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Prevalence of HCC among Living Donor Liver Transplant Recipients and Effect on Outcome Georgian Experience

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Abstract: Liver transplantation (LT) may be the best curative treatment that offers a chance of cure for the tumor and the underlying cirrhosis by complete extirpation of both. Hepatocellular Carcinoma (HCC) is a formidable global health challenge, representing one of the most prevalent primary liver malignancies with increasing incidence rates worldwide. It sets the stage for a comprehensive exploration of how LDLT has redefined the paradigms of treatment for HCC and contributed to enhanced patient outcomes. To answer the question of this paper we used cross sectional study design among 84 Living Donor Liver Transplant Recipients. After collecting data analyzing patient's medical cards we have found that out of 84 recipients 12 (11%) had a Hepatocellular Carcinoma, out of this 8 (6.7%) recipients dead and 4 (3.3%) is alive. We may have challenges such as: Diagnostic Challenges, Treatment Options, and Selection Criteria for LDLT in HCC. The relationship between HCC and LDLT is a dynamic and evolving field. LDLT has significantly expanded the therapeutic options for selected HCC patients, offering hope for improved outcomes. However, the intricate interplay between patient selection, surgical techniques, and post-transplant care underscores the importance of a multidisciplinary approach to HCC management. Ongoing research and advances in both HCC treatment and LDLT continue to shape the landscape of this complex disease and transplantation strategy.

Keywords: Transplantation, Hepatocellular Carcinoma, Outcome

Introduction

Liver transplantation (LT) may be the best curative treatment that offers a chance of cure for the tumor and the underlying cirrhosis by complete extirpation of both. (Azzam, 2015). Liver cancer remains a global health challenge, with an estimated incidence of >1 million cases by 2025. Hepatocellular carcinoma (HCC) is the most common form of liver cancer and accounts for ~90% of cases. Infection by hepatitis B virus and hepatitis C virus are the main risk factors for HCC development, although non-alcoholic steatohepatitis associated with metabolic syndrome or diabetes mellitus is becoming a more frequent risk factor. (Llovet et al., 2022). Hepatocellular Carcinoma (HCC) is a formidable global health challenge, representing one of the most prevalent primary liver

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malignancies with increasing incidence rates worldwide. While the therapeutic landscape for HCC encompasses a wide array of interventions, Living Donor Liver Transplantation (LDLT) has emerged as a crucial and innovative approach for the management of advanced HCC. This introduction provides a concise overview of HCC and LDLT, touching upon their respective clinical, epidemiological, and therapeutic dimensions. It sets the stage for a comprehensive exploration of how LDLT has redefined the paradigms of treatment for HCC and contributed to enhanced patient outcomes. The interplay between these two entities in the context of HCC management underscores the significance of a holistic approach that considers both the oncological and surgical aspects of this complex disease. This review seeks to shed light on the multifaceted landscape of HCC and LDLT, offering insights into their interdependence, potential synergies, and ongoing advancements in the field.

Around the world, live donor liver transplantation (LDLT) is an important source of organs for patients with liver disease. Hepatocellular carcinoma (HCC) occurring in the setting of cirrhosis is a common indication for transplantation. Liver transplantation (LT) has been accepted worldwide as the most effective treatment modality for patients with HCC. Cholangiocarcinoma, hemangioendothelioma, and hepatoblastoma are much rarer indications for transplantation. (Brown, 2009). Liver transplantation (LT) has been accepted worldwide as the most effective treatment modality for patients with

HCC and Liver transplantation (LT) represents the gold-standard therapy to cure well-selected patients with hepatocellular cancer (HCC) (Lai, 2022), for selection criteria transplant centers uses MILAN criteria. (Lee, 2016). Milan criteria are commonly used and have been adopted by the United Network of Organ Sharing. Identifies subgroup of patient with primary or secondary liver malignancy who may benefit most from liver transplantation.(Tumor size should be at least 2 cm. Maximum diameter of tumor is 5 cm if single, or no more than three liver tumors with maximum size of 3 cm.) (Lauren & Alexander, 2015). The Milan criteria are used to identify patients with HCC in whom the tumor burden is small enough to allow good outcome after liver transplantation. The aim of this paper is to measure prevalence of HCC among LDLT Recipients in Georgia and clarify its effect on outcome.

Method

To answer the research, question the study used cross-sectional study design with a purposive sampling. Information on interested variables were obtained from the medical documentations of patient’s medical history in Batumi Referral Hospital. Study subjects were adult liver recipients who had liver transplantation at our center (Batumi, Referral Hospital) since 2014 including August of 2023, totally 84 recipients Median age 49.5 year. For finding association between histopathological confirmed HCC diagnose and outcome we have used SPSS statistical Analyze.

Results and Discussion

To answer the question of this paper we used cross sectional study design among 84 Living Donor Liver Transplant Recipients. After collecting data analyzing patient’s medical cards, we have found that out of 84 recipients 12 (11%) had a Hepatocellular Carcinoma, out of these 8 (6.7%) recipients dead and 4 (3.3%) is alive.

Table 1. Chi-Square tests

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.447 ^a	1	.020		
Continuity Correction ^b	4.032	1	.045		
Likelihood Ratio	5.257	1	.022		
Fisher's Exact Test				.026	.024
Linear-by-Linear Association	5.376	1	.020		
N of Valid Cases	76				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.42.
b. Computed only for a 2x2 table

Analyzing data in chi-square test show that there is significantly tight association between HCC and outcome ($p = .02$) the discussion about Hepatocellular Carcinoma (HCC) and Living Donor Liver Transplantation (LDLT) encompasses various aspects of these two interconnected subjects. HCC, as one of the most prevalent primary liver malignancies, poses a significant clinical challenge, while LDLT has emerged as a vital approach in the management of advanced HCC. HCC, as a one of the most prevalent primary liver malignancies, poses a significant clinical challenge such as: Diagnostic Challenges, Treatment Options, and Selection Criteria for LDLT in HCC.

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Conclusion

Present paper aimed to is to measure prevalence of HCC among LDLT Recipients in Georgia and clarify its effect on outcome and resalts shows significant association between HCC status and outcome.

Recommendations

When it comes think about recommendations for Hepatocellular carcinoma and Living Donor Liver Transplantation, several conditions need to be ensured for the best outcome, such as;

- ✓ Early Diagnosis and Surveillance
- ✓ Multidisciplinary stuff
- ✓ Patient selection criteria
- ✓ Minimizing waiting time
- ✓ Immunosuppression and recurrence prevention
- ✓ And most important part for country which has started innovative service to give their citizens chance to prolong life is to share and collaborate with other transplant centers and research institutions to improve outcomes.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPHELS journal belongs to the authors.

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