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ReachMD
www.reachmd.com
info@reachmd.com
(866) 423-7849

Topical Hemostatic Agents in Endoscopy: A Review of Best Practices and Considerations

Dr. Buch:
This is *GI Insights* on ReachMD. I'm Dr. Peter Buch, and today I'm joined by Dr. J Andy Tau to discuss best practices for using topical hemostatic agents. He's a board-certified gastroenterologist at Austin Gastroenterology in Texas and a national expert in endoscopic hemostasis and advanced tissue closure. Dr. Tau is passionate about teaching. Welcome to the program, Dr. Tau.

Dr. Tau:
Thank you so much. It's a pleasure to be here and a great privilege.

Dr. Buch:
Dr. Tau, let's start out with some background. What are the five most important uses for topical hemostatic agents?

Dr. Tau:
I always believe that topical agents basically comprise the fourth and final armamentarium of hemostasis. The first was injection, then mechanical with clips, thermal was third, and now topical is the fourth and probably final chapter of hemostasis. I find that their greatest impact is in the five following situations, which I deem the five can'ts. Five can'ts includes: lesions that can't stop in terms of refractory bleeding; can't reach, which are lesions in difficult positions; can't touch, which are lesions that you can reach but you don't want to for potential risk of pancreatitis or perforation; can't finish, which are basically diffuse onerous bleeding where you'd be there forever in order to stop a wide variety of multifocal bleeding; and then the fifth one is cantcer—pun completely intended—because as those who do endoscopy in the acute setting know, conventional modalities have long been considered quite inadequate for tumor-related bleeding. So can't stop, can't reach, can't touch, can't finish, and cantcer—those are the five indications for topical hemostats in endoscopy.

Dr. Buch:
Thank you very much for that. So let's move on to specific agents. What's the data regarding TC-325, called Hemospray, used in peptic ulcer disease, lower GI bleeding, and malignancy-related bleeding?

Dr. Tau:
In terms of peptic ulcer disease, there was a large, prospective, single-arm, open-label study called the HALT, or Hemostasis of Acute GI Luminal Track, study, and that study was one of the foundational studies. It included 66 patients with peptic bleeding, and they were treated just purely with monotherapy Hemospray. It showed quite good results. Ninety-one percent of patients—60 out of 66—had a median hemostasis. Rebleeding rates, which were defined as at 30 days of follow-up, were about 12 percent. That's an important number to remember, 12 to 15 percent. That's important. Keep that in mind when you're treating these peptic ulcers.

In terms of lower GI bleeding, there was actually a special study that was prospective and multicenter, and it looked specifically at 50 patients who had lower GI bleeding and just underwent monotherapy Hemospray as well, and this cohort included mostly post-polypectomy bleeding but also some diverticular bleeding and a few tumors as well. And in this case, 98 percent of them—all but one—achieved immediate hemostasis.

Now, for malignancy-related bleeding, the story is flipped. There really isn't any better agent than topical agents. And specifically, Hemospray—again, with the lion's share of data—had two recent meta-analyses showing that primary hemostasis can be achieved in

94 percent, and overall rebleeding, which is usually 30 to 60 days in this meta-analysis, was around 24 percent, so that's pretty good level 1 RCT data included in that.

Dr. Buch:
Excellent. So what can you tell us about polysaccharide hemostatic systems, also known as EndoClot? And how does that compare with Hemospray?

Dr. Tau:
Right. EndoClot was the second device that came out. It's kind of a starch-derived agent. It has a similar mechanism as Hemospray. They're both desiccating agents that rapidly resorb water and allow for platelet aggregation and activation. It has moderate levels of evidence. For example, there was a randomized trial of 216 patients comparing EndoClot to just standard endoscopic therapy, and it showed hemostasis immediate success rate of around 87, 88 percent.

So honestly, I think it's a very comparable device, but there are some technical differences that are important. For example, Hemospray is delivered through basically a charged carbon dioxide canister under pressure. EndoClot, however, is actually delivered through room air; it has an air compressor. EndoClot only contains either 3 to 5 grams' worth of material, whereas Hemospray contains a whopping 20 grams, so we're talking about a four to seven X amount of ammunition when it comes to powder. The propellant is CO2 versus room air. Hemospray has CO2. And the catheter sizes are also different: 7 French for EndoClot, and Hemospray has 7 and 10 French.

