

Surgery for liver metastases caused by breast cancer

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ABSTRACT

For Breast Cancer Liver Metastases (BCLM), it is still uncertain whether liver resection or ablation is beneficial. The study's objectives were to evaluate surgical vs systemic treatment regimens and determine survival following isolated BCLM in national cohorts. To find individuals with BCLM who had not been identified with extrahepatic spread,

researchers looked at the Swedish registration for cancer of the liver and bile ducts (SweLiv) and the National Register for Breast Cancer (NBCR). Medical record reviews were used to evaluate and complete data from the registers. To examine survival, a Kaplan-Meier plot and log rank test were utilised. Cox regression analysis was used to analyse prognostic and predictive features.

Key Words: *Surgical care; Breast cancer; Liver metastase; Vascular surgery*

INTRODUCTION

Numerous patients lose their lives each year as a result of metastatic breast cancer (MBC). All MBC patients have isolated breast cancer liver metastases (BCLM). Despite improvements in breast cancer treatment overall, patients with BCLM continue to have a dismal prognosis with a median life of a few years. Uncertainty surrounds the function of liver resection and ablation in the current management of BCLM. If liver resection or ablation is done for BCLM in conjunction with systemic therapy, several case studies show a survival benefit. Furthermore, these research and review papers have demonstrated the safety of liver surgery for BCLM. Single metastases, liver-only metastases, estrogen-positive breast cancer, non-triple-negative tumors, and a favorable response to systemic therapy are among the prognostic criteria that can help identify individuals who are candidates for surgery. The published studies, according to those who oppose liver resection and ablation for BCLM, have a low level of proof, and liver surgery could stall or stop systemic therapy, they claim. The most recent European recommendations for treating advanced breast cancer do not yet exist, although randomized clinical trials are required. In order to get ready for such a prospective experiment, this study examines the available nationwide retrospective data. There is an inherent danger for selection bias because published case series often only cover a small number of patients who are typically treated at one

institution. Only three studies have a control group of patients who only receive systemic therapy, and these studies have inconsistent findings about the utility of liver resection. In this nationwide registry-based investigation, patients who underwent surgery are contrasted with a control group who only received systemic therapy. The main goal was to determine if patients who underwent liver resection or ablation for BCLM would benefit in terms of survival. Our theory is that BCLM patients will live longer if they receive local treatment. In order to identify patients with BCLM, two national cancer registries—the National Breast Cancer Register (NBCR) and the Swedish registry for cancer in the liver and bile ducts—were used. The Swedish registry includes all primary liver tumors as well as all liver resections and ablations for primary cancers and metastatic disease. Although NBCR has a lower coverage in the follow-up form, where metachronous metastases are documented, both registries have good coverage rates for inclusion. Breast cancer history and a BCLM score of one to five were prerequisites for inclusion. Since it was impossible to determine which breast cancer metastasized, investigations of survival and prognostic variables could not be conducted on patients with bilateral or recurring breast cancer. Extrahepatic metastases in patients were disqualified. There were included all molecular subtypes of breast cancer. Extrahepatic metastases in patients were disqualified. There were included all molecular subtypes of breast cancer. The NBCR was

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used to determine which patients had BCLM. Imaging reports from the three months prior to the diagnosis of liver metastasis were examined in order to create an accurate control group, and patients with extrahepatic illness or more than five BCLM were eliminated. Date of primary tumor and BCLM diagnosis, age at BCLM diagnosis, primary tumor size, axillary nodal status, estrogen and progesterone hormonal receptor status, human epidermal growth factor amplification, vascular ingrowth, histological grade, and adjuvant oncological treatment were all extracted from NBCR and patient records. surgery for metastases from an unidentified original tumor or BCLM Of those, 26 had BCLM registrations. Six more BCLM patients were found after a study of their medical records and the pathology reports from the metastases that were labelled as being of uncertain origin. Only a small number of patients had received surgical care for BCLM overall. Two individuals were disqualified due to prior radiation therapy for liver metastases, and one patient was disqualified for having more than five metastases. So, the women in the final surgical cohort had a history of breast cancer with liver metastases but no extrahepatic symptoms. Nineteen patients who received neoadjuvant treatment—which was administered to twenty-one of the patients who underwent surgery—responded to it. About the particular type of medical treatment programmer, no information is known. The procedures included 24 resections and 5 ablations. 16 individuals underwent segmentectomy or an unusual resection, whereas eight patients underwent hemihepatectomy surgery. Typical metastasis diameter. Embolization of the portal vein was not done. While six resections were unsure (R1), seventeen were radical (R0). Data on radicalism were absent for the remaining six, which included the ablations. Patients were registered in NBCR at the same time frame with BCLM. Patients who had simultaneous extrahepatic metastases were identified among these and were consequently disqualified. Due to recurrent breast cancer, six additional individuals were turned away. Some patients made up the remaining control cohort. Following an examination of radiology reports from procedures done within three months of the diagnosis of metastasis, the following conditions were excluded: extrahepatic metastases that were not documented in NBCR, more than five metastases, or insufficient imaging reports. Thus, some patients made up the final control cohort. demonstrates the two cohorts' initial features. 54 years old on average were present at operation. At the time of the diagnosis of the liver metastases, the average age of the control group. One metastasis was present in about two thirds of both groups. The percentage of triple-negative tumors was the same in the surgical and control cohorts, however there were noticeably more estrogen receptor positive tumors in the surgical cohort. In the surgical cohort, it took much longer from the initial diagnosis of breast cancer to the discovery of liver metastases. Although both groups received systemic treatment, there is no information in the registries about the oncological treatment plans for BCLM. Nevertheless, patients (both in the surgical cohort and the control cohort) who underwent breast cancer surgery received medical treatment that was prescribed for them and that adhered to national criteria regarding their TNM status and molecular subtype. To examine the variables influencing BCLM patient survival after surgery, Cox regression analysis was utilized. A univariate analysis of the surgical cohort indicated possible predictive markers as being the HER2 gene

