Treating bleeding beyond correction stitches—or better, how to enhance hemostasis by topical pharmacologic support

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Hypoprolenemia is the most common cause when bleeding is an issue after heart surgery, and adding additional stitches will stop the bleeding in many instances. Extensive surgical procedures needing periods of hypothermic circulatory arrest or prolonged periods of cardiopulmonary bypass or even merely clinical scenarios in which patients have to be operated on while receiving dual antiplatelet therapy or with very fragile tissue conditions, such as in chronic immunosuppression or in end-stage kidney disease, however, represent challenging conditions in which systemic pharmacologic support—cellular or plasmatic—is needed to stop bleeding.^{1,2}

Beyond systemic pharmacologic support, topical pharmacologic support might be a very useful and sometimes even lifesaving, because there are scenarios in which additional stitches will worsen the situation rather than saving the day. Sealant is not sealant, however, and detailed knowledge of the individual properties of the now wide variety of products is needed to do the right things in the right situations.³ In addition—and this is what we have learned from experience—the effect of a topically applied sealant may outlive the acute impact and may add additional effects that are beyond the scope of the initial application, even years after the sealant's use.

This is where the value of the study in this issue of the *Journal* by Murdock and colleagues⁴ lies, teaching us that different sealants have different polymerization times, cytocompatibility properties, burst pressure strengths, elastic properties, and, finally, degradation times, and that these effects are not negligible.⁴ In addition, a dose effect in certain sealants is to be anticipated, although this remains subject to continuing studies.

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Central Message

Detailed knowledge regarding sealant composition, the way sealants convey their efficacy, and their interaction with local tissue is key to selecting the right sealant for the right clinical scenario.

See Article page 176.

Summarizing, this study of Murdock and colleagues⁴ should be interpreted as a plea to the surgical community to pay attention to detail with regard to the sealants used in daily clinical practice, to be informed on their modes of action, and to anticipate interaction with local tissue beyond the acute effect of enhancing hemostasis.

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