Title: Population-Level Study of Abdominal Aortic Aneurysm: What Are The Trends?
Participants: Dr Indrani Sen
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Dr Indrani Sen

"- Good morning, everyone. My name is Indrani, Indrani Sen. I'm one of the vascular surgeons who practices out of Eau Claire in Wisconsin. And today, we are talking about the state of abdominal aortic aneurysms. This is basically a population-based study on the trends and diagnosis, treatment and mortality for aneurysms spanning four decades. Kind of an update on the epidemiology of aneurysms in the US from when Hallett's study was published to see what has changed with the introduction of endovascular treatment with the introduction of screening over all these years.

Unmet Needs in AAA Treatment

So like I just mentioned, a lot has changed. So in clinical practice, it seems that the incidence of ruptures has decreased a lot, and this is something that is pretty widely reported. Parallelly, we also seem to see a change in the relative number of women that we are treating, especially older women. And this is another area of an unmet need along with how good is the screening that is, you know, available. Is it being applied widely enough? Are we picking up enough patients? And do the guidelines themselves need broadening what is called introduction of the expanded screening guidelines and not just what is followed by the USPTF guidelines.

Significance of this Study

So this is the first study that has actually looked at the natural history of aneurysms in the US on a population level. Now, this has come up with some interesting findings. Some of it parallels what we had suspected, but you know, was not widely published in that the incidence of aneurysms overall has been changing. There was a sudden increase, then a decrease. The incidence of ruptures has been steadily declining. And

it also brought to light that the majority of ruptures are still diagnosed when they present with a rupture. So there is a lot that can be done for screening for these patients, not just the men and the smokers, but for everybody. And these are target areas that future research needs to target to broaden the capture and improve outcomes in these patients. The applicability of this is not just in the US, it's pretty much worldwide. And this follows other trials which are going on all in other parts of the world, including the warrior's trial. And we'll all look forward to the results of those.

Patient Population and Study Design

So this was a study based on patients in the Olmstead County and the Olmsted County has this wonderful capability of having data from the Rochester Epidemiology Project. So this is actually a linkage of all providers and hospitals across multiple providers. So the patient can be tracked for their entire lifespan, for their medical records. So using the Rochester epidemiology project we essentially identified all patients who had a code-based diagnosis of a AAA and then clinically looked at each patient's record to confirm that they did actually have that diagnosis. Following that, we kind of looked at the... Did a chart review and looked at all the relevant data points and then analysed our results to sort of, you know, present the data that we were talking about so far.

Key Results

There are, I want to say, two or three key results. The first is that the incidence of ruptured AAA's and aortic mortality has decreased significantly in the population over time. And the second main key result is that aneurysms are diagnosed and repaired in women almost a decade later than men and age adjusted mortality for those who are repaired is similar.

Impact of These Findings on Research and Clinical Practice

What we need to work on now, as we all are, is to analyse further how we can benefit women who have aneurysms. How to diagnose them earlier and also how to diagnose patients who do not fit into the traditional screening guidelines.

Next Steps

So here we are kind of broadening the capture area to kind of include new centres which can parallel what we did in this study and then extend the results after 2017 and keep this as an ongoing project. We are also trying to work with multiple newer data capture and collection methods, AI, or in various forms to either establish a code-based diagnosis or a risk-based diagnosis for both screening and for follow up of these patients, and use things like AI-based image capture just to make a diagnosis of an aneurysm and or track it over time. But these are all quite preclinical as of now. I think it'll be a few years before it becomes clinically applicable.

Thanks

So this project was obviously done with the help of a lot of people. So our biostatistics team, the Rochester Epidemiology Project group, and of course, the senior mentor, Dr. Manju Kalra who's professor of surgery and consultant vascular surgeon at the Mayo Clinic, Rochester. All there, it could not have happened without their input and all further work, which you know, stems from this is also heavily relying on the huge infrastructure of that institution. So obviously a lot of thanks goes to them."