



PERSPECTIVES IN CARDIOLOGY

Highlights of the *Portuguese Journal of Cardiology* in 2017[☆]



Destaques da Revista Portuguesa de Cardiologia em 2017

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The *Portuguese Journal of Cardiology* (*Revista Portuguesa de Cardiologia*, RPC) begins the year with this article highlighting original articles published in the *Journal* during 2017 that had most impact on Portuguese cardiology. Medical journals in other countries, including such well-known titles as the *Journal of the American College of Cardiology*, do something similar. However, there is a fundamental difference between the RPC and other national cardiology journals. All original articles published in the RPC are accompanied by an Editorial Comment written by a cardiologist chosen by the *Journal's* Editorial Board who has experience of the article's subject area, in order to help readers interpret its main points.

2017 was an excellent year for the RPC, one in which it became a truly international publication, with all its articles published in English.

A total of 56 original articles were published, 20 of which (35.7%) were submitted by authors from other countries: 10 from Turkey, seven from Brazil, and one each from China, Spain and Hungary.

The 36 articles from Portugal came from a variety of centers. The hospital that provided most was Santa Marta (nine), followed by five from Santa Cruz, four from Santa

Maria, and one from Fernando da Fonseca (all these in the Lisbon area); ten from the Porto area (four each from Instituto de Ciências Biomédicas Abel Salazar and Hospital Vila Nova de Gaia and two from Hospital São João); three from Coimbra; and four from more than one center.

Only two articles (3.6%) were based on animal research (one from Coimbra and one from Alfenas, Brazil).

Various aspects of a particular article could make it worthy of inclusion in a list of highlights. The following are those that appear to me to be of the most interest.

The original article that in my opinion had the greatest impact of those published in 2017, and the one that has the most potential for general adoption in Portuguese cardiology, was "ProACS risk score: an early and simple score for risk stratification of patients with acute coronary syndromes",¹ describing the ProACS risk score, based on data from the prospective multicenter registry of acute coronary syndromes established by the Portuguese Society of Cardiology. The registry includes 31 829 patients nationwide enrolled between January 2002 and October 2014 and the analysis was performed by the National Center for Data Collection in Cardiology. The article accurately reflects the situation in Portugal, and deserves particular attention. The ProACS score is based on four variables with the greatest predictive value on logistic regression analysis, attributing one point each for systolic blood pressure <116 mmHg, Killip class 2 or 3 and ST-segment elevation, two points for age ≥72 years, and three points for Killip class 4. The score enables

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early and simple risk stratification for in-hospital mortality in acute coronary syndrome that can be used at first medical contact.

The other articles I would like to highlight are mainly those reporting prospective studies:

- “Progression of myocardial sympathetic denervation assessed by ^{123}I -MIBG imaging in familial amyloid polyneuropathy and the effect of liver transplantation”.² This was a large prospective study in a single center (Hospital Santa Maria) of 232 patients with the TTR-V30M mutation followed for a median of 4.5 years, during which 47 patients (20.3%) died. ^{123}I -MIBG scintigraphy findings at enrollment were a strong prognostic marker, predicting a 27.8% increase in risk of death for each one-tenth reduction in the late heart-to-mediastinum (H/M) ratio. This index decreased with age but progression of cardiac denervation was so slow that annual repetition of MIBG imaging was not justified. During follow-up, 70 patients underwent liver transplantation. The H/M ratio decreased by 0.19/year until transplantation but no statistically significant differences were detected after the procedure. Liver transplantation stabilized cardiac denervation and there was no further decrease in cardiac MIBG uptake.
- “Prognostic stratification in pulmonary hypertension: a multi-biomarker approach”³ reports a study by investigators at Hospital Santa Maria and the French National Institute of Health and Medical Research (INSERM) and Hospital Saint Louis Lariboisière in Paris. This prospective study analyzed the prognostic value of new biomarkers (mid-regional pro-adrenomedullin, copeptin, endothelin-1, mid-regional pro-atrial natriuretic peptide [MR-proANP] and soluble ST2 [sST2], the interleukin-33 receptor) for morbidity and mortality in right heart failure secondary to pulmonary hypertension. The authors created a multi-biomarker score in which log N-terminal pro-brain natriuretic peptide (NT-proBNP) and renin were independent predictors of mortality and MR-proANP and sST2 were predictors of death or hospitalization. The score improves the accuracy of prognostic stratification and identifies high-risk patients who may benefit from early intensive therapeutic interventions.
- “The Atlantic divide in coronary heart disease: Epidemiology and patient care in the US and Portugal”⁴ was an interesting study comparing the health systems of Portugal and the US that reviewed data from 2000 and 2010 on epidemiologic profiles of coronary heart disease and on 30 health technologies (16 medical devices and 14 drugs) introduced during the period 1980-2015. Various investigators and institutions, both Portuguese and non-Portuguese, took part in the study, which makes it particularly informative. Differences in regulatory mechanisms and pricing had a significant effect on the types of health technologies available in the two countries. However, other factors may influence their adoption and diffusion, and this appears to have a greater impact on mortality in acute conditions.
- In “Relationship between rotors and complex fractionated electrograms in atrial fibrillation using a novel computational analysis,”⁵ the authors described a new four-dimensional electroanatomical mapping method that assessed the relationship between rotors and complex fractionated atrial electrograms in patients with AF. This relationship may have implications in the selection of substrate targets for ablation.
- The BETTER-HF investigators produced two of the articles highlighted here. The aim of the first, “Predictors of response to cardiac resynchronization therapy: a prospective cohort study”,⁶ was to prospectively determine predictors of response to cardiac resynchronization therapy in a single-center study of 79 patients with chronic heart failure and systolic dysfunction. At six months, 64.6% of patients were considered responders. On multivariate analysis only tricuspid annular plane systolic excursion (TAPSE) of ≥ 15 mm was independently associated with a positive response. TAPSE < 15 mm was associated with non-response.
- The aim of the prospective study “Prevalence of paroxysmal atrial fibrillation in a population assessed by continuous 24-hour monitoring”⁷ was to determine the prevalence of paroxysmal AF in 4843 patients aged 40 and above who underwent continuous 24-hour electrocardiographic monitoring. The overall prevalence of paroxysmal AF/atrial flutter (AFL) was 12.4%, and the presence of some type of AF/AFL was significantly correlated with male gender, age (especially in the 70-79 and > 80 age-groups) and hypertension. Paroxysmal AF was more prevalent in younger patients, and less strongly associated with risk factors such as hypertension but with higher rates of stroke, than persistent AF. Only 12.8% of patients with paroxysmal AF were taking anticoagulant drugs.
- The second of the contributions from the BETTER-HF team, “Does permanent atrial fibrillation modify response to cardiac resynchronization therapy in heart failure patients?”⁸ was a prospective study of 101 patients with heart failure comparing response to cardiac resynchronization therapy in patients with AF or sinus rhythm (SR). All patients achieved $\geq 95\%$ biventricular pacing, and 5.7% underwent atrioventricular junction ablation. Clinical and echocardiographic response rates were similar in SR and AF patients, with a better functional response in AF. Left ventricular mass reduction and left atrial reverse remodeling were seen exclusively in SR patients.
- “The role of biomarkers in dilated cardiomyopathy: assessment of clinical severity and reverse remodeling”⁹ was a prospective study assessing clinical severity and left ventricular reverse remodeling in 50 patients with dilated cardiomyopathy. No correlation was found between biomarkers and reverse remodeling, but CA-125, B-type natriuretic peptide (BNP) and high-sensitivity C-reactive protein were predictors of clinical severity and congestion. BNP correlated with parameters of systolic and diastolic dysfunction, while CA-125 correlated with measures of diastolic dysfunction.
- “Venous thromboembolism risk and prophylaxis in the Portuguese hospital care setting: the ARTE study”¹⁰ was a prospective study based on an open cohort of 4248 patients that studied the risk profile for venous thromboembolism in hospitalized patients in a group of hospitals in Portugal. Thromboembolic prophylaxis was implemented in 67.2% of the patients, with low molecular weight heparin in the majority of cases (88.3%). The overall incidence of thromboembolic events was 1.5%.

