PRINT: ISSN 0972-3757 ONLINE: ISSN 2456-6330
International Journal of
HUMAN GENETICS

Full text open access online (Since 2001)
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PRINT: ISSN 0972-3757 ONLINE: ISSN 2456-6330
Int J Hum Genet, 26(4): 224-252 (2026)
DOI: 10.31901/24566330.2026/26.04.937

Impact of Paternal and Maternal Family History of Liver Cancer on Postoperative Prognosis in Hepatocellular Carcinoma

Shurong Zhang[1], Tao Lv[2], Li Jiang[2], Jian Yang[2], Lvnan Yan[2], Jiayin Yang[2] and Jianbo Li[1]

[1]Department of Critical Care Medicine, West China Hospital of Sichuan University, Chengdu 610041, China
[2]Department of Liver Surgery and Liver Transplantation Center, West China Hospital of Sichuan University, Chengdu 610041, China

KEYWORDS Biomarker. Tumor. Hepatectomy. Hepatitis B. Neoplasm Recurrence. Risk Factors. Survival Analysis

ABSTRACT Family history of liver cancer (FHLC) may influence prognosis after hepatocellular carcinoma (HCC) resection, but the effect of parental origin remains unclear. This retrospective study included 2,325 patients who underwent HCC resection between 2010 and 2018. Recurrence-free survival (RFS) and overall survival (OS) were evaluated using Kaplan-Meier and multivariable Cox analyses. Maternal FHLC alone was independently associated with poorer RFS (HR 2.33, 95% CI 1.75-3.09) and OS (HR 3.02, 95% CI 2.15-4.24), whereas paternal FHLC alone was not significantly associated with either outcome. The association remained significant among patients without maternal HBV infection. Parental origin of FHLC may provide additional prognostic information after HCC resection.

Lay Summary

This study examined the impact of familial history of liver cancer (FHLC) on the postoperative prognosis of patients who underwent surgical intervention for hepatocellular carcinoma (HCC). The findings indicate that patients with a maternal FHLC exhibit poorer postoperative prognosis than those with a paternal history. Specifically, individuals with maternal FHLC demonstrated lower survival rates and a higher likelihood of cancer recurrence. The adverse association remained evident among patients without maternal HBV infection, although mother-to-child HBV transmission was not directly established in this study. These results suggest that the parental origin of FHLC, particularly maternal origin, should be considered when evaluating the prognosis and formulating treatment plans for patients with HCC following surgery.

Highlights

Maternal family history of liver cancer (FHLC) was associated with poorer postoperative recurrence-free survival (RFS) and overall survival (OS) in patients with hepatocellular carcinoma (HCC). Maternal FHLC alone remained independently associated with poorer RFS and OS after multivariable adjustment and was also associated with a recurrence pattern shifted toward earlier recurrence. Exploratory biomarker analyses showed limited differences between parental-origin groups and did not provide sufficient evidence to explain the observed survival differences. In comparison, paternal FHLC alone was not significantly associated with poorer RFS or OS. Given these differences, parental-origin FHLC warrants further evaluation as a potential prognostic factor in patients undergoing HCC resection.