

Fibrin sealants in supporting surgical techniques: The importance of individual components.

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Abstract:

Fibrin sealants have many different uses across a broad range of surgeries, where they have proved successful in controlling bleeding, providing suture support and tissue sealing. The action of all fibrin sealants depends on the thrombin-catalyzed formation of a fibrin clot. However, neither the purity nor the concentration of the main components of fibrin sealants (thrombin and fibrinogen) is uniform across all commercial products and this will affect performance. In addition, the optional inclusion of other components such as factor XIII and antiproteolytic inhibitors may also influence the quality of clot formation. Properties that vary among different fibrin sealants, such as the clotting rate, viscosity, adhesiveness, clot strength and resistance to proteolysis, are all-important considerations for the surgeon. The application of fibrin sealants in a very wide spectrum of surgical procedures means that some fibrin sealants may be more suitable for a particular procedure than others. One of the advantages of commercial fibrin sealants is that the high level of quality control ensures that their composition is extremely consistent between batches. On the other hand, blood bank-derived fibrin sealants may vary in their composition from one preparation to the next and hence be less predictable in their performance. This paper discusses how individual components contribute to the overall performance of fibrin sealants, thereby providing to the surgeon the necessary information to select the optimal fibrin sealant for a specific procedure. © 2003 The International Society for Cardiovascular Surgery. Published by Elsevier Science Ltd. All rights reserved.