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Uncovering Evidence on Blood Pressure Improvements in Americans

Dr. Brown:

For decades now, countless news reports have focused on the early, insurmountable prevalence of high blood pressure among Americans. But what if I were to tell you that, based on emerging research, blood pressure among adults in the United States actually decreased between 1960 and 2005? Join us today as we take a deep dive into a study that uncovered these surprising results.

For ReachMD, this is Heart Matters, and I'm Dr. Alan Brown. Here with me today to discuss his study is Dr. Daniel Lackland, Professor and Director of the Division of Translational Neurosciences and Population Studies in the Department of Neurology at Medical University of South Carolina. Dr. Lackland, welcome to our program.

Dr. Lackland:

Wonderful to be here.

Dr. Brown:

So, let's start with why you decided to look at the systolic blood pressure improvement between 1960 and 2005. What kind of things made you choose to investigate this issue?

Dr. Lackland:

That's a great question. And over the years, we've had so many implementation strategies. We've gone through 8, 9, 10 different sets of guidelines for blood pressure control and management. And so you wanted to ask a question: Is this making a big difference? We certainly knew from studies like the NHANES trends data that you're seeing reductions in blood pressure, but it kind of begged off on that question: What's happening in real life, and what's happening to all the segments of our population with regards to blood pressure and blood pressure reduction?

Dr. Brown:

Yeah, I certainly share your pain about all the guidelines. I know there has been a lot of controversy, especially about the more recent sets of guidelines in terms of some disagreement, because there was a feeling that maybe we should be a little bit less aggressive in elderly individuals, but it turns out that wasn't the right approach, was it?

Dr. Lackland:

I think that's exactly correct. And again as you eluded to it, it's the evidence that's out there. It's difficult to find the strong evidence for all the segments of the population, which is kind of what, again, led us into wanting to look at an area in this particular case in the Southeastern United States. Some people call us the stroke belt. Some people call us the end stage renal disease belt. And then we do know that blood pressure plays a very high role in this. And so, looking at this segment all aspects of the population, we thought it would probably be good to see those differences so that we can think about are these evidence—based recommendations and guideline practices?

Dr. Brown:

Okay, so that gives us a good explanation as to why you focus your research in the Southeastern region of the United States, because of the high risk of stroke and hypertension. And it seems like a massive project. You were looking at data over a period of four decades and a large geographic area. So, how did you sort of begin the concept of this study? And then how did you implement it?

Dr. Lackland:

If we go back, we're very fortunate in one sense that there were a couple of pioneers in the 1950s and 60s that had an idea that there was something going on in the Southeast and, in particular, were looking at racial disparities. People weren't being treated for

hypertension or, at least on a regular basis at that time, didn't know a lot. We knew what elevated blood pressure was, but there weren't any real guidelines. So, they established cohorts in Charleston County, South Carolina, and in Evans County, Georgia and identifying the segments of the population, both white and black, and pretty much just kind of following them, doing a baseline assessment of blood pressure, cholesterol measurements, etcetera, and some interviews, and we watched that and we had these data in 1960. Then you had the REGARDS study, and that was in 2005. So we had two cohort time periods in the Southeast that were already funded, data was already collected, so it was really kind of a concept than analysis type thing.

Dr. Brown:

For those just tuning in, this is Heart Matters on ReachMD. I'm Dr. Alan Brown, and today I'm speaking with Dr. Daniel Lackland about his study on how blood pressure among Americans has actually improved over the past 45 years. So, Dr. Lackland, let's jump into the results of the study. Tell us about the findings.

Dr. Lackland:

It's a number of exciting findings. One that stands out just right at the top is in 1960, and if we — then think about things that were going on in the 50s and 60s and back even into the 40s, if we think about Franklin Roosevelt, dying of a stroke, he had a systolic blood pressure of greater than 300, which seems absurd today. We very seldom would ever see something like that. In 1960, in the Southeast roughly 10 percent of the population had systolic blood pressures greater than 200. These are what we could call very severe blood pressure. This was even more prevalent in African— Americans in 1960, in which it was almost a relatively common value with these very excessively high systolic blood pressure values. When you now look four decades later, these were basically gone. These severe blood pressures that were certainly associated with stroke, with all kinds of other catastrophic events, were just basically gone. We didn't see those types of values anymore, certainly because of many of the control values. The other aspect of it that, regardless of age, regardless of race, you saw blood pressures coming down in all segments of the population. So, we've attributed that most of it is pharmacological therapies and recommendations for the management of blood pressure. The other piece that we saw even in those lower percentiles, the non— hypertensive people that you would not be treating, their blood pressures also came down by significant numbers. Again, for whites, for blacks, for old, for young, males, and females, again suggesting that maybe some of that behavior and lifestyle changes, such as reduction in salt and these types of things, maybe were indeed working in lowering blood pressures as well.

