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Challenging Case Studies: Percutaneous Coronary Interventions and Post-discharge Antithrombotic Management

Narrator:

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Here is your faculty, Dr. Deepak Bhatt and Dr. Roxana Mehran.

Dr. Bhatt:

I'm Deepak Bhatt from Brigham and Women's Hospital and Harvard Medical School.

Dr. Mehran:

And I'm Roxana Mehran from Icahn School of Medicine at Mount Sinai.

Dr. Bhatt:

It's really a great pleasure for me to be speaking with my good friend, Dr. Roxana Mehran, who needs no introduction, a real icon in the world of cardiovascular medicine, and what she has for us is a really great clinical case to discuss that we are going to talk through here.

Dr. Mehran:

Thank you, Dr. Bhatt. It's my pleasure to give you this clinical case of a patient that we recently treated, a 72-year-old gentleman who has diabetes, hypertension, is a former smoker with multiple PCIs and stenting in the past and a known chronically totally occluded right coronary artery. This patient also has chronic atrial fibrillation and presents with a Canadian Class III chest pain on a very low level of exertion, which has occurred over the last couple of weeks. On presentation his troponin was negative. In fact, that was one of the first things that was checked—but his medications, included at the time of his admission, on apixaban at 2.5 mg bid, 81 mg of aspirin. The oral diabetic agents were glipizide and Glucotrol, Cozaar, Imdur, Bystolic, ranolazine, and rosuvastatin, and as you can see, a lot of medications for this patient. And we knew that the compliance was good, but this is a new onset chest pain in a very, very difficult patient.

As I stated, the troponin I was negative. The CK-MB was also drawn, and that was negative. On admission the hemoglobin/hematocrit was actually in good shape, 13 and 39, with a platelet count of 166, which is usually rare, actually, in these patients who are chronic AFib on oral anticoagulants, but it was a good thing to know. And an INR was drawn, not for any good reason, but it was 1.2, and the creatinine was 1.8 with a creatinine clearance of about 35 cc per minute.

This patient's electrocardiogram was performed, showed a sinus rhythm with in and out of some sinus rhythm, but really an intraventricular conduction delay and an elevation in aVR, which is what was shown, and this patient was in and out of chronic AFib, and

this electrocardiogram on admission, though, you see P-waves behind every one of the QRS complexes.

The right coronary artery on angiography was totally occluded. It was known that it was occluded, but the main problem and issues were on the left coronary system with a totally occluded, large, obtuse marginal branch of the circumflex that had also a very large segmental 90% stenosis, and the obtuse marginal with an in-stent restenosis that was totally occluded. I'm showing the angiograms—although our listeners can't see it—but what I'm showing mostly here is a good left anterior descending with some collaterals to the right coronary artery but very large obtuse marginal branch, and a lot of stenting is seen all the way up into the left main proximal LAD—that particular stent being patent, but really the stent in the obtuse marginal being totally occluded, and then more stenting.

So this was a patient who needed to undergo intervention because of the unstable syndrome that he had presented with, with some ST-T wave changes and elevation in the aVR, which was concerning. We knew there was a left main stent. The left main seemed to be okay, but we moved on to perform an intervention in the circumflex artery, left the in-stent restenosis alone that was totally occluded, and chronically totally occluded, and went after the large circumflex and rest of the obtuse marginal branches with good stenting and a really, really good PCI result.

The final result shows another stent now in the circumflex area.

Dr. Bhatt:

That's a lot of metal now.

Dr. Mehran:

This patient has a lot of stents, and you can see on the angiogram—you can almost see the entire vasculature, but really a patient with a high thromboembolic risk. So I guess the big question now is: What do we do? What should be the treatment? We've treated this patient now with more stenting. It's an unstable syndrome patient, and what do we do with this patient and how we should be managing this patient who has chronic kidney disease. He's not anemic, elderly—but 72 years old, so not extremely elderly, but not frail either.

Dr. Bhatt:

And maybe underweight because someone has decided to put him on apixaban 2.5 bid.

