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Comparative Study Of Propensity Score Matching Method And Benchmark Article Method On The Outcomes Of Laparoscopic Major Liver And Open Major Liver Resection For Hepatocellular Carcinoma

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Background : To compare the outcomes of major laparoscopic liver resection (LLR) and open liver resection (OLR) for hepatocellular carcinoma (HCC) with two methods.

Methods : We retrospectively reviewed a data of 177 patients who underwent major liver resection for HCC (LLR; n=67 vs. OLR; n=110). We performed 1:1 propensity score matching (PSM) between two groups and matched 65 patients for both groups. Another comparison was done with already published article as a benchmark after applying similar inclusion and exclusion criteria (LLR; n=30 vs. OLR; n=34).

Results : After PSM, there were no significant differences in blood loss (1407.2 ± 2322.7 vs 1071.5 ± 1160.6 ml; $P=0.299$), and transfusion rate (32.2% vs 32.0% ; $P=0.574$) between two groups. The mean operative time was significantly longer in LLR than in the OLR group (418.7 ± 172 vs 335.1 ± 121.6 min; $P=0.002$). Complication rate (21.5% vs 33.8% ; $P=0.085$) was similar and the mean hospital stay was shorter in the LLR than in the OLR group (11.4 ± 8.5 vs 17.6 ± 21.4 days; $P=0.009$). After benchmarking method, there were no significant differences in between two groups in terms of blood loss (780 ± 822 vs 947 ± 660.5 ml; $P=0.382$), transfusion rate (30.0 vs 32.4% ; $P=0.528$), hospital stay (9 ± 3.7 vs 10.4 ± 3.59 days; $P=0.119$), and complication rate (10.0% vs 20.6% ; $P=0.208$). Operation time (395 ± 166.6 vs 296 ± 68.3 min; $P=0.002$) was significantly longer in the LLR than in the OLR group. Benchmarking method showed significant loss of number of patients analysed, but results were quite similar to PSM method.

Conclusions : Both methods showed that major LLR was safe compared to major OLR. Benchmarking method can be easily used to compare with data of other published article.

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