LiverMetSurvey: Analysis of clinicopathologic factors associated with the efficacy of preoperative chemotherapy in 19551 patients with colorectal liver metastases

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Background: LiverMetSurvey is an international, internet-based registry designed to assess the efficacy of multimodality treatment options for colorectal liver metastases (CLM) by analyzing outcomes following hepatic resection (HR) in a large number of patients. Methods: Data were analyzed for the 19551 patients entered into LiverMetSurvey by 256 hepatobiliary centers. Inclusion period from August 2004 (HR: 1974 to 2012); 11,121 men: 7141 women; mean age: 61 years). The distributions of potential prognostic factors including age, sex, primary tumor site, timing of metastasis diagnosis, tumor number, diameter of the largest metastasis, bilaterality, and treatment with chemotherapy were compared to survivals using univariate and multivariate statistics. Results: Metastases originated in the colon in 69% of patients and were synchronous (diagnosed within 3 mo of primary tumor treatment) in 49% of patients. 34% of patients had 3 metastases and tumors were distributed bilaterally in 43% of cases. The mean size of the largest metastasis was 41.8 mm. 55% of patients were treated with preoperative systemic chemotherapy. Following resection, 60-day mortality was 1.2% and median, 5-year, and 10-year overall survivals (OS) were 46 mo, 42%, and 26%, respectively. Variables independently associated with poor prognosis included number of metastases > 3 (p<0.0001), bilateral metastases (p=0.0002), and size of the largest metastasis > 5 cm (p=0.03). Preoperative chemotherapy (PC) did not appear to benefit patients with solitary CLM (5-yr OS: PC 45% vs. no PC 58%), but was associated with improved survival in patients with > 5 metastases (5-yr OS: PC 22% vs. no PC 12%). Conclusions: Assessment of outcomes for the first 19,551 registrants to LiverMetSurvey not only confirms the prognostic importance of intrahepatic tumor burden, but also indicates that the ability of preoperative systemic chemotherapy to improve survivals is limited to patients with multiple (> 5) metastases. In addition, this analysis demonstrates the potential for LiverMetSurvey, which is now prospectively enrolling patients from 67 countries, to determine the therapeutic value of current and future treatment strategies.