EuroIntervention

TVS meets EuroPCR

Carlos E. Ruiz[1]*, MD, Ph.D; Philipp Bonhoeffer[2] MD

1. Lenox Hill Heart and Vascular Institute of New York, New York, USA; 2. Great Ormond Street Hospital, London, United Kingdom

The origins of interventional cardiology are mostly credited to incomparable geniuses such as Charles Dotter and Melvin Judkins[1], who introduced the concept of transluminal angioplasty in 1964, but actually it never took off until another genius innovator, Andreas Gruentzig, developed the basis for the current balloon angioplasty technology[2]. What perhaps we do not remember as often is that true interventional cardiology started far before this angioplasty concept – or for that matter, even the Rashkind balloon atrial septostomy[3] – when Drs. Rubio and Limon-Lason in Mexico did the first balloon pulmonary valvuloplasty using a urethral catheter over a wire[4]. Again, it took Semb and associates twenty-five year to resurrect the concept of "balloon valvotomy"[5] and nearly three years more for Jean Kan[6] to actually begin the current era on transcatheter interventions for valvular heart disease. Indeed this new orientation in the management of valvular heart disease has helped to develop the logical next-step, transcatheter valve implantation, pioneered independently by two great innovators, Henning R Andersen[7] with a stented biological valve, and Dusan Pavcnik[8] with an all-mechanical valve in 1992. Bonhoeffer[9], working on the same concept eight years later, brought it to fruition by doing the first-in-man implantation in the pulmonary position. Cribier[10] implanted the first transcatheter aortic valve in man two years later.

On a warm and sunny afternoon on April 5th, 2003, sipping a "Ristretto" espresso at a hotel terrace in Milan, Philipp and I were talking about the success of Mario Carminati's 4th International Workshop on Interventional Pediatric Cardiology that had just finished. Suddenly we both realised that given the exponential growth of technology and the advancements in this field, transcatheter valve interventions were going to be the next explosive interventional arena – Phillip had just presented the largest experience in percutaneous valve implantation in humans and I had presented the new idea of a remodelable biological tissue valve proof-of-concept[11].

Furthermore, it was obvious to us that the length of time between the invention of devices, proof-of-concept and its mass use by the population was diminishing and, therefore there could be a certain unfocussed or repetitive pervasiveness about this growth, unless a truly collaborative effort from all participants in the field, work and learn from each other. Thus, what better way to accomplish this goal than organising a very comprehensive conference about transcatheter valve technology which would include: basic scientists such as cell biologists; biomaterials specialists; mathematicians; physicists and computer scientists; of course – clinicians and valvular surgeons; imaging specialists; and finally, regulatory experts. The concept for the Transcatheter Valve Symposium (TVS) was born, but not at first without a large dose of scepticism on how we could expect to have a successful meeting over two full days just talking about transcatheter valve technologies; and what was worse, not allowing industry to have exhibits, and asking them for their – unrewarded – financial support.

Well, the key to the TVS success was the tremendous enthusiasm vested not only by both of us, but by our strongest supporters and partners, Sir Magdi Yacoub and Carlos Duran, great innovators, superb valvular surgeons, unsurpassed connoisseurs of cardiac valves and great personal friends. In addition, we also had incredibly altruistic support from well established industry as well as small start-up companies that believed in our mission. From the very first TVS, we also were fortunate to count on the support and guidance from another pioneer and personal friend of ours, Patrick Serruys, with an incredible vision interventional cardiology's future.

At that point we were not aware we were dealing with a technology which would later be recognised as "disruptive". It is in the nature of such technology that, it is misunderstood at the outset and the impact is profoundly underestimated. Every single aspect of valve technology as used by surgeons was put into question with

* *Corresponding author: Director, Division of Cardiac Interventions for Structural and Congenital Heart Disease, Lenox Hill Heart and Vascular Institute of New York, 130 East 77th Street, 9th Floor, New York, N.Y. 10021, USA*
E-mail: cruiz@lenoxhill.net

the emergence of the transcatheter treatment of heart valves. The longevity of the prosthetic device for transcatheter treatment, probably did not need to match the existing requirements for current valves which were surgically implanted. The patients who were going to undergo this revolutionary approach were not going to be the same ones who would classically undergo cardiac surgery. New treatments were introduced with different objectives of quality in clinical results that led the surgeons to question their own practice, possibly extending the surgical indications to patients who previously were considered inoperable. Furthermore, these early steps unquestionably motivated surgeons to adopt and modify techniques through their own surgical perspectives, which significantly helped to advance the entire field.

Medical ethics, competition between health professionals, regulatory challenges and good practice of medicine ended up in a very complex interplay which clearly cannot be discussed within the time frame of a meeting lasting a few days. In addition, merely approaching such a complex subject such as the one involved in attempting to repair or implant percutaneously heart valves, represents an extremely interesting scene for the true innovator. The knowledge of anatomists, forward thinking cardiac surgeons and cardiologists, biologists, mathematicians, physicists, computer scientists, engineers and certainly not least health care regulators, needs to be mixed, in order to produce viable strategies and bring these technologies into mainstream applications with the most important goal of benefiting patients.

Our idea of creating the Transcatheter Valve Symposium was more successful than we could have possibly ever dreamed. We tried to create a mixture of professionals who would genuinely advance this field and, we were fortunate to get all the significant players around the same table, even when situations were at times tense and competition strong. At the symposium, the general understanding was that it will take many contributors to make transcatheter treatment of heart valves a valid treatment for patients. We recognised that we were still dealing with the very first steps of this technology and that similarly, today we still are as yet in the infancy of clinically assessing the benefits of it. True and fundamental contributions are still necessary before we can become confident that the technology is of true clinical value. In other words there remains a lot to invent and to prove, and this is a splendid milieu for young researchers to use their invigorated brains to solve the many hurdles that exist, in a multidisciplinary manner and with wide-angle vision.

After the first three successful TVS meetings we both realised that the theme had grown beyond our imagination, and to continue with the same limited meeting format would be of no other benefit than our own personal gratification. We had attained the point of expanding the reach to a much larger audience. As this technology advances, devices iterate, techniques refine and get closer to clinical utility, the necessity of evidence based medicine clinical trials will undoubtedly pave the road to the ultimate definition of its use. After a very in-depth analysis of the options for our Transcatheter Valve Symposium, we concluded that we could not find a more honest, scientific and educationally devoted interventional organisation than EuroPCR as a partner to continue our original mission. We hope you all enjoy this year's TVS at EuroPCR.

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