

Association Of Adjuvant Radiotherapy With Long-term Overall And Recurrence-free Survival Following Hepatectomy For Hepatocellular Carcinoma: A Multicenter Propensity-matched Study

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Background : R0 resection with wide margins is the gold standard for hepatocellular carcinoma (HCC), yet R0 resection with narrow-margin and even R1 resection is not uncommon in real-world clinical practice. We sought to characterize the efficacy of adjuvant radiotherapy on long-term oncological survival following hepatectomy for HCC with close/positive surgical margins using propensity-matched analysis.

Methods : Using a multi-institutional database, patients with HCC who underwent hepatectomy with close margins (0.1~1.0cm) or pathologically positive margins were analyzed. Using propensity score matching (PSM) and multivariate Cox-regression analysis, the effect of adjuvant radiotherapy on long-term overall survival (OS) and recurrence-free survival (RFS) was evaluated.

Results : Among 683 patients who met inclusion criteria, 82 patients received adjuvant radiotherapy within 10 weeks after surgery. Radiotherapy-related major toxicity was minimal among patients receiving adjuvant radiotherapy. PSM analysis created 78 matched pairs of patients. In the PSM cohort, median OS and RFS among patients treated with adjuvant radiotherapy were more favorable than individuals who were not treated (72.5 and 37.3 months vs. 52.5 and 24.0 months, both $P < 0.05$). After adjustment for other confounding factors on multivariate analyses, adjuvant radiotherapy remained independently associated with favorable OS and RFS following hepatectomy with close/positive margins for HCC (HRs: 0.821 and 0.827, respectively).

Conclusions : Despite the lack of consensus on the role of adjuvant radiotherapy following HCC resection, this PSM analysis suggested improved OS and RFS with adjuvant radiotherapy following hepatectomy with close/positive margins for HCC. Future randomized controlled trials are needed to further define the survival benefit of adjuvant radiotherapy for patients with HCC.

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