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Effects of omega-3 fatty acids on outcome after living donor right hepatectomy: a pilot study

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Introduction: Preclinical data suggest that supplementation of omega-3 fatty acids may be beneficial in liver resections, by ameliorating ischemic injury during the surgical procedure. We will assess the use of a fish oil-based lipid emulsion as a potential preconditioning strategy for the reduction of ischemic injury in living liver donation.

Methods: This trial was a prospective, open-label, single-arm trial to assess the effect of two preoperative doses of 10% purified fish oil-based lipid emulsion (Omegaven) on outcome after living donor right hepatectomy. Live liver donors scheduled to undergo right hepatectomy were given preoperative infusions of Omegaven 100 ml, on the day prior to surgery and on the morning of surgery.

Results : Ten donors were enrolled in the trial from January to July of 2018. Nine donors completed the trial. One subject did not undergo liver donation due to moderate steatosis upon liver biopsy and was dropped from the trial. All patients underwent fully laparoscopic right hepatectomy and mean operative time was 273 minutes. Estimated blood loss during surgery was 238.9 ml and none of the patients received intraoperative red blood cell (RBC) transfusions. One patient required postoperative RBC transfusion. Peak postoperative AST and ALT levels were 205.3 U/L and 233.1 U/L. Values peaked on the day of surgery or postoperative day 1 and continued to decline during the first 5 days. All donors were discharged without complications.

Conclusions : Fish-oil-based lipid emulsions were safe to use in liver donors undergoing laparoscopic right hepatectomy for liver donation.

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