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Bringing It All Together – How to Manage the “Faces” of Resistant Hypertension?

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Dr. Vemulapalli:
And I think we'll come to our final panel discussion here where we're trying to bring it all together and get back to those cases that Raven presented to us. So just to re-familiarize ourselves we'll start with case one. Remember, this is a referral patient with uncontrolled blood pressure, 58-year-old male with a blood pressure of 159 over 93 and a BMI of 29. Their past medical history is notable for type 2 diabetes, high blood pressure of course but no known target-organ damage. Both parents have hypertension and right now they're on Hydrochlorothiazide 25, Losartan 100, Amlodipine 10, and Metformin 1000 BID. So, I want to go down the line with our panel and ask them about their approach. So, Raven, what are you thinking when you see this patient in clinic and where are you going next with them?

Dr. Voora:
Yeah, thanks Sreek. There's a lot of things that I'm thinking and a lot of things that need to be done with both of these patients. And I think, you know, just building upon what I talked about is just securing the diagnosis of true resistant hypertension and really making an effort to rule out pseudo resistance. So, these patients need out-of-office blood pressure monitoring. We need to understand their adherence to lifestyle. You know, we don't know much about their lifestyle and how often they're eating out and eating salt. We want to know about their exercise, we want to know about medication adherence. We also want to make sure these measurements are being tain accurately. And lastly, we want to know about their sleep. So, these are some of the things that I want to know and to help secure the diagnosis. And then other things I want to know what non-prescription medicines they're taking. As you heard from Dr. Bakris, that there's lots of things that can contribute to hypertension, a lot of prescription medicines a lot of non-prescription medicines. I want to know what other medicines they're taking that are not prescription that could be contributing to their hypertension. And of course, want to evaluate think about secondary hypertension and really focus on lifestyle with them. So, a lot of things I want to do with these patients.

Dr. Vemulapalli:
Thanks, Raven, George, what are you thinking here?

Dr. Bakris:
Well, I would agree a 100% with what Raven said. And, basically, on this I'd have to change the recipe dramatically. And this is a typical patient that I see Hydrochlorothiazide is gone. You give them Chlorthalidone 25, low losartan is gone. You either give him Olmesartan 40 or Alsartan a Darby 80, amlodipine stays. And based on that and based on the data that would take the pressure down into the high 140s, 146, and with the salt, you may be able to take it even below 140. And usually, I make those changes with everything Raven said and then basically bring the patient back in a month or actually have the patient check the pressure at home and I instruct them on how to do it. And then they send me a report card in two weeks how they're doing. And then I see them in a month. And then basically I would probably if I needed to here add SP frontal lactone as a fourth drug.

Dr. Vemulapalli:
Thanks George. So, I think we heard a couple really important things there. Changing drugs within class, right? So, you talked about changing hydrochlorothiazide to chlorthalidone, changing losartan to Olmesartan, Alsartan. And then certainly following up on the lifestyle interventions as well.

Dr. Bakris:
oh, one last thing.

Dr. Vemulapalli:
Yeah.

Dr. Bakris:
Major on my part. SGLT2, SGLT2 got to be on and SGLT2.

Dr. Ferdinand:
George leave me something to do with that.

Dr. Bakris:
No, listen, here's the message. SGLT2s are not drugs for diabetes. They are cardiorenal risk-reducing agents. Cardiorenal risk-reducing agents. That's how you have to think about them. Okay, I'm sorry

Dr. Vemulapalli:
Keith thoughts here. But also, let's pick up from where George was. Let's say we make those changes. The patient's sending you back blood pressures that are still systolic's 140, 150, where do you go next?

Dr. Ferdinand:
Well, he made a lot of very excellent changes, and I would think that the patient would get significant blood pressure reduction. One thing that I would caution this all against is diet. There is actually a trial called regards. It's a trial that looked at a biracial population mainly in the southeast and the southern diet. You know it when you see it. In fact, you're in Duke?

Dr. Bakris:
Yeah.

Dr. Ferdinand:
You're in Chicago, but you've been in New Orleans.

Dr. Bakris:
That's right.

