

Use of fibrin sealant as a hemostatic agent after liver biopsy in swine.

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Abstract:

PURPOSE: To determine whether fibrin sealant injected into the tract created by liver biopsy can be used to decrease postprocedural bleeding. An innovative delivery system was used to deploy the fibrin sealant.

MATERIALS AND METHODS: Fibrin sealant is a hemostatic agent consisting of a suspension of fibrinogen and thrombin. A delivery system was devised whereby fibrin sealant could be injected into the tract created by liver biopsy. Thirty swine were randomized into three groups: control (n = 10), heparin (n = 10), and warfarin (n = 10). Each swine underwent laparotomy and was randomized to undergo three to five open liver biopsies with either a 14-gauge cutting needle in conjunction with the fibrin sealant device or a standard 14-gauge cutting needle alone. Forty-seven biopsy procedures were performed with the device; 64 biopsy procedures were performed without the device. Immediate blood loss per biopsy (mL) was estimated based on the size of the blood stain on a sponge. Specimens were assessed for sample size.

RESULTS: Immediate blood loss with and without the device, respectively, was: control, 0.1 mL, 5.4 mL; heparin, 0 mL, 7 mL; warfarin, 0.1 mL, 9.3 mL. These differences were significant ($P < .01$) for each group of swine. In 43 of 47 biopsies (91%), the device functioned without difficulty. There was no difference in sample size when the device was used.

CONCLUSIONS: The fibrin sealant device is effective in reducing bleeding after open liver biopsy in

anticoagulated and nonanticoagulated swine. The promising results suggest that a trial of percutaneous liver biopsy in swine should be considered.