

Blood Pressure Determination on Obese Arms - Frankly Speaking EP 44

Transcript Details

This is a transcript of an episode from the podcast series "Frankly Speaking" accessible at Pri-Med.com. Additional media formats for this podcast are available by visiting <http://www.pri-med.com/online-education/Podcast/blood-pressure-frankly-speaking-ep-44#sm.0003hik4s15f1e3apk71yr6q3sxw>

Dr. Frank Domino:

Currently, almost 40% of all adults in the United States meet the criteria for obesity. And the challenge is how to obtain an accurate physical exam on these patients. Dale is a 38 year old male in your practice, and his BMI is 41. Even a thigh cuff on his upper arm does not fit well, so obtaining his blood pressure is a bit of a challenge. What are your options to determine his blood pressure in a more accurate manner?

This is Frank Domino, family physician and professor at the University of Massachusetts Medical School. And joining me today is Dr Alan Ehrlich, Clinical Associate Professor in Family Medicine at the University of Massachusetts Medical School and Executive Editor of DynaMed. Welcome to the show, Alan.

Dr. Alan Ehrlich:

Thanks, Frank. Frank, in your intro, you gave a situation where a patient couldn't have their blood pressure adequately checked using cuffs that we routinely have available. This is a problem that I think becomes more and more frequent in a variety of settings, partly because of obesity and also sometimes we just don't have the equipment that we need. What are the options that we can do in such a situation?

Dr. Domino:

Well, there is not actually much of a body of literature on best practices in obtaining blood pressure in patients who are morbidly obese. The study I wanted to discuss today is a small trial that looked at patients who were hospitalized. In fact, they had an arterial line in. And the researchers compared a blood pressure taken on the upper arm using a large cuff, what we typically call a thigh cuff, and the brachial artery compared to using a regular sized adult cuff on the distal arm, and using the radial artery. And what it found was that both methods were not ideal in obtaining a blood pressure reading that was consistent with the arterial line. But, using the blood pressure, using the regular cuff and the radial artery was much better at predicting systolic hypertension, and therefore, was probably most protective. The authors concluded that if you're going to be taking a blood pressure in a patient who you can't adequately fit with a more proximal arm cuff in the brachial artery for auscultation, consider using a standard size cuff on the distal arm.

Dr. Ehrlich:

Very interesting, Frank. What limitations would this study have? How big was it? What other things were going on?

Dr. Domino:

Well, there's a number of limitations. First of all, there were only 51 people in this trial. So it's very small. This trial was actually built upon two prior small trials looking at more effective ways to obtain blood pressure. As you pointed out, this is... Neither of these methods were highly accurate using the more proximal arm, large cuff, underestimated, systolic hypertension, and that means missing the diagnosis or missing the appropriate management of hypertension could lead to morbidity or possibly even mortality. The limitation associated with the more distal arm cuff was that it overestimated systolic hypertension. On that end, you could possibly overtreat and cause hypotension, falls, etcetera. There are a variety of limitations here. What I found most interesting though, was that this gave us a consistent method to address blood pressure that was at best, going to overestimate someone's more dangerous reading, their systolic hypertension, and would probably cause them significant less discomfort.

Dr. Ehrlich:

What other factors make control of blood pressure difficult? Obviously, what you've laid out is knowing exactly what somebody's blood pressure is can be a limitation and then you can get under or over treatment with complications. But what other factors are at play in patients who have significant weight issues?

Dr. Domino:

Well, compliance with medications, the discomfort or the morbidity associated with anti-hypertensives, in particular, orthostatic hypotension, possible complications of worsening of edema, constipation, a whole host of issues can occur with blood pressure medications in all patients, but in particular, those with obesity. I suppose one of the other strong concerns that make this trial hard to integrate in our practice is when we look at the literature base on managing hypertension. It's always been based upon using a more proximal arm blood pressure reading. And in this case, they didn't compare it to that. They compared it to using an arterial line, something that we don't traditionally use as a gauge to assess a patient's blood pressure in the ambulatory setting, and certainly not one we use to gauge patients appropriate of degree of care.

Dr. Ehrlich:

The other thing that that reminds me of is that the studies that showed the problems with uncontrolled hypertension leading to myocardial infarction, or stroke, or other, and organ damage probably did not have a large population of morbidly obese patients in it. We don't necessarily know how data from a general population extends into that population. One other thing I wanted to ask you, Frank, because it's a little unusual, the methods that they used, first having A line in, but secondly, listening to the radial pulse, that's not something I've ever done. Is this something that is hard to do or is it... What's the story with this?

Dr. Domino:

It's surprisingly easy to do, and it's something that we haven't been taught to do. Certainly, when

we feel a patient's pulse, we tend to use the radial pulse. It's very close to the skin, and in obese patients, the area in the antecubital fossa can have extra layers of adipose tissue, whereas, down by the wrist, that thickness is considerably less. So listening to the radial pulse is not very hard, and it's actually something that's fairly easy to treat your staff to do. It is a little bit different with patients because they're used to you putting the cuff on their upper arm, so you may need to take an extra minute or two to just explain to them what you're doing and why. But the actual process is very, very simple. It's very straightforward. And I've found when I've tried this with patients that they're actually grateful because using the larger cuff on the upper arm is somewhat uncomfortable for them, or at least some have expressed that, and you can tell that the cuff is getting very highly inflated and you know that they're probably having a fair amount of pressure with that cuff being advanced, so it's easy to do, and it's easy to train your staff to provide.

Dr. Ehrlich:

Thanks, Frank. Very interesting.

Dr. Domino:

This is a very interesting study, and I appreciate the fact that we were able to discuss it. Practice pointer: In patients who are severely obese, obtaining of blood pressure using the distal arm and the radial pulse may be an effective alternative to determine patients readings while in the office setting. Join us next time while we talk about the risks and proper counseling for patients who participate in endurance sports like triathlons.