Dr. Ferdinand:
High in sodium, high in saturated fat has been the main predictor of the increase of blood pressure seen in the black population more than any genetic factor. So, I would go strong, strong into his dietary history, look at it, see what he's doing what kind of additional seasoning he's using in his food, a lot of takeout food. In terms of the medications, Raven and George have done it all using a more potent diuretic. The loop diuretic would be used if the GFR was less than 30, maybe even less than 40. We don't have a GFR here. The SGLT2 inhibitor is not an anti-hypertensive and I'm certainly not making that case. But we studied 150 African-Americans who had type 2 diabetes. The mean blood pressure was dropped 10 millimeters average systolic blood pressure 24-hour ambulatory and that's a lot. Placebo subtracted 8.5. So, it was a real good blood pressure effect. But, they had diabetes, they had elevated blood pressure perhaps they had increase in sodium intake. So, in that setting it was effective. It doesn't mean a person who doesn't have diabetes should be using an SGLT2 for that. We know we use it for heart failure but not necessarily for hypertension. And it also doesn't mean that if you control diabetes and so intake that you're going to get the same type of effect I saw in those patients. So, I would still ask the patient, queried them a lot. There's a real-world case we had last week in Tulane a guy who had really bad hypertension African-American guy come to clinic blood pressure's 160, 170, 180 had him on all the right medicines. And I told the nurse practitioner, I don't believe it I don't believe the guy's taking his medicine. We did renin aldosterone screening. We even did a CT scan in the adrenals and super adrenals didn't find anything. They called his pharmacy here and refilled the medicine in five months.

Dr. Bakris:
We see this.

Dr. Ferdinand:
So, we could have done what Raven suggested, a urinalysis but just asking the pharmacist and say, hey we writing all these medicines

is the guy picking them up? Nope, not taking them. So, I would insurers diet ensure some degree of adherence as best we can. And I would stick with the regimen that my colleagues have suggested.

Dr. Vemulapalli:
Thanks, Keith. I think we'll go to the second case and then I do have some questions besides medicines about how you implement all of this. That's a lot of work you all just described in clinic. We heard earlier about having help and having a team. And so, we'll come back to that a little bit.

Dr. Ferdinand:
Can we stay with that?

Dr. Vemulapalli:
Yeah, go ahead.

Dr. Ferdinand:
Cause I think that's really important. I say that and I apologize, I have a free association way of talking. You got to kind of hang in there when I talk, but I said nurse practitioner, it's a team approach. I'm not going to try to treat a guy who's pretty difficult by myself. I'm going to use an advanced nurse practitioner I'm going to talk to the pharmacist. I'm going to even bring in the family, you know not breaking HIPAA, but ask the family for support with making sure that he's preparing the meals or he's eating the foods that we suggested and he's taking the dog on medicines.

Dr. Vemulapalli:
Yeah, I think this is really important to be effective is to have that team approach. Let's go to the second case. So, here on the right side of the panel this is a referral for uncontrolled hypertension. A 51-year-old female with a BMI of 27 and a blood pressure of 148 over 95. Past medical history is notable for pre-eclampsia, new onset headaches about three years ago. And during those headaches, her blood pressure was elevated 175 over 114, she was started on antihypertensive medicines, presumably at that point. Currently on chlorthalidone, 25 milligrams a day losartan a 100 a day, and nifedipine SR 90 a day. So, Keith, maybe we'll start with you this time. What are you thinking here? So, some of the medicines are a little bit different, and of course the background is a little different here.

Dr. Ferdinand:
Yeah, well there's several things in the history of the interesting. One of them is the pre-eclampsia. It's kind of like gestational diabetes. I've trained long enough to remember where we thought things were just markers of being pregnant. But they're not, there are signs that later on the patient may develop disease. Another thing is she had very severe hypertension at one point with severe headaches. But I would caution you that the idea that hypertension's a silent killer is oversold. Many of these patients have fatigue and headaches just a lack of activity. And you control the blood pressure suddenly they feel better. So, I will really query her as to how she's feeling, how she's doing. The medications don't look bad, Chlorthalidone is robust. You could make the case that you might need a loop diuretic if a GFR is less than 30 I don't see a GFR, maybe I'm missing it. But if a kidney functions fairly well Chlorthalidone is robust even with moderate renal insufficiency. Losartan is okay. It's a prodrug has to be converted. Some people don't do it well. And that a hundred milligrams perhaps you can get a better benefit if you went to Olmesartan 40, or even Irbesartan 300, the idea of an ACE inhibitor versus an ARB appeals to cardiologists cause we love ACE inhibitors. But when you look at most of the meta-analysis and controlled trials, the ARBs are just as good. You don't have the cough and some of the off-target effects. So, I'm okay with little losartan, but I probably would change it to Irbesartan, Olmesartan at a higher dose. And nifedipine is okay, it's a short-acting drug. She's on a sustained-release formulation to try to increase the half-life. But Amlodipine has an intrinsic half-life of 25 to 40 hours meaning that after they've taken it for two to three days, they can reach a steady state and if they miss a dose, they're still going to have blood pressure effects. So, I like Amlodipine it's the calcium blocker that was using all hat the largest anti-hypertensive study ever. And it was just as good as the Chlorthalidone based trial other than onset heart failure. I'm assuming she doesn't have heart failure, I don't know that with those type of bad blood pressures and her age I probably would get at least a baseline naturally peptide. I'm a true cardiologist that probably ought an echocardiogram. But if I didn't do that, I'd get an NT-proBNP to make sure they're not looking at a person who has a cold heart failure.

