Treating Systolic Hypertension in the Elderly - Frankly Speaking EP10

Transcript Details

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Dr. Frank Domino:
Is 120 the new 140 in hypertension? This is Frank Domino, and we're going to be discussing systolic hypertension today. I have an 82-year-old patient who comes in for a follow-up of their high blood pressure. His BP today is 145/82, and he's on amlodipine and hydrochlorothiazide. New data exists that says maybe this is not good control. Joining me today to discuss this issue is Dr. Robert Baldor. Welcome to the show, Bob.

Dr. Robert Baldor:
Frank, pleased to be here. And yeah, this is Frankly Speaking and we're going to get an opportunity to hear from you today. I know this is something that you've looked at, so I'm thrilled to be able to interview you today for the show. So you did get data... Starting out with the idea of hypertension, and I thought I had... This was easy at one point, like most things in medicine, 140/90 hypertension, and shoot to get below that, we're good. And over the years, we've been back and forth, how low do you go, or maybe we can be a little higher as well. So there's been a lot of... And the original focus had all been on diastolic hypertension. Now we're hearing more and more about systolic hypertension. So, Frank, what is systolic hypertension?

Dr. Domino:
Well, back in the late '90s, we recognized some data around senior citizens had different risk factors and benefits from treating hypertension. And one of the issues came to light was that if

they had systolic hypertension after age 65, that ended up having a better correlation with outcomes, adverse outcomes than diastolic. Diastolic is more significant under the age of 65. Over 65, it looks like systolic is important. So now the next step was, what's hypertension, or what's systolic hypertension? And traditionally we did describe systolic hypertension as anything greater than 140 mmHg. Then that was based upon the JNC 7 guidelines, that 10 years after they were published, JNC 8, the Joint National Committee on hypertension was published a few years ago, and they said, "The data around diagnosis of systolic hypertension and its best treatment looks like 150 is the new cut off." While JN...

Dr. Baldor:
So this may have been why it took him 10 years to come out with it, because they're coming out with, I would say, a controversial statement where for years they've been saying, you got to go lower, and they're saying, "No, no, maybe we could stay higher."

Dr. Domino:
Well, and this is really interesting, 'cause JNC 8, most of the authors agreed on all of their recommendations. They came up with some really interesting ones, but there was dissent on this one recommendation of raising the systolic cut-off to 150 amongst the committee, and it led to a whole new set of investigations to occur. So systolic hypertension, since JNC 8, is described as systolic blood pressure over 150. That's the cut-off to initiate treatment and titrate towards less than 150.

Dr. Baldor:
Okay. So that's what they were sort of saying. So as we look at this, then, there has been some recent data out there that has... So you said there was a lot of controversy around this, so then there's been more data that's come out that say we should be going lower, I think the Sprint data was part of that, now this recent review that came out. So how did that all... Where are we at today?

Dr. Domino:

Alright, well, today we're maybe a little bit closer to understanding systolic hypertension, but I say that controversy still exists. A recent systematic review looked to determine what's the best data on the diagnosis and management of systolic hypertension. And the authors went very aggressively in setting up a broad scope to identify randomized controlled trials in humans that evaluated the diagnosis and management of systolic hypertension.

Dr. Baldor:
So this was a randomized control trial?

Dr. Domino:
No, this was a systematic review.

Dr. Baldor:
Oh, systematic review, I'm sorry. Yeah. Okay.

Dr. Domino:
And what they found was... When they narrowed it down, they narrowed it down to four papers, which seems surprising to me because there's so much in the medical literature on systolic hypertension. And they chose four papers, and they concluded, this paper found that aggressive treatment of systolic hypertension led to improvement in a number of areas. The first was in major adverse cardiac events. They found a relative risk reduction of 29% when you are aggressively treating hypertension. There was also a decrease in cardiovascular mortality of 33%. That sounds terrific. They also found that there were some adverse events, but really the only one they found statistically significant was a doubling in the risk of developing renal failure by aggressive treatment of systolic hypertension.

These things sort of surprise me because it was somewhat inconsistent with many of the other publications and much of the European data. So I dug into this paper, and I found maybe there were a few issues that we should recognize. First of all, there were four trials. Three of the four had different age cut-offs for inclusion. The Sprint senior trial used a titration goal of 120 or less,

which none of the other trials used. And they used a very, very organized, but unrealistic approach to the evaluation of blood pressure. They had patients come in, sit for five minutes, they used an automated cuff; when they aggressively treated hypertension, they used a multi-disciplinary team to work with the patient to aggressively lower the blood pressure.

Dr. Baldor:
And none of those patients could have diabetes as well. I think that was one of the other concerns that came out with it.

Dr. Domino:
That was very true is that these patients, diabetes was an exclusion factor. In two of the studies, they were done in non-US populations. One was done in Japan and one was done in China. So there were a number of factors that I felt like, "Wow, this doesn't necessarily make sense to me." So it's a great paper, it's a very interesting systematic review. They reported relative risk reductions in their abstract and in the paper, but they didn't necessarily report the absolute risks in a clear way.

Dr. Baldor:
I want you to stop just for a minute. This is a systematic review, but there was only four studies that were included in the systematic review. So, that troubles me. That doesn't sound like much of a review.

Dr. Domino:
And I think you're right. I think they had very stringent but clear guidelines about what they would accept and what they would not. Yet, they seemed to discount a variety of other randomized control trials that probably would have maybe shifted some of this data a bit.

