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The impact of anatomical resection and preoperative positron emission tomography positivity on recurrence after hepatectomy for patients with primary solitary hepatocellular carcinoma

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Introduction : There is little evidence indicating that anatomical resection (AR) is associated with survival improvement in solitary hepatocellular carcinoma (HCC) patients who evaluated preoperatively based on positron emission tomography (PET) uptake. The aim of our study was to compare the oncological outcomes of AR in HCC patient with PET-positive versus PET-negative.

Methods : From January 2007 to September 2015, preoperative PET-evaluated 259 patients underwent hepatectomy as the primary treatment for solitary HCC. The patients involved were divided into four groups according to PET uptake and hepatectomy type such as AR or NAR: Group 1 (PET-negative and AR, n=62); Group 2 (PET-negative and NAR, n=46); Group 3 (PET-positive and AR, n=100); Group 4 (PET-positive and NAR, n=51).

Results : PET positivity was associated with higher protein induced by vitamin K antagonist-II ($P=0.025$), larger tumor size ($P=0.05$), microvascular invasion ($P=0.012$), portal vein invasion ($P=0.031$). The 1-year, 3-year, and 5-year recurrence-free survival rates were 68.0%, 59.6%, and 51.5% in PET-positive group and 85.0%, 68.2%, and 59.8% in PET-negative group ($P=0.055$). In Kaplan-Meier analysis for RFS, although Group 1 and Group 2 were not significant difference ($P=0.387$), Group 1 showed remarkable difference from Group 3 and Group 4 ($P=0.045$, $P=0.023$, respectively).

Conclusions : Application of AR in solitary HCC patients with PET-negative can achieve better long-term outcome than hepatectomy in HCC patients with PET-positive.

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