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Case: 72yo Female on Factor Xa Inhibitor with ICH

Announcer:

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Dr. Kreitzer:

So, I'm going to go through a brief case study. A type of patient that I think we see not uncommonly in the neuro ICU. So, this is a 72-year-old female, and she presents to the emergency department with the acute onset of left-sided weakness. And you can see on her head CT here she's got a right-sided basal ganglia hemorrhage. That's the most common spot for a spontaneous ICH or a hypertensive hemorrhage is what we sometimes call it in our ICU. She has a history of atrial fibrillation and hypertension and takes rivaroxaban. And comes in with a blood pressure of 219 over 110.

A little bit of background about spontaneous central cerebral hemorrhage. It's just a small proportion of all strokes, but it's got the highest mortality and highest morbidity. Up to three-quarters of those patients are functionally dependent in some capacity at 12 months and the incidence is likely to double before the year 2050 due to aging and more anticoagulants.

Now as I mentioned in the previous slide sets prior to Andexanet Alpha in vitro testing it demonstrated that PCCs might be used for reversal. But with that Annexa-4 study, we know that a substantial portion, two-thirds of those patients presented with intracranial hemorrhage and that reversal was 80% excellent or good efficacy in ICH based on serial head CTs and preventing hematoma expansion.

Now one thing that comes up oftentimes with Andexanet Alpha is the timing of anticoagulation reversal. This is a couple of figures from the phase three study for which this study was this data was used for FDA approval and over here on the Y axis we have the anti-factor Xa activity and patients who received placebo versus the Andexanet Alpha who were on an anti Xa inhibitor. And you can see in the red group, it does reverse it pretty quickly within that bolus and that two-hour time window. The one thing that's a little bit tricky and sort of was hard for us I think in the neuro ICU initially was not getting that serial INR level like we had always had with warfarin.

Now, this is data from warfarin, but it really demonstrates a take-home message that it is vital in our role as emergency physicians to try to do a couple of things for these patients to prevent hematoma expansion as much as possible. So, this is a large retrospective study that was done in Europe and patients who were on warfarin. And these were patients who presented with a spontaneous intracerebral hemorrhage. It was 1,176 pooled patients and basically, they looked at the timing of anticoagulation reversal which in this case was PCCs for warfarin. And they also looked at blood pressure management. And in patients who had both of those measures done within the first four hours they had hematoma expansion reversal. 18% compared to 44.2% of when patients did not have both of those things done within that first four-hour period. So, what I learned from this study, and you know my take-home message is that really, you know by the time we get these patients in the neuro ICU that time window has already passed. So, it is really our job in the emergency department to hit these patients as soon as possible with a couple of things that we can do to help them.

So, one of the questions that comes up frequently in these patients is where should we target their blood pressure and what should we

do for blood pressure management for spontaneous ICH and what should that goal look like? Is it 140? Is it 180? Now, this is kind of an attractive, you know mechanism for hematoma expansion and there's been a couple of large studies Interact2 an ATAC2 which has looked at different goals for blood pressure management. And by and large, as long as you know, you are providing some type of management for blood pressure control, that less than 140. And both of those studies really didn't show a link to better outcomes. But the consistency and speed of management probably matters more than picking a specific number. And certainly, no guidelines support allowing extreme hypertension say over 180 after ICH to go untreated. It's also important to think about the patient's comorbidities, chronic hypertension. For example, in Interact2 there were more adverse renal outcomes in the patients who had blood pressure 110 to 139 immediately after the ICH. Just because those are patients who probably lived at 220 for years.

Now following up on our patient, she was started on a nicardipine drip to get that blood pressure under control with a goal of less than 160 at our institution. She did require an external ventricular drain. She did develop some interventricular hemorrhage and the timing of that was paired with that anticoagulation reversal right after that bolus of Andexanet Alpha during that two-hour infusion because we know that's when the level is the lowest for the anti-Xa inhibitor activity. Admitted to the Neuro intensive care unit and did not actually have hemorrhage expansion. Thank you so much. I'll turn it back over to Dr. Gibbler and we have time at the end for questions.

Announcer:

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