Dr. Brown:

Yeah, that's very interesting. Well my mother is 95 years old and a retired family practice physician. My father was also a family practitioner. And I remember vividly in the 60s that they would treat hypertension by putting patients in the hospital, and they'd have them lay in bed and the blood pressure would come down. But, of course, as soon as they were discharged, it went right back up. And there were only a couple of antihypertensives in those days, so now we've got, not only multiple drugs, but we know the combination therapy is much more effective; agreed?

Dr. Lackland:

Absolutely. I think you hit that spot on. And where you're being hospitalized for hypertension is really coming down, fortunately. There are cases, of course, and we've got a ways to go still, but we are being more effective, and we're at least on a positive road.

Dr. Brown:

Now, that's very encouraging. So you think the folks that weren't hypertensive that are now showing that their blood pressure is declining, do you think that's primarily sodium intake and maybe exercise? Or is there anything else in your study that you discovered that kind of surprised you or added some insight into that?

Dr. Lackland:

The diets have significantly changed. And if you look at the traditional diets in the Southeast, they were very high salt intake and there is all kinds of historical reasons for that. While we still consume way too much salt now, probably twice as much as we actually need, it's still a major reduction from the 1960s.

Dr. Brown:

Yeah, very, very interesting. So you've called the results of your study a great public health success story. Tell us why you feel that way and why it gets you excited.

Dr. Lackland:

Elevated blood pressure is associated with mortality, with strokes, with heart disease, the whole spectrum of conditions. And we do know that lowering blood pressure can make a difference. And I guess this is an indication of really solid evidence that that's what we've done; we've lowered the blood pressure in all segments of the population, we've reduced the disparities that were there. They still are evident, but we've reduced that gap in that racial disparity. But I think lowering the blood pressures and seeing the stroke mortality rates coming down, and we're seeing those outcomes coming that correspond to this lowering of the blood pressure. So I think it's a good

marker for the future. The other piece of it is that if you look at on a global standpoint, where we were in the U.S. in 1960, many developing countries are there now. And so they could look at this as a great model of being very, very effective in reducing blood pressure and can have an effect on the chronic diseases. The World Health Organization with one of their projects of chronic diseases, recognizes the big impact can be hypertension and hypertension control. And I think looking at the U.S., looking at Europe, developing countries and the things that we've done with blood pressure, that this can be a very good public health model globally.

Dr. Brown:

Well, I certainly couldn't agree with that more, based on the exciting results of your study. I think that the guidelines a few years ago for hypertension made it a little easier to be lax with treatment, and treating hypertension is difficult; you have to remain focused, it requires multiple medications, careful follow up of the patients. So it gave some practitioners an excuse to be a little bit lazy when it came to hypertension, but more recently the data suggests that aggressive control of hypertension is the way to go, and that maybe getting a little more lax doesn't make sense. Could you comment on that?

Dr. Lackland:

I think your point's extremely well taken. With the first seven national guidelines in the U.S., each time the definition of hypertension and the target blood pressures with the guidelines seem to be coming down. And I guess with what would be referred to as JNC8, and that aspect of it, the target blood pressure was considered to be up. And I think that was based on the evidence at the time when the SPRINT trial came along and ACCORD, you began to see that really this aggressive blood pressure, as stated very nicely, is the most important blood pressure control. It can be the most effective. And I think we're kind of heading on the right track now with the newest of the guidelines, and all of that is evidence-based. And I feel like we contribute with this study, a bit of that, as well; that we can lower blood pressure, and lowering the blood pressure does reduce the risk.

Dr. Brown:

Well, thank you very much, Dr. Lackland, for the hard work that you did, the wonderful study, and the eloquent description of the results. And I'll open up the floor to you to tell us any lessons learned that you might want to pass along to our listeners.

Dr. Lackland:

I think from the practitioner standpoint, as well as the patient standpoint, as well as just the population as a whole, blood pressure reduction does work. It does reduce the risk, and it's worthy on evidence-based to be as aggressive as you can to get that blood pressure down.

Dr. Brown:

Alright. Well, that's all the time we have for today, but I really want to thank you, Dr. Daniel Lackland, for sharing the results of this interesting and promising study, and it was really great speaking with you today. I appreciate you taking the time to speak with us.

Dr. Lackland:

Absolutely. My pleasure.

Dr. Brown:

For ReachMD, I'm Dr. Alan Brown, and to access this episode and others from Heart Matters, visit ReachMD.com/HeartMatters where you can Be Part of the Knowledge. Thanks very much for listening.