The use of Tachosil surgical patch or fibrin glue in coronary artery surgery does not affect quality of anastomosis or provoke postoperative adhesions in pigs.

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Abstract:

OBJECTIVE: Fibrin glue products and collagen surgical patches (TachoSil) coated with coagulation factors I and IIa are increasingly being used to prevent oozing from distal or proximal coronary anastomosis. Furthermore, an increasing number of patients are being operated upon anti-platelet therapy. These patients often exhibit diffuse bleeding. Especially in an off-pump scenario surgeons refrain from placing additional stitches in order to avoid an impairment of the graft. In these situations, a biological glue can help resolve this dilemma. It is, however, assumed that these products may exert negative effects on the anastomosis. For obvious reasons a systematic histological assessment in humans is impossible. Therefore, a chronic, large animal model was developed to study the fate of these products on a coronary anastomosis.

METHODS: In 15 pigs receiving off-pump coronary artery bypass graft of the left mammary artery to the left anterior descending coronary artery, three groups were defined. Group A served as control. In group B the anastomosis was covered with 1 ml fibrin glue; in group C TachoSil coverage was performed. Bypass flow (BF) was measured using a Doppler probe. After 3 months the pigs were sacrificed and the anastomoses were evaluated macroscopically and by means of light microscopy regarding patency and fibrosis.

RESULTS: In group A, all five animals survived, three of the five anastomoses were patent and the

mean BF was 26 ml min(-1). In group B, three of the five animals survived, all anastomoses were patent. The BF was 21 ml min(-1). In group C, all five animals survived, four of the five anastomoses were patent and BF was 21 ml min(-1). Macroscopic and histological evaluation showed no differences between the groups. Remnants of Tachosil or fibrin glue were not observed.

CONCLUSIONS: In the chronic course, no evidence of adverse effects of TachoSil or fibrin glue was noted. Both agents can therefore be used safely in clinical practice for haemostyptic or positioning purposes.