

Fate of fibrin sealant in pericardial space.

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Abstract:

Background. Although fibrin sealant (Beriplast, Aventis Behring, Marburg, Germany) has been widely used as a supplementary measure for hemostasis during cardiac surgery in Europe and is becoming popular in the United States, the pharmacokinetics of fibrin sealant applied in pericardial space has not been elucidated. **Methods.** A small incision was made on the epicardial surface of the left ventricle of a rat, and the incision was sutured. Total 0.2 ml of fibrin sealant containing iodine 125 (¹²⁵I)-labeled fibrinogen, aprotinin, blood coagulation factor XIII and thrombin was applied to the area around the suture line. **Results.** Distributions of ¹²⁵I-labeled fibrinogen in the heart on postoperative days 1, 3, 7, and 14 were 48.2% \pm 1.8%, 20.7% \pm 2.2%, 0.15% \pm 0.02%, and 0.01% \pm 0.02%, respectively. The radioactivity was negligible in the blood, liver, spleen, and kidney except for the thyroid in which the radioactivity increased to 7.9% \pm 0.7% and 4.3% \pm 0.4%, respectively, on postoperative days 7 and 14. Iodine 125-labeled fibrinogen concentrations of the heart and other organs showed a similar change in the time course of distribution. Dense and thick fibrin network, observed on postoperative day 1, had dissipated and was thinner with collagen formation by postoperative day 7. **Conclusions.** Fibrin sealant applied to the pericardial cavity regresses rapidly and plays an important role in wound healing. © 2000 by The Society of Thoracic Surgeons.