

# Effect Of Postoperative Administration Of Nafamostat Mesilate On Posthepatectomy Liver Failure: A Propensity Score Match Analysis

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**Background :** Ischemia/reperfusion (I/R) injury caused by massive bleeding is a major risk factor for posthepatectomy liver failure (PHLF). Nafamostat mesilate (NM), a synthetic protease inhibitor, decreased the risk of I/R injury in observational studies. The aim of this study is to investigate whether the administration of NM reduces the risk of PHLF in patients undergoing hepatectomy for hepatocellular carcinoma (HCC).

**Methods :** We retrospectively reviewed the medical records of 1114 consecutive patients who underwent hepatectomy for HCC between 2004 and 2020. NM was selectively administered to patients undergoing major hepatectomy with an estimated blood loss of >500 mL. NM group was administered via intravenous infusion of 20 mg of NM from immediately after surgery until postoperative day 4. We performed 1:1 propensity score matching and included 56 patients in each group. PHLF was defined according to the criteria of the International Study Group of Liver Surgery (ISGLS), and only grade B or C patients were considered to have PHLF.

**Results :** The incidence of PHLF was lower in the NM group than in the control group (4 vs. 9 patients,  $P = 0.018$ ). The mean peak total bilirubin ( $2.5 \pm 4.7$  vs.  $3.7 \pm 2.4$ ,  $P = .006$ ), aspartate transaminase ( $241.4 \pm 174.6$  vs.  $502.5 \pm 683.3$  IU/L,  $P = .01$ ), and alanine aminotransferase ( $333.2 \pm 362.3$  vs.  $507.4 \pm 795.1$  IU/L,  $P = .01$ ) levels postoperatively were significantly lower in the NM group. The mean hospital stay ( $13.2 \pm 11.8$  vs.  $23.1 \pm 26.8$  days,  $P = .01$ ) and major complication rate (38.6% vs. 44.6%,  $P = .02$ ) were also significantly lower in the NM group.

**Conclusions :** Prophylactic administration of NM reduced the risks of complications and PHLF, and facilitated recovery in patients who underwent major hepatectomy with massive blood loss.

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