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The use of 'BioGlue' for the Repair of Aortic Insufficiency in Acute Aortic Dissection

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Abstract

Background and aim of the study: Concern has been raised regarding the late effects of tissue glues. Herein is described the authors' experience with a new bioadhesive (BioGlue; Cryolife) for repair of the aortic root in acute dissection.

Methods: BioGlue is composed of bovine serum albumin (BSA) and glutaraldehyde. Glutaraldehyde exposure causes the lysine molecules of BSA, extracellular proteins and cell surfaces to bind to each other, creating a strong scaffold. Between January 2001 and January 2003, BioGlue was used to repair the aortic root in 22 patients with acute aortic dissection. Moderate or severe insufficiency was present in 16 cases, and mild insufficiency in six. The mechanism of insufficiency was commissure detachment in 15 cases, penetration of the intimal flap into the valve in three, and dilatation of the sinotubular junction in four. The aortic valve was resuspended to the aortic wall using pledgeted sutures. BioGlue was used to glue the dissected layers of the aortic root and create stronger tissue for sewing. Two patients required complete resection of the sinuses and aortic root remodeling with a Dacron graft.

Results: There were two operative deaths. Postoperative transesophageal echocardiography showed mild or no aortic insufficiency in 18 patients, and moderate insufficiency in two. During follow up (mean 16 months), none of the patients required reoperation for proximal redissection, delayed rupture, or aortic insufficiency.

Conclusion: BioGlue is useful for aortic valve repair in aortic dissection. It is less toxic and has a stronger adhesive effect than the older surgical glues, and is expected to have better long-term results.