

6th International Conference on **Clinical & Experimental Cardiology** November 30-December 02, 2015 San Antonio, USA

Initial experience with MINI-OPCABG in hybrid coronary revascularization

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Introduction: We describe our initial experience in one stop hybrid coronary revascularization using MINI-OPCABG with PCI DES-stenting on the other non-LAD vessel. The large variability in hybrid coronary revascularization techniques makes it difficult to draw firm conclusions from the currently available evidences, but the hybrid strategy using MINI-OPCABG appears to be a promising and cost-effective alternative for CABG in the treatment of multi-vessel coronary artery disease.

In this paper we want to point out the methodology and our initial experience.

Materials and Methods: Five patients were treated with hybrid revascularization, the average age was 69 ±6.2, one patient had left main and right coronary lesion, four patient three vessels disease and one patient double vessels disease. The average Euroscore II was 7.40% (range 0.33-19.34), the average Syntax score was 34.8 (range33-41). Three patients received Circumflex and right coronary stenting, other two patients only right coronary stenting. We start with surgery (MINI-OPCABG), and in a range of 6 hours patient was undergone to PCI with DES in single stage.

Surgical technique: As was described a skin incision is made from the xiphoid up to the level between the third or fourth intercostal space. The sternum is opened and the left table is lifted to dissect the left mammary artery (LIMA). The LIMA was dissected up to the third intercostal space with skeletonized technique. The angle of the superior part where the LIMA is attached to the sternum needs to be below 20 % to avoid any potential kink. LIMA distance was measured with the pericardium closed if it achieves the diaphragmatic reflection of the pericardium means that LIMA length is correct. The retractor is changed and two stitches around 2 cm deep in the left border of the pericardium was placed with a distance of a 5 to 7 cm with better exposure Lad area, we decided to perform anastomosis with stabilizer always with the opening part towards the head of the patient to avoid any problem of damaging the graft when you need to take it.

Results: No in hospital mortality was reported. All patients completed hybrid procedure and there wasn't any conversion to full sternotomy. Mean intubation time was 1,5 ±3.2 hours and length of hospital stay was 3.2±1.2 days, one patient received PRBC transfusion, hospital MACCE was 0%. During PCI procedure angiographic evaluation LIMA grafting was routinely performed and LIMA patency rate was 100%. At one year follow up patients freedom from MACCE was 100%.

Discussion: In 1997 we performed for the first time in the world an ambulatory coronary surgery using xiphoid approach. We modified this technique opening a small distal part of stenum and we call MINI-OPCABG to this technique. The potential advantage of the MINI OPCABG versus MIDCABG operation is: 1) MINI OPCABG operation is easy to convert to full sternotomy; 2) patients were less painful 3) potential faster recovery 4) reduction of hospital cost

The introduction of DES with lower rates of restenosis and better clinical outcomes may make hybrid coronary revascularization a more sustainable and feasible option than previously reported. Nevertheless, this hybrid approach has not been widely adopted because practical and logistical concerns have been expressed. These concerns implicate the need for close cooperation between surgeon and interventional cardiologist, logistical issues regarding sequencing and timing of the procedures and the use of aggressive antiplatelet therapy for DES. We believe that with MINIOPCABG can solve this issues because this surgical technique reduces the surgical trauma without opening pleural space with less discomfort for the patient, moreover the partial dissection of LIMA reduces the risk of post-operative bleeding giving the possibility of starting in a range of only 6 hours the PCI procedure.

The HCR procedure was associated with short hospital stays (including ICU stay and intubation time), low MACCE and 30-day mortality rate, low PRBC transfusion requirements. This study has limitations because it was based on the retrospective design, moreover patients for one stop hybrid coronary revascularization were also carefully selected and our good results should be interpreted with caution. However there is a small sample size and long term follow-up and randomized multicenter trial comparing one stop hybrid revascularization with MINI-OPCABG with conventional CABG should be needed.

Biography

Cianci Vincenzo is senior registrar in cardiothoracic surgery at the University of Swansea in UK, previously he was staff resident of cardiac surgery at the University of Sacred Heart in Campobasso (Italy). He obtained his medical degree at University of Naples (Italy), and he completed his post graduate training at University of Milan. Cianci began his surgical career as fellow at Humanitas Gavazzeni clinic in Bergamo, after he was staff resident at University of Pavia for five years. In 2011 he was senior registrar in cardiothoracic surgery at Queen Elizabeth Hospital at University of Birmingham (UK). In 2012 he was staff resident in Cardiocentro Ticino Lugano (Switzerland). His past clinical practice has encompassed the full spectrum of adult cardiovascular and thoracic surgery including experience in heart and lung transplantation, left ventricular assist device. His current practice focuses on minimally invasive coronary by-pass graft, thoracoscopic epicardial atrial fibrillation. He collaborates actively with Prof. Benetti for the development of Hybrid coronary revascularization with a novel surgical technique.

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