

Trends in liver resections over the past 30 years in The Netherlands

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Introduction

Over the past decades, surgical resection has been the main local treatment option for patients with malignant liver tumors. The aim of this study is to evaluate trends in the number, survival and characteristics of patients undergoing liver resection (LR) in the Netherlands between 1991 and 2020.

Methods

All records of surgical resections for liver tumors performed between 1991 and 2020 were extracted from the Dutch nationwide pathology network database. Resection and tumor characteristics were extracted from the conclusion field using a machine-learning algorithm. Survival data was acquired by linking with the Dutch Center for Family History. Patient, resection, and tumor characteristics and survival for hepatocellular carcinoma (HCC) and colorectal liver metastases (CRLM) were assessed across decades.

Results

Between 1991 and 2020, 19.164 LRs were performed in the Netherlands. The annual number of LRs increased from 116 in 1991 to 1.193 in 2020. Liver metastases accounted for 84% of resections, with CRLM comprising 85% of these, while primary liver tumors accounted for 16%, with HCC accounting for 59% of these cases. From 1991-2000 to 2011-2020, resections for tumors >50 mm rose from 44% (836/1916) of cases to 57% (6830/11977), and for multiple tumors from 21% (404/1916) to 32% (3820/11977), respectively. Simultaneously, the rate of wedge/segment resections and R0 resections increased between 1991-2000 and 2011-2020, from 54% (1036/1916) to 75% (8965/11977) and 48% (916/1916) to 68% (8196/11977), respectively. Five-year survival rate after LR for CRLM decreased from 44% (1991-2000) to 33% (2011-2020), $p < .001$. In contrast, the 5-year survival rate for HCC patients remained stable at 57% (1991-2000), 50% (2001-2010), and 50% (2011-2020), $p = .690$.

Conclusion

The number of liver resections performed in the Netherlands has sharply increased over the past three decades. Survival after liver resection for CRLM showed a declining trend, potentially reflecting evolving patient, tumor and treatment characteristics.