

## ABSTRACT

The habilitation thesis with the title "HEART TEAM in Cardiovascular Diseases", is a synthesis of my clinical and experimental research activity, carried out during over 20 years of activity in the field of cardiovascular surgery.

The first part of the paper presents my professional activity and a synthesis of scientific and didactic achievements.

The second part is dedicated to the main theme of this empowerment work, namely the role of the Multidisciplinary Cardiac Team in the management of patients with cardiovascular diseases. This approach has been used for over 50 years in patients with neoplastic diseases, in the so-called "tumor board", established in the mid-40s, in which a group of doctors of various specialties discussed each case in the clinic and they established the most appropriate method of treatment for the stage of the disease. Punctual discussions, on a case-by-case basis on how to resolve a coronary lesion (PTCI or CABG), probably existed in every cardiology and cardiac surgery hospital, but only in 2009, with the completion of the SYNTAX study, the concept of HEART TEAM, has made its way into the diagnostic and treatment guidelines for cardiovascular disease. It is noteworthy how quickly this concept was accepted and implemented by teams of cardiologists and surgeons around the world, noting the advantages of this multidisciplinary approach.

In Chapter 1, I make a brief history of the "birth" and evolution of this concept in the management of cardiovascular disease, the advantages of this approach and present two models of Heart Team, the German and the Dutch ones.

In Chapter 2, I analyze the role and place of the heart team in addressing complex cases and making common decisions, the structure and dynamics of heart teams, the leadership and responsibility of cardiac teams.

Chapter 3 is dedicated to the Heart Team in ischemic heart disease. After a brief presentation of the current possibilities of myocardial reperfusion, I present the way in which the first multidisciplinary cardiac team was established in the institute that discusses only cases with

complex coronary pathology, and the evolution of this concept in common decisions in cases with complex cardiac pathology. Coronary pathology and especially the possibilities of myocardial revascularization has been a concern of mine since the first years of surgery. The specializations made in renowned clinics in the USA and England at the beginning, then Italy and Belgium were for me points of reference for my development as a surgeon. The results of the clinical and experimental studies that we have carried out during the years of activity, have been published in numerous national and international specialized journals.

Chapter 4 examines the role of the Heart Team in valve disease. If until 4-5 years ago we were talking about the possibilities of plastic or prosthesis of a heart valve, today we are talking about replacements by standard or trans-catheter procedures, prostheses or plasties by minimally invasive or classic procedures. The role of the Heart Team is particularly important in decision-making in these cases, especially since most of the patients proposed for minimally or micro-invasive procedures have multiple co-morbidities that contraindicate a high-risk approach.

Chapter 5 is dedicated to infectious endocarditis, a topic I studied in recent years, when I published several articles with surgical solutions in complex cases of bacterial edocarditis, I analyzed the optimal time of surgery, advocating for interventions as early as possible for a better result in this disease with such a serious evolution. In this field we also made a national premiere, namely we performed at the same time splenectomy and valvular prosthesis in an 82-year-old patient, considering that due to the complex pathology and the patient's fragility, it would not withstand two interventions, at short intervals. We also did the follow-up for the patients operated in the last 10 years in the clinic, evaluating the results of surgery and trying to identify the advantages of the early surgical approach, the valvular lesions caused by endocarditis, the survival at 5, 10 years and the quality of life. We also analyzed the clinical and educational role of the Endocarditis Heart Team. We also addressed a new subchapter for micro-invasive aortic valve surgery "**Challenges in the contemporary management of infectious endocarditis: trans-catheter aortic valve replacement**".

Chapter 6 is dedicated to HEART TEAM for heart failure and cardiogenic shock (CS). A multidisciplinary approach that encompasses all aspects of CS care, given the dynamic evolution of the disease with rapidly changing treatment targets, is not only necessary, but crucial in achieving favorable results. Modern diagnostic and treatment guidelines recommend that patients

with Heart Failure be enrolled in a multidisciplinary care management program to reduce the risk of hospitalization and mortality for HF. In recent years, there has been a trend in many countries to establish specialized care centers for patients suffering from cardiac arrest outside the hospital, to provide specialized, evidence-based treatment in both the resuscitation and post-hospital stages. In the Heart Institute, we set up the first cardiogenic shock team 2 years ago when we purchased the first ECMO device, for mechanical support of cardiac function.

In Chapter 7, we developed the role of HEART TEAM in critical limb ischemia and thoraco-abdominal aortic aneurysm. In this chapter we analyzed the role of the Multidisciplinary Team in the diagnosis and management of patients with critical lower limb ischemia, and patients with thoracic and abdominal aortic aneurysms. The endovascular approach in these patients has become a routine procedure, with spectacular results, especially in elderly patients, or in those with traumas of the thoracic aorta, where the insertion of an endoprosthesis is life-saving in most cases. In our country, the financing of this program by CNAS, made it possible to save an impressive number of patients with isthmus aorta rupture after vehicle accidents. Only in our Institute we managed to save 9 such young patients, by implanting endovascular prostheses.

The last chapter, HEART TEAM in congenital heart disease, refers to the role of the multidisciplinary cardiac team in the management of children with heart malformations. Pediatric cardiac surgery has been approached in the cardiac surgery clinic since the beginning of clinical activity. Gradually, the range of pathology approached was widened, the team of pediatric surgeons managing to treat younger and younger children, with more and more complex pathologies. This also required the establishment of a multidisciplinary team, by including in the decision-making team specialists in pediatric intensive care, imaging specialists, etc., along with cardiologists and surgeons specializing in pediatric cardiac surgery.

In conclusion, the role of the Heart Team is crucial, as it can comprehensively assess the accuracy of surgical risk scores, perform a risk-benefit analysis and include other factors that are not necessarily included in standard procedures or institutional protocols.

The last part of the habilitation thesis presents the evolution and professional development plans, the future research directions, as well as the ability to coordinate research

teams, to organize and manage teaching activities, to train future specialists in the field of medicine, cardiovascular surgery.

In essence, the proposals for further research are based on the topics addressed in the habilitation thesis, namely coronary surgery, heart valve endocarditis surgery, minimally invasive surgery. These topics are elements of international novelty in the field of cardiovascular surgery.