America. Clin Liver Dis (Hoboken). 2019;13:36-8.
15. Pillai A, Verna EC, Parikh ND, et al. Financial, policy, and ethical barriers to the expansion of living donor liver transplant: Meeting report from a living donor liver transplant consensus conference. Clin Transplant. 2023;37:e14955.
16. Kwong AJ, Ebel NH, Kim WR, et al. OPTN/SRTR 2020 Annual Data Report: Liver. Am J Transplant. 2022;22 Suppl 2:204–309.
17. John BV., Schwartz K, Scheinberg AR, et al. Evaluation within 30 Days of Referral for Liver Transplantation is Associated with Reduced Mortality: A Multicenter Analysis of Patients Referred within the VA Health System. Transplantation .2022;106:72–84.
18. Atreya A, Upreti M, Menezes RG, et al. Organ transplantation in Nepal: Ethical, legal, and practical issues. Dev World Bioeth. 2023;23:285–92.