

Ep #144: Secondary Hypertension Demystified for Nurse Practitioners



Full Episode Transcript

With Your Hosts

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Welcome to the *Real Deal Nurse Practitioner Club*, the podcast for nurses who are ready to pass their boards and thrive in their careers as real deal nurse practitioners. I'm Anna and I'm the Director of Nursing Content at Blueprint Test Prep. Whether you're deep in exam prep or stepping into practice, I've got you. It is time to become the confident, knowledgeable NP that you're meant to be. Let's dive in.

Hello everyone, welcome back to the *Real Deal Nurse Practitioner Club* podcast.

Now, there's been positive feedback on the patient vignette episodes we've done, so let's do another one. Now, instead of walking through a particular case from clinical practice, we are going to use this time to discuss the more uncommon side of a very common diagnosis. So today's episode is going to take a closer look at secondary hypertension.

I am going to do a brief overview of what secondary hypertension is, and then I'll go over some contributing diagnoses to consider. And then, of course, I'll throw in some experiences to try and showcase the real-life side of clinical practice as much as I can.

So first, we need to review what secondary hypertension is. We are all probably familiar with primary or essential hypertension, which accounts for about 90 to 95% of all cases of hypertension. Primary means that it has no identifiable cause.

There are definitely risk factors for primary hypertension, like smoking and obesity, but pathologically, there's not another cause. Secondary hypertension is different in that there is a pathological reason for the elevated blood pressure. Maybe it's from kidney disease or a hormone issue like pheochromocytoma or a medication issue.

So, the question becomes, how do you know when to investigate further?

Let's start off by talking about patients who should not have hypertension. When I think about types of patients that should not have high blood

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pressure, I immediately think about children and young adults. They are usually healthy, and they typically don't have those big risk factors for hypertension like smoking, kidney disease, or sleep apnea. So when I have a pediatric patient with an elevated blood pressure, automatically I'm thinking that there could be some underlying cause here.

Yes, it could be white coat hypertension or anxiety that may be contributing. But if the blood pressure is elevated on multiple visits or they have symptoms of high blood pressure like headaches and vision changes, even more alarm bells are going off.

So in children, what are some causes of secondary hypertension? In children and adolescents, the most common causes are going to be coarctation of the aorta and kidney disease.

And what's an easy way to check for coarctation of the aorta? Compare the blood pressure in the arms to the blood pressure in the legs. Normally, the farther away from the heart, the higher the blood pressure. So normally, the blood pressure in the leg will be higher than in the arms. However, with coarctation of the aorta, that aorta is kinked off and stenotic, and so the blood pressure in the arms can be quite a bit higher than in the legs.

Now, if we don't find any evidence of coarctation of the aorta, then maybe we can consider some sort of kidney disease, like maybe polycystic kidneys or glomerulonephritis. An easy place to start with that workup is a urinalysis with culture and to order an ultrasound of the kidneys.

Now, another age group where hypertension is not as common is young adults up to middle age. So think of those between 18 to 40 years old. Again, patients in that age range don't typically have primary hypertension, and they're actually the most likely to present with secondary hypertension. So, as much as we want to investigate hypertension in children, we should also have a low threshold for investigating hypertension in this age group.

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I remember when I was in NP school, this next underlying cause of secondary hypertension was pounded in my brain: renal artery stenosis. I was taught to listen for bruits over the renal arteries and then send the patient for a renal artery ultrasound if a bruit was present.

But why does renal artery stenosis cause high blood pressure? Well, essentially what happens is that stenosis in the renal artery reduces the blood flow to the kidney. And the body is full of compensatory mechanisms. So how does the kidney respond? By releasing hormones that increase blood pressure in an effort to increase the blood flow.

Now, renal artery stenosis is not very common. But in patients that have extremely high blood pressure, as opposed to those with mild to moderate elevations, renal artery stenosis should definitely be considered.

Another common cause of secondary hypertension in that 18 to 40-year-old range is thyroid dysfunction. Secondary hypertension can actually occur with either an overactive or an underactive thyroid. So, you can even have a 39-year-old patient present in a thyroid storm, which remember is a type of hyperthyroid crisis, and imagine their blood pressure just being 220/160 and having tachydysrhythmias. Now, that is clearly an emergent cause of secondary hypertension, but hopefully illustrates the point.

Working in primary care, a more common cause of secondary hypertension that I found was actually obstructive sleep apnea. So I remember from clinicals a patient around 35 years old who came in for a yearly physical, and their blood pressure, I want to say, was around 150/90. Now, they were overweight according to their BMI, but I also noticed that they appeared to have an increased neck circumference. And so we started investigating if there were any symptoms of sleep apnea, which patients will report as loud snoring and waking up feeling unrefreshed.

So I remember that patient saying they did feel tired most days despite getting enough sleep, and their partner did complain about their snoring.

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So, in addition to starting this patient on medication for hypertension, that is where we could also order a nocturnal polysomnogram or a sleep study.

And if I remember correctly, the results of the sleep study actually showed very significant sleep apnea with that person's oxygen saturations dipping as low as 82% and apneic episodes up to 30 seconds long.

So, what do you think you would do next in this clinical scenario? Well, you can set the patient up with a CPAP machine and bring them back in. After a month, the patient came back for a follow-up, and their blood pressure was 130/80. But really, they felt so much better.

And over the next few months, with the sleep apnea under control and less fatigue, the patient was able to exercise, lose weight, manage stressors better, and eventually didn't require blood pressure medication. So, do not underestimate the power of managing comorbid conditions and risk factors in hypertension management.

And as patients age, the incidence of hypertension definitely increases. But that also doesn't mean we shouldn't consider secondary causes. Some causes of secondary hypertension that are more common in middle to older adults include hormonal issues like Cushing's syndrome or pheochromocytoma. Renal artery stenosis can also occur, although it's more likely here to be caused by atherosclerosis. And chronic kidney disease can also cause secondary hypertension.

What about medications? Well, let's think about hormonal contraceptives. Some of the big contraindications are smoking over the age of 35, history of blood clots, and having high blood pressure. So, while I won't prescribe a combined hormonal contraceptive to a patient with uncontrolled high blood pressure, I also need to be aware that the same medication can cause high blood pressure.

Another scenario you might come across is NSAID-induced hypertension. A patient may have been taking a lot of ibuprofen or naproxen for pain or

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an injury for several weeks before coming in to be seen. And as long as no significant kidney damage has been done, the hypertension should resolve once stopping that NSAID.

Now, to finish this episode off, when should we be thinking about secondary hypertension for our patient? Since secondary hypertension is rare, especially as patients age, routine workups for underlying causes of hypertension are not typically warranted. However, there are a lot of contributing factors and conditions that should be considered, especially when the high blood pressure is difficult to control with medications and lifestyle changes.

Also, if the patient is younger than 30 to 40 years old, the blood pressure is severely elevated, or there's been a significant increase in blood pressure from a previous visit, then a cause of secondary hypertension should be looked into.

Okay, I hope you enjoyed this brief little summary episode today. Thank you so much for tuning in. Be sure to follow our podcast wherever you stream them. You can also find SMNP Reviews on YouTube and Facebook and all the social media places. But I'll see you next time.

Thanks for listening to another episode of the *Real Deal Nurse Practitioner Club*. If you want more information about the different types of support that we offer to students and new nurse practitioners, you can visit npreviews.com. We'll see you next week.