Profile of a Famous Vascular Surgeon: Juan C. Parodi

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In 1975, a 33 year old resident at the Cleveland Clinic began a friendship with an 82 year old patient. The patient was recovering from an open abdominal aortic aneurysm (AAA) procedure, and his recovery was protracted. His suffering inspired the young resident to dream about a less-invasive way to repair these aneurysms. Fifteen years later, that same physician, Juan C. Parodi, accomplished what he had envisioned years earlier; he repaired an abdominal aortic aneurysm using an intraluminal graft that was placed through a less invasive transfemoral approach. The graft was a metal "cage" that was covered in fabric. This device prevented blood flow from putting pressure on the already thin and breakable aortic aneurysm wall. It was implanted through remote access, using radiologic guidance. This feat was accomplished in 1990 in Buenos Aires, Argentina, and that single event has helped revolutionize the world's approach to aortic aneurysms.

Endovascular AAA repair was met with early skepticism. Critical evaluation did show that blood loss, complication rates, and hospital stays were improved, but immediate and long-term survival appeared to be similar between endovascular and open techniques. Endovascular repair was and is more expensive in the short and long term. Many patients with AAA were not candidates for endovascular repair due to anatomic characteristics. This is particularly true for women with AAA. Early devices had the tendency to migrate or fail, sometimes compromising the adequacy of repair.

In the intervening 18 years since Dr. Parodi's first successful implantation, construction of similar devices has gone through many revisions. These changes have helped address problems of enlarging the number of candidates for endovascular aneurysm repair, and lessen the likelihood of adverse outcomes from these devices. They are now less likely to migrate or fail, and most of these repairs do not require re-intervention, while keeping the patient safe from rupture of the AAA. Obstacles still confront this technology. Research is necessary to accurately define the long term outcomes of endovascular and open aortic aneurysm repair. Specifically, identifying patient demographic and anatomic characteristics that may predispose a patient for eventual failure of endovascular repair would contribute significantly toward reducing long term complications. Also, determining methods of reducing the cost of endovascular

devices would help insure that this less-invasive, patient-preferred, method would continue to be cost effective, and widely available.

AAA is the 15th leading cause of death in the United States. This disease requires repair in approximately 88 per 100,000 Americans over the age of 64 years. The Food and Drug Administration approved endovascular devices for broad application of AAA repair in 1999 in the United States. Endovascular repair has gained wide acceptance; being utilized in 41 percent of Medicare patients in the United States in 2003. When examining non-randomized, Medicare data, mortality for the endovascular repair is significantly less than for the open repair (2 percent vs. 5 percent in 2003), despite a higher average age for patients receiving endovascular repair.

Early skepticism has been replaced by a strong desire to continue to improve endovascular AAA repair. A visible commitment to train new vascular surgeons in these techniques has been embraced. The significant impact of endovascular techniques on the treatment and outcomes of this disease are dramatic. Dr. Parodi's inspiration, gained from a single patient struggling to survive an open surgical procedure, led to an idea. That idea became reality and persistence in improving these techniques has truly changed the world's approach to AAA for the better.

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