Dr. Mehran:

Yes, and a very low dose of apixaban, that's correct.

Dr. Bhatt:

Yes, so I'm assuming that was purposely done because of low GFR and maybe low BMI. He didn't seem that old, so it couldn't have been age.

Dr. Mehran:

Yes.

Dr. Bhatt:

So, yes, that's a really tough patient, and if truly underweight might help in part meet the definition of frailty, get the patient part-way there. So, yes, this patient is at high risk for ischemic complications. As you said, the coronaries are completely outlined by either metal or calcium, so a high ischemic risk, high thromboembolic risk and high bleeding risk, so all three.

Dr. Mehran:

And so the dilemma here in most of these cases, the guidelines tell us avoid the potent agents, but with that much metal, left main bifurcation stenting and no real history of bleeding, a hematocrit of 39 on low-dose apixaban, we chose, actually, to give this patient ticagrelor. Now, it's a rare thing that happens, that you would give ticagrelor in combination with apixaban, and it would be a little bit scary, because we really don't have data here. In PIONEER-AF study, there was about 5 to 10% of the patients who received the more potent agents, ticagrelor or prasugrel, in combination with rivaroxaban, but we don't really have much data, and it's a little bit scary. And aspirin was dropped in here.

Dr. Bhatt:

Yes, I think you're right. It's a largely untested combo, but data from RE-DUAL as well, a few hundred patients there with ticagrelor supported reasonable safety of a strategy of double therapy, in that case with dabigatran and ticagrelor, but yes, it's just a few hundred patients, so I would be cautious as well about using this regimen too broadly before further study.

Dr. Mehran:

Now, that was sort of like an interesting case because of the really full metal jacket, and we're a little bit nervous about just putting them on clopidogrel without aspirin—

Dr. Bhatt:
Sure.

Dr. Mehran:
—and a lower dose of apixaban.

Dr. Bhatt:
Yes, I know that...

Dr. Mehran:
That was sort of the reason for this, and so far so good. It's been 5 months since we've seen this patient.

Dr. Bhatt:
I'm just curious; did you put the patient on a proton pump inhibitor when they were discharged?

Dr. Mehran:
Yes, absolutely, always a proton pump inhibitor on almost every case.

So, now moving to a more frail patient, the second case, an 85-year-old woman with again Class III angina, history of a GI bleed, hypertension and diabetes, chronic AFib, multiple PCIs in the past, and lots and lots of medications—that includes beta-blockers and diuretics as well as rosuvastatin—comes in on chronic rivaroxaban therapy, but the last dose she was told to hold it on the morning of admission. She didn't come to the emergency room. She just had a lot more angina over the last week, and the 2 days then she was brought in. The initial troponin I was 0.89 ng/ml. It went up to 1.06. CKMB was negative. But here, also, the hemoglobin/hematocrit, despite the fact that she had prior GI bleeds and everything and with a good platelet count, here the INR was 1.4, and the serum creatinine was 1 with a GFR of just about 60 cc, even though she is 85 years old.

Here's the EKG, which really doesn't show any major ST-T wave changes, but it does show the atrial fibrillation of this patient. We went with a radial access in the patient. As you can imagine, this patient is on chronic therapy.

There is this whole idea about the difficulty to cannulate the old, frail ladies with a radial access. Here I'm showing the catheter traction and show how we were able to make it up there...

Dr. Bhatt:
Yeah, that was a tough radial loop not an easy one to get.

Dr. Mehran:
But I think we shouldn't give up and work there because a femoral access would be incredibly detrimental in this patient. A quick LV gram, but here's the main issue here, a large right coronary artery.

Dr. Bhatt:
Oh yes.

Dr. Mehran:
There's a stent in that proximal ostial right coronary artery with severe stenosis, but this is a pretty large right coronary artery. The left anterior...

Dr. Bhatt:
So you voted for medical therapy.

Dr. Mehran:
The left anterior descending is here.

Dr. Bhatt:
For those who can't see it, it's a really, really tight lesion.

Dr. Mehran:
Yes.

Dr. Bhatt:
There's no way you could just let this patient go.