Dr. Vemulapalli:
Yeah, George.

Dr. Bakris:
Yeah, I would agree with 99% of that.

Dr. Ferdinand:
What's the 1%, George?

Dr. Bakris:
Well, you're going to find out in two seconds here, hang on. It turns out the comment about nifedipine is absolutely true. When the switch from nifedipine to amlodipine was occurring, I was a young assistant professor and I noticed with that change, I actually had about a two to three-millimeter increase in blood pressure, when I switched amlodipine, I switched them back, then amlodipine pressure came down. So, amlodipine is by far a better drug. There's no question about it. And it's better in many ways. But if pure BP reduction is what you're going for nifedipine may be a touch better. And there's actually a study that looked at this and nifedipine one slow down one by three millimeters. So, nothing dramatic.

Dr. Ferdinand:
I agree with that, George. I think the veil dilatation with nifedipine may be a little bit more intense. It also gives a little bit more demon. This is a middle-woman and she may get a demon with amlodipine but she probably get more of a nifedipine.

Dr. Bakris:
Yeah, no, that's absolutely true. I definitely would not keep losartan. I would go to Olmesartan or alsartan a Darby, which is even slightly better. And the thing is, this menstrual stuff we've had cases reported in these types of women where it relates to their period. So, I'd want a much better history related to blood pressure around the period and what actually happens because hormonal therapy may actually be indicated here for the blood pressure. And we've actually published a case in the Lancet like this where the woman actually had to have her ovaries removed because there was no way to actually control her pressure. And so, it's problematic. But everything else that Keith said I would agree with here.

Dr. Vemulapalli:
Raven, anything to add on that? Or if not, you know, let's say you've made some changes and the patient comes back still hypertensive where would you go next?

Dr. Voora:
Yeah, now, I agree with everything that George and Keith have already said. And so, she remains hypertensive. Again, making sure you're getting your out-of-office blood pressure measurements so that you've evaluated for white coat effect, extremely important adherence. Similarly, to Keith, I do the same thing, I call the pharmacies and I'm actually always very surprised to hear how many times patients have not picked up their refill. So, assessing adherence is extremely important to do. Assessing sleep quality as George already mentioned earlier in his talk these are the things that I would do off the bat. And of course, lifestyle, right? Everything comes down to lifestyle here. So really doing a really good history assessing her exercise, assessing what she's eating. And then also just reiterate what Keith said about with her history of pre-eclampsia she's an increased risk for cardiovascular disease. So, really needing to pay attention not just to hypertension, but to her other risk factors. And exercise is going to be extremely important, and her management of her risk factors and minimizing risk for cardiovascular disease and obviously getting lipids maybe putting on her statin and things like this are gonna be extremely important in this patient for her longevity. And then in terms of medications, right? So, she's on a different ARB, she's on chlorthalidone she's on a long-acting calcium channel blocker. Then again, my fourth line agent after I've evaluated for primary aldosteronism by getting a plasma renal activity and an aldosterone level again at this point would be still spur lactone.

Dr. Vemulapalli:
Keith.

Dr. Ferdinand:
Since we've been talking about late breakers, we have one coming up as an oral abstract it's a pilot study, but we gave patients valid devices and we had Bluetooth texts. The medical students would then text back. I didn't get involved and without changing the medications we were able to significantly lower blood pressure improve quality of life and adherence. So, I think just that shared decision-making having her and him buy into their disease state would be an important step. This cartoon, I actually suggested we show this is the Jackson Heart Study, which is the Framingham the South, but it's in Jackson. So, it's mainly African-Americans, all African-Americans. And it shows in patients who had apparent treatment-resistant hypertension, how poorly they were being treated in terms of lifestyle. Only 1.24% had the ideal lifestyle, 5.9% on chlorthalidone in dopamine. So, they weren't using that. And only less than 10% want a mineralocorticoid receptor antagonist. Either spironolactone or eplerenone. So, this suggests in free-living individuals this is a cohort study, you're just observed them. You're not treating them, but just observing them. Lifestyle is not being done. They're not using the better thiazide-type diuretic and they're not using the mineralocorticoid, receptor antagonist. That's what really is happening out there.

Dr. Vemulapalli:
Great, thank you. I think we'll bring the session to a close. Thank you all for your attention and participation this morning again. So,

thank you all.

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