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## **Risk Factors For Beyond Milan Recurrence After Hepatic Resection For Single Hepatocellular Carcinoma Less Than 5 Cm: Indication For Liver Transplantation**

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**Background :** Hepatic resection (HR) is considered as the treatment of choice for the single hepatocellular carcinoma (HCC) smaller than 5 cm (early HCC) in patients with preserved liver function. However, the beyond Milan recurrence (BMR) is one of the worst results after HR for patients with early HCC, that could avoid if the primary liver transplantation (LT) were performed. The aims of this study were to determine the risk factors for BMR after HR (BMR factors) for early HCC and to determine whether primary LT is a better treatment alternative to HR in patients with early HCC carrying the BMR factors.

**Methods :** For this study, 493 patients with early HCC who underwent HR between 1995 and 2016 were analyzed. The 10-year overall and recurrence-free survival rates after HR were 71.7% and 38.2%, respectively.

**Results :** Among them, 74 patients (15%) experienced BMR. The patients with BMR were significantly inferior 10-year survival rates after HR than those without BMR (22.6% vs. 79.8%,  $P < 0.01$ ). In multivariate analysis, calculated hepatic venous pressure gradient (CHVPG)  $\geq 7$  mmHg and microvascular invasion (mVi) were identified as the BMR factors for early HCC ( $P < 0.05$ ). In the above period, 63 patients underwent LT for early HCC. The 10-year survival rates after LT were 92.5%. The 10-year survival rates between HR and LT were similar when no BMR factor was present (85.5% versus 100%,  $P = 0.39$ ), but significantly superior in LT when the BMR factor was present (60.6% versus 91.8%,  $P < 0.001$ ).

**Conclusions :** Among the patients with early HCC which are resectable and transplantable, LT could be indicated when CHVPG  $\geq 7$  mmHg and/or mVi are present.

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