Dr. Baldor:
Okay. Alright. And you also just mentioned the word 'relative risk reduction' and to me that's

always an interesting statistic to look at. I've been aware of the fact it seems to exaggerate benefits, perhaps. And you said it didn't calculate an absolute risk reduction. Can you say more about that for folks that may not be clued in to what those numbers mean?

Dr. Domino:
As you know, Bob, we're here in central Massachusetts and it's winter. And I got in my...

Dr. Baldor:
Yes, it is. It's cold, it's snowy.

Dr. Domino:
It's cold and snowy. I got in my car last week and my car has a thermometer. When I started the car up it was four degrees. And I drove to work, worked all day and on the way home, I noticed that it had gone up to eight degrees. That would be considered a relative risk increase of 100%.

Dr. Baldor:
So it was a heck of a lot warmer then, right?

Dr. Domino:
You should be incredibly warm. But the reality of the matter is there's no clinical difference between four and eight degrees, despite there being a relative increase of 100%. Relative risk reductions are very interesting. They make great media publicity fodder, but they don't necessarily tell us the reality of the matter. If you dive in and look at the absolute risk of outcomes in a variety of places, you can get a fair amount more indication of how important this is to you and your patients. And you can calculate what we like to think about it are the statistics, numbers needed to treat norm. And that's the number of people you would need to treat over the time period of the study, to get one person to get a benefit.

And if we look at cardiovascular mortality, it turns out that the absolute risk of a benefit of aggressive treatment of systolic hypertension led to a cardiovascular mortality of 1.1%, versus in

the non-aggressive group, it was 1.7%. That means you had to treat 167 people for three years aggressively to treat their hypertension to prevent one cardiovascular mortality event. Interestingly, the authors did not include the absolute data on adverse outcomes, including renal failure. They just reported the relative risk doubling. So we have no idea how to calculate the number needed to harm, which is the only way you can balance an intervention on its outcomes.

Dr. Baldor:
I just want to slow you up just a bit here. I think relative risk reduction is what we're used to seeing being put out there as a... So, 30%. So in this case you're saying a 30% relative risk reduction really translates into I think it's about half a percent absolute risk reduction in looking at that aspect of it. But the P value is pretty significant with these. Why is that? How does a P value fit into this?

Dr. Domino:
That just means that they were able to measure the numbers accurately. That doesn't mean that there was necessarily any patient benefit to doing this study. There was a benefit, there absolutely was, but the benefit was relatively small and we have no idea how to correlate that with the adverse events that happened.

Dr. Baldor:
Okay. Obviously, this is looking at a randomized control trial. Trying to bring something like this into clinical practice can be dealing with the adverse events. Oftentimes patients will stop taking medications or going along with that. I also think I remember from the Sprint trial, in order to get that degree of lowering of blood pressure, you had to be like on three medications. So that also adds to a level of complexity in caring for these patients, was that spoken to at all in this review?

Dr. Domino:
It was not, Bob. Yes, there was data that showed you had to often use more than two meds, sometimes up to four. And as we both know, there are very few randomized control trials where three medications are involved, and there are virtually no randomized control trials where four

medications are involved. What shocks me the most about this study was that there was no reporting of dizziness, syncope, falls, hip fractures in this very at-risk population. To me in my clinical practice, I find when I get very aggressive with blood pressure management, patients are symptomatic, whether they have trouble and they develop orthostatic symptoms to true fall.

So when I look at the benefit of aggressive blood pressure lowering versus, in my experience, the adverse risk that I'd be causing, I think I feel pretty comfortable using a cut-off, as JNC 8 said. If you can get their systolic pressure below 150, we know that that causes a certain significant benefit to our patients. It lowers the risk of stroke, it lowers the risk of cardiovascular mortality, it lowers the risk of all cause mortality, with only a small increase in adverse event rates. I think this paper helps shed some new light on systolic hypertension, but I don't think it is a practice-changer.

Dr. Baldor:
Thanks, Frank, so you're saying the bottom line here right now is, follow the JNC 8 guidelines, their recommendation. It still makes sense, those are valid recommendations to guide your day-to-day clinical care. Consider these new papers that are coming through, these new reflections. But for right now, you're probably not changing your practice. You're following JNC 8. Is that what you're saying?

Dr. Domino:
That's true. I will tell you that when you're aggressively treating systolic hypertension, whether you follow JNC 8 or the new guidelines, I remind us all that seniors, in particular, have tenuous renal function, so if you're going to add a third or a fourth agent a week to two weeks later, I would follow creatinine and electrolytes, because it's very easy to induce hyponatremia or hypokalemia, or a mild bump in creatinine.

And I remind everyone that if your creatinine is 1, and it becomes 2, that implies a 50% reduction in kidney function. I think we sometimes think, "Oh, it's not too far away from the normal range." Well, if your creatinine doubles, you've lost a kidney. Your risks for adverse events go way up. So,

follow JNC 8, titrate down to at least below 150, and provide close follow-up on your seniors, and until there's further data, I think that's the best way to go.

Dr. Baldor:
Thank you, Frank. That's really helpful, because I've been puzzled as to what to do, and feeling, myself, that I was going to follow JNC 8, so it's nice to have that reflection as well.

Dr. Domino:
Thank you, Bob.

Dr. Baldor:
Thank you very much for listening. Hopefully, this was helpful for you today, and I'm thrilled to be able to interview Dr. Domino, as opposed to being interviewed by him. Take care.

Dr. Domino:
Thank you for listening today to this discussion of systolic hypertension in the elderly. If you'd like to review this article, please search for the Journal of the American College of Cardiology, 2017. Join us next time when we'll be discussing the controversy around the diagnosis and management of concussion in the outpatient setting.