Argon beam coagulation versus fibrin sealant for hemostasis following liver resection: a randomized study in a porcine model.

Authors: Katkhouda N, Friedlander M, Darehzereshki A, Mason RJ, Zehetner J, Moazzez A, Chan LS, Kiyabu M, Kirkman E, Kirkman P, Ravari F, Degnera E, Drangsholt S, Khalaf N

Publication Date: 2013

Abstract:

BACKGROUND/AIMS: Bleeding from the raw liver surface represents a significant surgical complication after elective liver resection or hepatic trauma. The application of argon beam coagulation (ABC) has been proposed to improve hemostasis, but is associated with significant necrosis of the liver parenchyma. Topical hemostatic agents, i.e. fibrin sealant (FS), have also been recommended, yet the optimal management is under debate. This study compares the efficacy and safety of both methods following liver resection in an animal model.

METHODOLOGY: Twenty pigs underwent liver resection, and were then randomized into ABC or FS group for treatment of raw liver surfaces. Intraoperative and postoperative parameters were studied. Animals were sacrificed at day 12, and extent of necrosis was assessed using a scoring system and morphometry.

RESULTS: Intraoperative parameters did not show any significant difference between two groups except for shorter time of application in the FS group. Postoperatively, animals in the FS group showed significantly higher hemoglobin levels (p=0.0001). Histologically, FS showed a smaller depth of necrosis than ABC (p=0.022).

CONCLUSIONS: The use of FS is superior to ABC for management of the raw liver surface after

liver resection, in terms of application time, postoperative bleeding and the extent of liver tissue necrosis.