

Is there any role for liver resection in the treatment of liver metastases from gastric carcinoma?

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Hepatectomy is an increasingly utilised treatment for liverlimited metastatic disease. While this is usually in the setting of colorectal metastases, occasionally there is a role for this in other malignancies (1). Markar *et al.* (2) have recently published a systematic review and pooled analysis on the role of hepatectomy for gastric adenocarcinoma metastases. Primary outcome was assessed as overall survival following liver resection; secondary outcomes examined were morbidity and mortality rates and prognostic factors that may impact survival following resection. These aims were similar to those of an earlier review (3) of the same topic published some two years ago, and four new studies have been published since that time and were included in this present review, providing an update on current evidence.

Markar *et al.* (2) reviewed a total of 39 reports, including close to 1,000 patients who had undergone hepatectomy for gastric adenocarcinoma liver metastases. It was noted that the majority of patients included were from Asian (737 patients) rather than Western (254 patients) centres, which probably reflects the higher incidence of gastric adenocarcinoma in the East (4). Of the studies identified, none were randomized controlled trials. The majority of included studies were case series, with eight papers providing survival data on patients with metastatic gastric adenocarcinoma who hadn't undergone hepatectomy as a comparative cohort. Additionally, the case series were generally small, with the median number of patients undergoing hepatectomy being 21; only four studies included more than 50 patients (5-8). This review confirms that, while hepatectomy for gastric adenocarcinoma is rare, it can be performed safely, with 30-day mortality as low as 0% and 30-day morbidity ranging from 0–47%. Median survival was 21 months and 1-, 3- and 5-year survivals were reported as 68%, 31% and 27%. These outcomes are in keeping with previously reported outcome data (2). Interestingly, survival outcomes were better in Asian centres, which may be a reflection of higher-volume centres treating more patients.

The authors have conducted a pooled-analysis including nine identified studies of survival outcome comparing patients who underwent resection of hepatic metastases with patients who had not undergone resection. They concluded that there was a significantly improved survival benefit (HR =0.5; 95% CI: 0.41-0.61; P<0.001) for patients undergoing hepatic resection. The major drawback with such a statistical comparison is the variation of cohorts being included for comparison. None of these studies were randomized controlled trials. In the eight studies that included a cohort who did not undergo hepatectomy, the usual reason for not undergoing resection was that the extent of intra-hepatic disease was such that hepatectomy was not feasible. In this instance, it is difficult to ascertain if the improved survival was due to a benefit of hepatectomy or simply a reflection of extent of disease. Of note, one of the studies included in the pooled-analysis comparing resection with non-resection did not include any data for cohort that did not undergo resection. (9)

Seven studies were included in a pooled analysis comparing outcomes following hepatectomy in patients

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with solitary metastasis to that of patients with multiple metastases. 5-year survival was demonstrated to be greater (OR =0.31; 95% CI: 0.13–0.76; P=0.011) in patients following resection of a solitary metastasis.

Survival following resection of synchronous and metachronous metastases were compared by pooled analysis of seven studies, and interestingly, no difference was demonstrated in 5-year survival. Our own earlier review (3) concluded that patients with metachronous metastases may have a better prognosis than patients with synchronous metastases. We included three studies, all of which were included in the present review, which demonstrated greater survival in patients with metachronous metastases, particularly when comparing survival within 3 years of resection (10-12).

This current review confirms that in very select patients, there may be a role for hepatectomy in the treatment of liver-limited metastases from gastric adenocarcinoma. Reported survival following resection is greater than what may be expected for patients with metastatic gastric adenocarcinoma, and there seemed to a favourable prognosis following liver resection when compared to those patients who did not undergo resection. It must be borne in mind that patients included as comparators were generally those with more extensive disease not suitable for resection, and therefore better survival may simply be a reflection of less extensive or less aggressive disease, rather than solely as a consequence of liver resection.

We agree with the reviewers' conclusion that a prospective study would be required to more accurately assess the benefit of hepatectomy in these patients, however recruitment to such a trial would prove challenging, as fewer than 3% of patients who undergo gastrectomy have hepatic metastases that meet the highly selective criteria described in previously published studies (3).

In conclusion, we concur with the authors of the present review that there may be a place for liver resection with curative/long-term survival intent in a limited number of highly selected patients with gastric adenocarcinoma that metastasised to the liver.

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