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Learning curve of graft bench operation in living donor liver transplantation: A cumulative sum analysis

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Introduction: The middle hepatic vein reconstruction is a critical issue for successful living donor liver transplantation. In the live donor liver transplantation, using an extended graft donor, preventing congestion by bench surgery becomes more important. Focusing on the bench surgery, which is important in liver transplant surgery, we analyzed the learning curve and described the factors affecting the learning curve, and the postoperative outcomes.

Methods: Data from donors undergoing bench surgery between January 2019 to May 2020 retrospectively reviewed. To overcome operator-dependent bias, data from procedures performed by only a single surgeon (Jeong-Moo Lee) were included. The learning curve was evaluated using the cumulative sum (CUSUM) method based on the duration of surgery.

Results: A total of 58 bench surgery were evaluated. The mean operative time was 64.0 ± 20.8 minutes, and all grafts were successfully transplanted. The CUSUM analysis demonstrated a learning curve of approximately 41 cases of bench surgery. Double portal vein orifices were seen to be risk factors for longer surgery time. Having adjusted for case-mix with these factors, the risk-adjusted CUSUM analysis demonstrated a learning curve of 39–41 cases of bench surgery.

Conclusions: At least 41 cases of learning curve are required for successful bench surgery in living donor liver transplantation. Multiple portal vein office is related with longer operative time and learning curve for the bench operation.

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