Effects of fibrin sealant-containing antibiotics in a rabbit model of chronic sinusitis.

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Abstract:

Postoperative complications of sinus surgery include bleeding, infection, and synechiae. Improved subjective outcomes in humans treated with fibrin sealant (FS) after endoscopic sinus surgery (ESS) have been reported. Streptococcus pneumoniae was used to initiate chronic sinusitis in occluded rabbit sinuses in order to evaluate the role of FS in mucosal healing. Six weeks later, all animals had maxillary antrostomies. Homologous FS-containing ciprofloxicin (100 mg/mL) and clindamycin (15 mg/mL) was applied topically to treatment rabbits (n = 9). Control rabbits (n = 10) received no antibiotics. Two weeks into the recovery phase after antrostomies, all animals were re-examined. Mucociliary transport velocity (mean +/- standard deviation in mm/minute) was measured in all sinuses (n = 38) during healthy (100% measurable, 13.82 +/- 4.16), infected (18% measurable, 4.74 +/- 0.42), and recovery phases (5% measurable, 6.30 +/- 4.67). In both groups, mucopurulent discharge was present in the majority of sinuses (control group 18/20, FS group 16/18). In addition, there was no significant difference in the recovery phase between the two groups when comparing changes in the size of antrostomies, light microscopy, or culture clearance. Scanning electron microscopy did suggest a possible improvement in ciliary regeneration in the FS group. Application of FS-containing antibiotics did not appear to improve healing after ESS in our rabbit model of chronic sinusitis.