An international, multicenter, randomized, single-blind, controlled trial of a dry-powder, fibrin sealant for mild to moderate perioperative surgical bleeding.

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Abstract:

INTRODUCTION: Topical hemostatic agents are important adjuncts for controlling surgical bleeding. The objective of this study was to evaluate the safety and efficacy of a dry-powder, fibrin sealant containing human plasma-derived thrombin and fibrinogen in reducing time to hemostasis (TTH). METHODS: Multicenter, randomised control trial (RCT) (clinicaltrials. gov: NCT01527357) comparing fibrin sealant plus gelatin sponge vs. gelatin sponge alone in 4 surgical indications (spinal, hepatic, vascular, soft tissue), run in parallel as independently-powered trials for efficacy and pooled across indications for safety. Adult patients with mild/moderate surgical bleeding were randomized 2:1 to fibrin sealant or gelatin sponge during surgery. The primary efficacy endpoint was a comparison of the time to hemostasis (TTH) survival curves over 5 minutes. Subjects were followed for 28 days for safety. RESULTS: 719 patients provided informed consent, were randomized, and treated (fibrin sealant: 480; gelatin sponge: 239) while undergoing spinal (n=183), vascular (n=175), hepatic (n=180), or soft tissue (n=181) procedures. Fibrin sealant was applied by proprietary spray device in 53% of procedures and significantly reduced TTH compared to gelatin sponge, with hazard ratios of 3.3, 2.1, 2.3, and 3.4 for the 4 surgical indications, respectively (each $p<0.0001$). Adverse event incidences were generally similar between treatment groups and none were related to the spray device. Non-neutralizing, anti thrombin antibodies developed in 2% of fibrin sealant and 3% of gelatin sponge-treated patients. CONCLUSIONS: A ready to use, dry-powder,

fibrin sealant was well tolerated and significantly reduced TTH across a wide variety of surgical procedures, strongly supporting its safety and broad utility as a hemostatic agent.