Transcript Details
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New Tools for Endovascular Repair of Aortic Aneurysms

NEW TOOLS FOR ENDOVASCULAR REPAIR OF AORTIC ANEURYSMS.

Research data indicates an increasingly significant percentage of all elective aortic aneurysm repairs are endovascular procedures. How are new tools for endovascular repair improving our ability to provide minimally-invasive options to our patients and how common are secondary re-interventions following endovascular repair.

You are listening to ReachMD XM-157, The Channel for Medical Professionals. Welcome to the Clinician's Round Table.

I am you host, Dr. Mark Nolan Hill, Professor of Surgery and practicing general surgeon and our guest today is Dr. Michael Marin, Professor and Chair of Surgery at Mount Sinai School of Medicine in New York City and Founder of Mount Sinai Hospital's Endovascular Surgery Program.

DR. MARK NOLAN HILL:

Welcome Dr. Marin.

DR. MICHAEL MARIN:

Thank you for having me.

DR. MARK NOLAN HILL:

We are discussing new tools for endovascular repair of aortic aneurysms. Dr. Marin, tell us a bit about your background and how did you get started in endovascular surgery.

DR. MICHAEL MARIN:

Well, my background has been in the field of surgery. I trained in general surgery and then in vascular surgery here in New York and very early in my career, a patient came to my office with a large abdominal aortic aneurysm, but he was much too sick to survive or be able to sustain conventional open surgery. This led to an investigation of alternatives and the introduction to Dr. Juan Parodi, an Argentinian surgeon who had a new idea of how to fix aortic aneurysms.

DR. MARK NOLAN HILL:

And where did you go from there?

DR. MICHAEL MARIN:

Well, I engaged Dr. Parodi in a conversation about my patient and about some of his research in the field of endovascular repair and he suggested that the procedures he was developing allowed the repair of an aneurysm without general anesthesia and without the typical dissection required of the abdomen in order to repair the aneurysm. With his technique, a new lining was inserted into the aorta through the area where the aneurysm existed and was affixed to the aorta above the aneurysm and below the aneurysm functionally excluding it from the circulation.

DR. MARK NOLAN HILL:

And how did you follow in this way?

DR. MICHAEL MARIN:

This led to an invitation to Dr. Parodi to join me here in New York, which he accepted to my and my patient's good fortune and together with him; I performed the first aortic aneurysm repair in the United States.

DR. MARK NOLAN HILL:

But did you have the supplies necessary to do this?

DR. MICHAEL MARIN:

In its early procedure, Dr. Parodi provided the supplies and the materials necessary to fabricate the graft for its repair. When this was completed, I learnt from Dr. Parodi and his staff on how these devices functioned and worked and then set out myself developing similar devices with more broad potential applications.

DR. MARK NOLAN HILL:

Were these FDA approved at that time?

DR. MICHAEL MARIN:

At that time, there were no devices in the world that were commercially produced and certainly none that had gone to FDA screening and

FDA clinical trials.

DR. MARK NOLAN HILL:

Then how you were allowed to place them in a patient.

DR. MICHAEL MARIN:

In order to use them, we did preclinical testing of the devices, which I built by hand and sterilized and after preclinical testing, we applied to FDA for permission to use them in a very small segment of patients who had large serious aortic aneurysms, but were too sick because of other medical problems to be able to sustain conventional surgery.

DR. MARK NOLAN HILL:

Now moving rapidly to the present day, what percent of aneurysms are performed by endovascular repair?

DR. MICHAEL MARIN:

At the present time, close to 60% or perhaps even a little bit more in the United States are done with endovascular devices.

DR. MARK NOLAN HILL:

And you expect this number to continue to increase?

DR. MICHAEL MARIN:

Clearly as devices improve and as skill level improves, I suspect that this number will increase. Particularly, as we develop systems that allow us to place the device ever closer to the branch arteries coming off the middle portion of the aorta.

DR. MARK NOLAN HILL:

Well why isn't it 80%-90%?

DR. MICHAEL MARIN:

Largely because some patients have aneurysms that encroach upon the renal arteries above and thereby do not give us a suitable implantation site with traditional devices. Some recent devices have been developed that allow us to place them even closer including the recently approved Medtronics Talent device, which has a transrenal attachment system that allows you to place the device across

the renal arteries and fix to a healthy segment above, but not impact on the circulation to those vessels. The second reason is that some patients have severely diseased arteries in the pelvis, mainly the iliac arteries and when these arteries are diseased, it is impossible or difficult to pass the device through them to get them into the aortic position. We are now developing new devices and procedures to allow us to pass these diseased arteries, but it certainly limits the application and has done so for a number of years.

DR. MARK NOLAN HILL:

And what is the most common reason for failure.

DR. MICHAEL MARIN:

The most common reason for endovascular graft repair failure is when the proximal aortic neck at the renal arteries is angulated and shortened. When this anatomic subtype occurs, the device may seat in the correct position, but because of the bending or twisting of the aorta at that location which is not terribly uncommon, the device won't seal properly permitting continued perfusion of the aneurysm sac around the attachment site of the endograft.

DR. MARK NOLAN HILL:

And then what you do?

DR. MICHAEL MARIN:

When that occurs, there are a number of auxiliary procedures we can do including placing a second graft in at a different angle using specialized balloons to dilate the device more tightly against the aortic wall, but in some instances, all these maneuvers are futile and require conversion to open surgery in order to affect a permanent and durable repair.

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DR. MARK NOLAN HILL:

Dr. Marin, what happens when you have to re-intervene on a patient who has already had an endovascular repair? Is this very difficult?

DR. MICHAEL MARIN:

The operations that are required to modify existing grafts vary significantly depending on the severity of the problem. In some instances, it may take nothing more than an inflation of a balloon to seal the graft properly to the aortic wall

INCOMPLETE DICTATION.