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# Prognostic Factors for Survival after Resection of Liver Metastases from Colorectal Cancer: A Single Institution Analysis of 655 Cases

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**Abstract**

**Backgound:** Several clinical risk factors for patients undergoing liver resection for colorectal liver metastases were suggested. The purpose of the study was to evaluate the prognostic factors for survival after resection of liver metastases from colorectal cancer in a high volume center for both hepatobiliary and colorectal surgery.

**Methods:** We completed a retrospective analysis on 655 consecutive patients with liver resection for colorectal cancer metastasis operated in our centre between April 1996 and March 2016. Preoperative, intraoperative, pathologic, and outcome data for patients undergoing liver resection for metastatic colorectal were examined. Univariate analysis followed by multivariate Cox regression analysis was performed in order to identify the risk factors associated with prognostic factors related to survival.

**Results:** There were 371 men (56.65%) and 284 women (43.35%), with a median age of 60 year-old (range 24 to 84). The primary tumor location was colon in 454 cases (69.31%) and rectum for 201 cases (30.69%). Synchronous tumors were resected in 353 cases (53.72%). The surgical mortality rate was 2.95%. The 5-year survival rate was 29.2%, and the 10-year survival rate was 17.1%. Four factors were found to be significant independent predictors of poor long-term outcome by multivariate analysis: bilobar liver metastasis ($p = 0.003$) with HR 1.653 (95%CI 1.180 – 2.316), non-R0 resection ($p < 0.001$) with HR 6.066 (95%CI 3.508 – 10.489), N2 lymph node stage ($p = 0.007$) with HR 1.528 (95%CI 1.125 – 2.075) and lack of adjuvant chemotherapy ($p = 0.046$) with HR 1.703 (95%CI 1.009 – 2.873).

**Conclusion:** The independent prognostic factors for poor OS were both clinico-pathologic and therapeutic. In patients with good prognostic factors, an appropriate onco-surgical treatment is able to significantly prolong survival. In patients with poor prognostic factors, prognosis is mainly influenced by tumor biology and the benefit from current therapies is still modest.

**Key words:** colorectal liver metastasis, liver resection, adjuvant therapy, survival, risk factors