amplification, estrogen receptor positive, progesterone receptor positivity, time from initial breast cancer to identification of metastases, and comorbidities. In a multivariate study, the HER2 gene amplification was the only factor that significantly increased survival following surgery. Within days of surgery, there was no mortality. A postoperative complication was documented for certain surgical patients. Bile leakage, intestinal blockage, ascites, wound infection, another small bowel issue, and one additional unidentified complication were the complications. The registry didn't include a scale for assessing the seriousness of the issues. A Kaplan-Meier plot and a log rank test were used to examine survival. Both from the date of breast cancer diagnosis and the date of liver metastases, there was a considerably higher survival rate in the surgical cohort.

The median survival from the time of breast cancer diagnosis was months in the surgery cohort and months in the control cohort, respectively. The median survival from the time of liver metastases diagnosis was months in the surgery cohort and months in the control cohort, respectively. All patients from both cohorts were looked at in a cox regression analysis to account for variations across the groups. In univariate study, surgery was a good predictor of survival, but its significance was lost in multivariable analysis. A Kaplan-Meier plot and a log rank test were used to examine survival. Both from the date of breast cancer diagnosis and the date of liver metastases, there was a considerably higher survival rate in the surgical cohort.

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systemic breast cancer treatment is largely standardized because it is carried out in accordance with federal regulations. Modern systemic treatment regimens, including anti-Her medication where necessary, have been used to treat the patients over the past few years. There was no one-month mortality in this countrywide study's data, and its complication rate was comparable to that of other liver surgery studies. It is plausible to conclude that liver surgery for BCLM is secure when carried out in facilities with experience in this area. Despite receiving widespread press, this retrospective study's tiny sample size is a flaw. According to the coverage of the Swelled liver registry, surgical therapy for BCLM is uncommon. Furthermore, despite a sizable initial patient source for the control cohort, only representative controls could be found. The majority of rejected individuals either had numerous liver metastases, extrahepatic illness, or invalid imaging. Since distant metastases are reported on a follow-up form in NBCR with a low coverage in some regions, the actual incidence of oligo metastatic BCLM in Sweden is greater. The number of patients who develop isolated liver metastases and the incidence of advanced breast cancer in Sweden can be used to estimate the number of people who would qualify for liver surgery for BCLM each year. As evidenced below, only five people received surgery annually, but if the procedure was found to be successful, more patients might be eligible for it. Despite the growth in liver surgery for various causes during the study period, there

was no tendency towards an increase in BCLM operations. Since bone metastases can remain stable for a long period, patients with BCLM with bone metastases may be candidates for surgery. This might result in even more people who might benefit from surgery. Lack of proof of enhanced survival may account for the limited number of BCLM patients getting liver surgery. There is currently no active monitoring of breast cancer patients to identify potentially operable liver disease because of this information gap. Gene amplification was a good predictor of survival after BCLM surgery in the current sample. Other prognostic variables, including as estrogen receptor positive, a solitary metastasis, and a lack of vascular invasion, were discovered in earlier research. The disparity in these findings may be explained by the small number of patients included in this investigation. However, an effective another targeted treatment for this subgroup may explain why HER2 emerges as a favorable prognostic factor in this study. HER2 gene overexpression is typically associated with worse prognosis. The study's clear selection bias risk is a problem. In a multivariate study that took hormone receptor status and HER2 amplification into account, the importance of surgical treatment, which is a positive predictive factor in a univariate analysis, was lost. This might be because the cohorts were smaller and the surgical cohort had more initial tumors that were estrogen positive. Therefore, despite the fact that this study's findings were consistent across the country, it is still too early to advise BCLM patients to undergo surgery outside of prospective studies, and any potential survival advantage in the surgical sample should be read with care. This multicenter case control study on liver resection for BCLM concludes. Selection bias can be demonstrated by the prolonged disease-free interval between breast cancer diagnosis and BCLM and the higher proportion of estrogen receptor positive tumors in the surgical group. Comorbidity is not included in the registries, which may have affected a patient's decision to have surgery.