Atrial Fibrillation

By Alessandro DE BORTOLI

Alessandro De Bortoli from Padova is the first medical student to win the award. He chose to go to Bergen for his exchange period where he developed a different specialisation than foreseen, as so many other exchange students before him. "Norway to me was for sure the best possible environment to mature professionally", was his praise to the host university. He went to the University of Bergen for part of his studies as a very deliberate decision to move to a part of Europe very different from his previous experience in Italy, and to test the meaning of a European research area in his own life. Not only did he come to a very vivid appreciation of the value to his own research of this European experience; it has also created very practical outcomes for the treatment of those with certain cardiological problems in Italy, a true trans-European advance eminently worthy of the award.

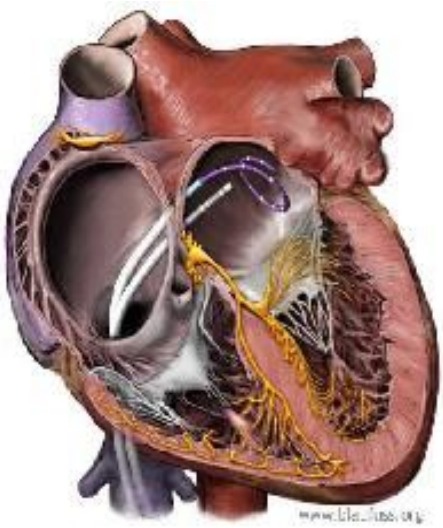
Atrial Fibrillation (AF) is the most common form of cardiac arrhythmia, characterized by chaotic contractions of the atria, the upper chambers of the heart. This condition is estimated to affect over six million people in Europe and over two million in the United States: considering the higher incidence on elderly people, these figures are destined to increase over the next decades.

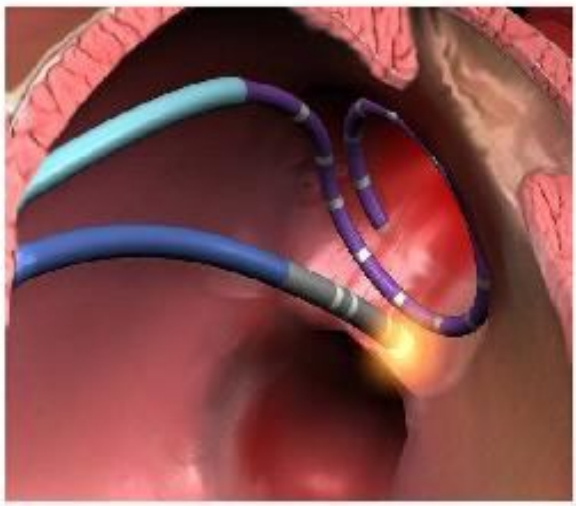
AF presence has important clinical implications in terms of increased mortality and marked reduction of quality of life.

Until the late 80s, pharmacological therapy was considered the only option for many of these patients: scarce success and low tolerability of anti-arrhythmic medications have urged medical research to investigate the nature of this disease and to provide new options for treatment.

During the 90s a surgical technique (Maze Procedure) was developed that offered positive outcomes in terms of freedom from the arrhythmia. However, due to its high level of invasivity (open chest surgery is required) its application was limited to very few selected patients.

Since 1998, following the definition of the role played by the pulmonary veins in the genesis of AF, a new technique (transcatheter ablation) has been developed. The goal was to try to maintain the good results of the surgical procedure with a mini-invasive approach. Transcatheter ablation is carried out by inserting special catheters through the femoral veins; these catheters are then advanced to the heart chambers and several lesions are performed delivering radiofrequency energy.





My study focused on the understanding of the AF mechanisms and thereby, the rationale for the transcatheter ablation techniques. I have conducted a broad literature review on the topic concentrating especially on methods, technology and results.

Secondly, I had agreed with my supervisors that I should undertake a small retrospective multicentre investigation on 90 AF patients from three different European centres: Padova (Italy), Bergen (Norway) and Bordeaux (France). My results, even if affected by several confounding factors, have shown that transcatheter ablation has a high potential to treat AF. However, considering that a high variability exists among ablation procedures in terms of outcomes, my study has also identified some predicting factors for success. Patient selection, especially, revealed to be a major factor in the determination of positive long-term results.

Furthermore, considering the high requirements in terms of the experience of the operator and the medical equipment, the best results are going to be achieved in specialized centres with a “high volume” of patients.

Transcatheter ablation is a new, powerful tool for the treatment of AF: however, due to its youth there is a need to refine and standardize the procedures in order to increase the overall outcomes. Research, once again, will be a fundamental support for the progress of medical science.