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Abstract

Pulsed flow for cardiovascular surgery and new techniques in haemodialysis surgeries

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Abstract:

Since 2001 I am investigating how to produce a flow that is as equal as the normal one when we perform cardiac surgeries. Because we live in Argentina, we do not have a steady job and less chance of serious research. Flow during cardiac surgery throughout the world is continuous through a roller pump. In 2005, my dream became true. A pump which provides a pulsating flow through a contracting membrane mimicking the normal function of the heart. In 2011 I made the patent application that was granted to me in 2019. Almost 20 years, doing this research with my own resources with 3 finished prototypes, with in vitro tests, without being able to advance to the next stage, which is animal experimentation. The final stage is the total artificial heart. Perhaps if I have the opportunity to develop more experiments with these ideas, I achieved my goal. Being able to operate with pulsatile flow, which undoubtedly benefits for patients. I would use these concepts to build a total artificial heart. I am clearly looking forward to working in ideal conditions or the most similar to that.

Background, references: 1.Intra-aortic balloon pump; 2.TandemHeart system; 3.ECMO; 4.Abiomed BVS 5000; 5.Impella systems; 6.Thoratec ® PVAD; 7.Thoratec IVAD; 8.Thoratec Heart Mate I,II,III; 9.HeartWare LVAD; 10.Berlin Heart; 11.Novacor LVAS; 11.Lionheart LVD 2000; 12.SynCardia Total Artificial Heart; 13.Jarvik 2000; 14.Carmat Total Artificial Heart; 15.Corinnova cardiac assist.

2. New techniques in haemodialysis surgeries

The greater survival of patients with renal failure who enter haemodialysis forces us to obtain effective surgical

techniques and to develop new devices in patients with exhaustion of vascular accesses so I am developing a catheter insertion technique in thrombosed veins and I am also developing a hybrid technique device by endovascular route and conventional surgery to achieve definitive vascular access in these patients.

References: Vizcarra A, Hermida O, Labombarda J, Da Cruz OA, Gravielle MM, Kancheff N, Torrens A, Armendariz R. Agotamiento de accesos vasculares para hemodiálisis: acceso por vena trombosada. Rev Nefrol DialTraspl. 2020;40(2):179-82.Retrievedfrom:https://www.revistarenal.org.ar/index.php/rndt/article/view/578/1107

Biography:

1. I am 28 years old as a doctor, specialist in general and cardiovascular surgery. I founded a cardiovascular surgery service in a public hospital. Currently head of the Cardiovascular Surgeons Team in Argentina, SCIRE CARDIOVASCULAR, 60/70 surgeries per month..

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