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PhD in Medical Sciences
2014-2015

INVITATION to the public defence of

Giulio CONTE

To obtain the academic degree of '**DOCTOR IN MEDICAL SCIENCES**'

Clinical, diagnostic and therapeutic aspects of Brugada syndrome in different age-related categories of patients: focus on children and the elderly.

Tuesday March 24th , 2015

Auditorium **P. Brouwer**, 17.00 hours
Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

How to reach the campus Jette:
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Vrije Universiteit Brussel

Summary of the dissertation

Brugada syndrome (BrS) is an inherited primary arrhythmia syndrome characterized by an increased risk of sudden death. The features and the best therapeutic management of the syndrome in particular age-related categories of patients remain unclear. This dissertation aimed to investigate various aspects of the syndrome with a particular focus on the paediatric and elderly patients. First, the clinical presentation, prognosis and specific management of the syndrome was assessed in these two categories of patients. Therefore, we investigated specific diagnostic aspects of the syndrome and their influence on prognosis. Finally, the therapeutic management of BrS concerning implantable-cardioverter defibrillator therapy and ablation of atrial fibrillation was analyzed.

According to our data, BrS in children presents with clinical features similar to those of adult patients. It is commonly associated with male gender, sustained atrial arrhythmias and sinus node dysfunction. Life-threatening arrhythmias during ajmaline challenge occur in 1.8% of patients with BrS. Children are a category of patients at higher risk of experiencing sustained ventricular arrhythmias during ajmaline challenge. Moreover, repeating ajmaline challenge after puberty is valuable and can unmask BrS in 23% of family members with previously negative drug test. Thirty percent of these newly positive patients develop symptoms and 10% spontaneous ventricular fibrillation. The existence of an evolution of the phenotype from childhood to adult age of previously asymptomatic family members with normal ECGs is worrisome and support the need for continuous monitoring of patients and family members, including those initially considered at low risk before puberty. The clinical features and the benign prognosis of elderly patients with BrS identify a lower risk category of patients as compared to younger individuals. Brugada syndrome in the elderly is commonly associated with baseline atrioventricular (AV) conduction disturbances. Ajmaline challenge in the elderly is a safe procedure to unmask AV conduction disease and can lead to unexpected diagnoses of BrS. Diagnosis of BrS in this setting is important mainly because of the clinical impact on the younger family members. Implantable cardioverter-defibrillator (ICD) therapy is effective in BrS, treating ventricular arrhythmias in 17% of patients during a long-term follow-up. In children with ICD, the rate of device-related problems and inappropriate shocks is considerable and even higher than appropriate interventions. The treatment of atrial fibrillation by the means of ablation procedures is an effective and safe approach, especially for young patients with inappropriate ICD interventions.

Curriculum Vitae

Giulio Conte (15/08/1981) obtained his medical doctor degree in 2006 at the University of Parma (Italy) with a mark of 110/110 cum laude. In 2008 he moved to Spain to perform a clinical fellowship in Arrhythmias at the Clinic of Barcelona directed by Prof. Josep Brugada. In 2011, Dr Giulio Conte terminated his postgraduate training in Cardiology at Parma University and obtained the Cardiology Specialist Diploma with a mark of 50/50 cum laude. In 2013 he obtained the University Magister Diploma in Electrophysiology at the San Pablo University of Madrid (Spain) under the supervision of Prof. Jesus Almendral. In the same year, the European Heart Rhythm Association awarded him the Advanced Program Training Fellowship for Clinical Electrophysiology with emphasis on catheter ablation at the Heart Rhythm Management Centre of the Universitair Ziekenhuis Brussel directed by Prof. Pedro Brugada. His current assignment is Electrophysiologist assistant at the EP Department of Cardiocentro Ticino of Lugano (Switzerland) directed by Prof. Angelo Auricchio. He is also involved in computational medicine research and cardiac modelling on atrial fibrillation at Università della Svizzera Italiana. Moreover, he is the coordinator of the ECG core-lab of the Swiss-AF trial. He performs non-invasive testing for syncope, and diagnosis and screening of channelopathies. Also, he conducts invasive procedures including cardiac implantable electronic devices, and conventional and complex ablation procedures. Dr Conte is the (co) author of 43 articles published in international peer-reviewed journals, 19 of these as first author. Recently, he has been awarded by the European Heart Rhythm Association for the "Best 2014 scientific publication".