
The Results of Living Donor Liver Transplantation for HCC Satisfying Milan Criteria after Down-staging in Patients Initially Outside Milan

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Aims: The extension of the selection criteria such as UCSF, Kyoto, and Asan Medical Center criteria also revealed comparable results, but still Milan criteria has been believed to guarantee excellent results. As a result, when HCC is initially outside Milan selection criteria, down-staging effort to within Milan criteria has been tried by using various loco-regional treatment. Though our institution do not have established down-staging program of HCC for liver transplantation, we intended to review our experiences corresponding to down-staging.

Methods: Adult liver transplantation was performed in 1,806 patients from July 1992 to April 2008, and the number of adult LDLT was 1,575 cases. 553 patients (35.1%) undergone LDLT had HCC. 65 patients was diagnosed for HCC before LDLT but not treated previously and belonged to Milan criteria, classified as De novo Milan group. 22 HCC patients did not meet Milan criteria initially, but subsequently satisfied the criteria after down-staging with loco-regional treatment, classified as Artificial Milan group. The evaluation of down-staging was based on pre-operative CT scan and explanted liver biopsy, and excluded the patients having unclear treatment history on analysis.

Results: Artificial group showed significantly less Child C patients (25%) than De novo group (64.5%) (0.037). Tumor characteristics between Artificial and De novo group had significant differences in maximal tumor size (2.5 ± 1.2 vs 2.2 ± 0.95 cm), sum of tumor diameter (3.4 ± 1.4 vs 2.4 ± 1.0 cm), number of nodules (1.8 ± 0.9 vs 1.2 ± 0.5) and AFP level (438 vs 133 ng/ml) respectively. 5-year cumulative survivals were not different between Artificial and De novo group (83.9% vs 93.9%), but 5-year disease free survival were significantly different (71.1% vs 96.5%) ($p=0.0016$).

Conclusion: Survival rates after LDLT were good in both groups. However, more strict follow-up is necessary in Artificial group considering higher recurrence rate than De novo group.