Dr. Mehran:

And so now in our institution when we see these kinds of ISRs, especially in the ostium when we know it's really, really highly studded with a lot of tissue, we do rotational atherectomy, and this is something that Dr. Sharma practices—and actually was on this case with him—but we have a large series of patients with ISR and use of rotational atherectomy and then a re-stenting to the patient. You see right here, after rotational atherectomy there's been some removal of the plaque, looks a little bit better.

Dr. Bhatt:

It does.

Dr. Mehran:

We put a distal stent and then come forward and put another stent into the proximal vessel, so there was both a proximal and a distal lesion in this patient.

So here now we have a dilemma. Again, a repeat stent, now this patient is a little bit more frail. When you do the CHADS-VASc in this patient, it's pretty high up there—

Dr. Bhatt:

Oh, right.

Dr. Mehran:

—as is the HAS-BLED. This patient was on rivaroxaban for stroke prevention, in the past at 20 mg, and now this patient is done after the PCI, and we are adding clopidogrel, taking away aspirin and sending this patient home on 75 mg of clopidogrel and, actually, a full dose of rivaroxaban. And we just heard in the lecture that we don't really know this combination therapy of the higher dose—there could be a much higher risk of bleeding.

This is what we did in this particular patient, and I know that there are physicians doing this, where these patients are going home on a higher dose, and we don't really know the data in this patient population, but in this particular case, because of the stroke risk, that's what was chosen by the physician in charge of the patient.

Dr. Bhatt:

It seems very well thought out, and in a sense it's sort of analogous to WOEST where there's a full dose anticoagulant and clopidogrel, and so I think it's very rationale, biologically speaking. I know when I've talked to Dr. Gibson about this, he really feels strongly to stick with the PIONEER dose—

Dr. Mehran:

Right.

Dr. Bhatt:

—the riva 15 or even 10 if it needs to be downward adjusted for renal dysfunction, but the 15 of riva plus the clopidogrel.

Dr. Mehran:

But it's interesting, we're seeing a lot of our clinicians and our physicians, despite the PIONEER data, pushing on because of the stroke prevention, especially in those patients at a very high CHADS-VASc score, so it's going to be an interesting way to follow these patients on the full dose of this regimen.

Dr. Bhatt:

Right. And I think you know the trials that are still ongoing as well, AUGUSTUS and ENTRUST—

Dr. Mehran:

Yes, absolutely.

Dr. Bhatt:

—will help inform further just in terms of what really is the optimal cocktail, and the trials that have been done to date have all been very consistent in their findings, but relatively few patients with very high CHADS-VASc scores.

Dr. Mehran:

I also think having RE-DUAL data available is very, very helpful, especially given that both doses were tested in that study with both the 150 and the 110, even though the 110 is not available here.

Dr. Bhatt:

Right.

Dr. Mehran:

But it really does give the physicians a way of being able to choose amongst the patients based on their risk.

Dr. Bhatt:

Yes, absolutely. Well, that was a challenging case on multiple levels, and you've made a good point. I think it is good to try to persevere with the radial in this older woman who is going to be at very high risk of bleeding complications. One thing I found useful sometimes is going in the left radial instead of the right in people that are very old, and not so much a male or female thing but a greater than 80, less than 80, because I've just found that the aorta oftentimes is a bit more unfolded and just a little harder to access from the right. That wouldn't have helped here where it was a radial loop.

Dr. Mehran:

Yes, no.

Dr. Bhatt:

That probably would've been present on the other side as well. Those are often symmetric.

Dr. Mehran:

But the left radial is a very good option. I think we should go to the left radial before you go to the femoral. I think that's the really, really big lesson in a patient who is at high risk for bleeding.

Dr. Bhatt:

Yes, I agree. Well, those were 2 fascinating cases, really complex cases that you and your colleagues at Mount Sinai are doing, and all the challenges that we face in terms of the procedural and medical care of these complex patients really, really, very illustrative. Thanks so much.

Dr. Mehran:

Thank you so much. Thank you for having me.

Narrator:

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