Why does this make a difference? Well, clogging is the problem. These catheters have to go down the instrument channel of the scope, which is oftentimes filled with blood and water. And if they make contact with blood and water by capillary action, they immediately suck up or sap up water, and when the powder encounters this material, it immediately clogs the tip, or it has a very high likelihood of that. So EndoClot prevents that because it has a preventative continuous supply of room air that's emitted at a very much slower velocity than Hemospray. Hemospray does not have a protective flow of carbon dioxide, and so in order to get Hemospray not to clog, you have to flush the scope, flush the channel, and you cannot get the tip wet. EndoClot is a little bit more forgiving because the continuous protective pillow of air that's coming out makes it a little more difficult to clog it.

Now, EndoClot, if I had one critique, I would say that its engineering design is a little bit more elementary or rudimentary. There's this bellow that contains the powder, and you tap it or squeeze it or tilt it in order to get the powder to dump out of that bellow and into this continuous air stream, and then it flows into the catheter, whereas Hemospray is a little bit more elegant. It has a button that you press. It's much more user-friendly in the sense that there's just a button to push.

Dr. Buch:
Thank you. For those just tuning in, you're listening to *GI Insights* on ReachMD. I'm Dr. Peter Buch, and I'm speaking about Dr. J. Andy Tau about topical hemostatic agents in gastroenterology.

So, Dr. Tau, let's talk now about self-assembling peptide gels. The names are Nexpowder and PuraStat. When should they be used?

Dr. Tau:
Right. So Nexpowder is FDA approved for non-variceal upper GI bleeding, much like Hemospray. It's not FDA approved for lower GI bleeding. As for PuraStat, it's a non-powder; Nexpowderis delivered as a powder and becomes a semi-adherent gel. PuraStat is a pure gel. It comes out as a gel immediately, and for that reason, it is very user-friendly and has really, essentially, no possibility of clogging. Now, that's FDA approved for mild to moderate oozing-type bleeding and for—this is very important—prevention of delayed bleeding from colonic resection from EMR or ESD. It's the only agent currently that holds that FDA approval. As for Nexpowder, it is delivered through a gun-like device. It emits a bluish powder; it's blue and translucent. And again, it only has 3 grams, which is the least of all the devices, so a very small amount of ammunition. It does have one very unique technical delivery aspect, which is that it has a lever that you can adjust as you emit the powder to control the velocity of the output, and that is very nice. Also, the blue aspect of it allows you to see areas that you've applied whereas PuraStat is very clear and you cannot sometimes track exactly where you've applied it. Nexpowder does become a semi-adherent gel, and some animal studies and in vitro studies show that it remains and sticks around for about three days.

Dr. Buch:
As we approach the end of our conversation, Dr. Tau, do you have any final takeaways you'd like to share?

Dr. Tau:
Yes, I do. I think one of the important points that I want to make when it comes to topical hemostatic agents is I really do think that they're invaluable to every endoscopy unit. And I know that while many people say things like, "Oh, you know, we don't need them because we never needed in the past," I would counter that to say nobody is ever 100 percent perfect at stopping all bleeds. And I believe that even

if you don't need these topical agents very often, neither do we need backup parachutes when we jump out of an airplane, you know, but we all carry a backup parachute. We don't need to use our seat belts, but we still all put them on. And I think that's an important analogy: that every endoscopy, at least in an acute care hospital, should have some rescue topical agent.

The second take-home point I want to say is that when it comes to these agents, their technical features and the deliver mechanisms are very different, so it behooves those who are trying to decide which agent to use to try them out. Lastly, I would say—and I made this point earlier before—that when it comes to malignant tumor bleeding, there's nothing else on the menu besides these agents. Personally, I've used all these agents for all different types of tumor bleeding, and I find them all to be fairly effective for immediate hemostasis even though I don't have any head-to-head randomized controlled trials. And so when you're facing that and the patient's having recurrent bleeding, which is really one of the great challenges in GI, I think we finally have an answer.

Dr. Buch:
I want to thank my guest, Dr. Tau, for sharing insights on using topical hemostatic preventive and therapeutic agents. Dr. Tau, it was a pleasure speaking with you today.

Dr. Tau:
Thanks so much. It's a great pleasure to be here on ReachMD and to have this platform, and I want to thank you guys so much for your time.

Dr. Buch:
For ReachMD, I'm Dr. Peter Buch. To access this and other episodes in this series, visit *GI Insights* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening, and looking forward to learning with you again very soon.