Minimally Invasive Aortic Valve Replacement Using Sutureless Prostheses

**Background:** Minimally invasive aortic valve replacement (MINIAVR) has been reported with improved results compared to full sternotomy. The use of sutureless valves can decrease the invasiveness of surgery with better outcomes. Main features of sutureless prostheses are the speed of insertion and the excellent hemodynamics. We report our experience of minimally invasive aortic valve replacement with suture less bio prostheses.

**Methods:** From January 2015 to September 2018, 200 patients (67% male, mean age 77.5y, Euro score II 2.7) with severe aortic stenosis received aortic valve replacement using a sutureless aortic valve (Perceval®, Sorin, Italy) with a minimally invasive approach through a 'J' ministernotomy (MINIAVR). This group has been compared with homogeneous AVR patients with median sternotomy (SAVR). Outcome measures were the length extracorporeal circulation (ECC), aortic cross-clamping (AXC), postoperative ventilation, blood loss, intensive care unit (ICU) and hospital stay.

**Results:** Thirty-day mortality was 0.5% in both groups. ECC times were 42' (MINIAVR) and 48' (SAVR), p<0.01. AXC was 25' (MINIAVR) vs 36' (SAVR), p<0.01. Postoperative ventilation was 2.2 (MINIAVR) vs 7.2h (SAVR), p<0.001. 1st day blood loss was 161 ml vs 355 ml, p<0.05; ICU stay 22h (MINIAVR) vs 37h (SAVR), hospitalization 4d (MINIAVR) and 5d (SAVR), p:NS. No paravalvular regurgitation nor conversion to full sternotomy were recorded; pacemaker implantation was necessary in 6 (MINIAVR) vs 5 (SAVR) cases, p:NS.

**Conclusions:** MINIAVR with suture less prostheses reduce ECC and AXC times, early complications (prolonged ventilation, blood transfusion, paravalvular leakages and aortic regurgitation), reduce ICU and hospital stay and reduce costs. The use of sutureless valves can lead to a higher adoption rate of MINIAVR, with negligible learning curve. MINIAVR with sutureless prostheses offers an attractive option, with low rate of pacemaker implantation. We conclude that MINIAVR can be performed safely with results that are equivalent or better to those achieved through full sternotomy.

**Biography**

Dr. Guido Lanzillo, graduated from Catholic University. He was the member of the Italian Society of Cardiovascular Surgery (1984) and Member of the European Society for CardioThoracic Surgery (1997). In 1998 he was a Fellow of the European Board of Thoracic and Cardiovascular. He was the Winner, in 1992 and 1993, of the prize "De Gasperi-Donatelli", for the best Italian publication in cardiac surgery. He is currently working as a Senior cardiac surgeon, Head of the Cardiac Surgery Dept, Policlinico di Monza, Italy.