Major bleeding events were recorded in 3.89% of patients and all-cause mortality was 3.4%. The authors propose a modified risk score that effectively stratifies inpatient populations and that may result in improvement of thromboprophylaxis practices in hospitals.

- “Extracorporeal membrane oxygenation in circulatory and respiratory failure – a single-center experience”,¹¹ albeit retrospective and observational, was the first published record of the overall experience with extracorporeal membrane oxygenation (ECMO) in a Portuguese tertiary hospital. The study included 48 patients between April 2011 and October 2016, of whom 29 underwent venoarterial ECMO (VA-ECMO) (the main indication being myocardial infarction and the most frequent complications being lower limb ischemia and renal failure) and 19 venovenous ECMO (VV-ECMO) (mainly for acute respiratory distress syndrome after viral infection). Access site bleeding and hematologic dysfunction were the most prevalent complications. Survival to discharge was 37.9% for VA-ECMO and 63.2% for VV-ECMO. In VA-ECMO, the number of inotropic agents was a predictor of mortality.

Conflicts of interest

The author has no conflicts of interest to declare.

References

1. Timóteo AT, Rosa SA, Nogueira MA, et al. ProACS risk score: an early and simple score for risk stratification of patients with acute coronary syndromes. *Rev Port Cardiol.* 2017;36:77–83.
2. Azevedo Coutinho MCA, Cortez-Dias N, Cantinho G, et al. Progression of myocardial sympathetic denervation assessed by ¹²³I-MIBG imaging in familial amyloid polyneuropathy and the effect of liver transplantation. *Rev Port Cardiol.* 2017;36:333–40.
3. Plácido R, Cortez-Dias N, Martins SR, et al. Prognostic stratification in pulmonary hypertension: a multi-biomarker approach. *Rev Port Cardiol.* 2017;36:111–25.
4. Lobo MF, Azzone V, Resnic FS, et al. The Atlantic divide in coronary heart disease: epidemiology and patient care in the US and Portugal. *Rev Port Cardiol.* 2017;36:583–93.
5. Adragão P, Carmo P, Cavaco D, et al. Relationship between rotors and complex fractionated electrograms in atrial fibrillation using a novel computational analysis. *Rev Port Cardiol.* 2017;36:233–8.
6. Abreu A, Oliveira M, Cunha PS, et al. Predictors of response to cardiac resynchronization therapy: a prospective cohort study. *Rev Port Cardiol.* 2017;36:417–25.
7. Primo J, Gonçalves H, Macedo A, et al. Prevalence of paroxysmal atrial fibrillation in a population assessed by continuous 24-hour monitoring. *Rev Port Cardiol.* 2017;36:535–46.
8. Abreu A, Oliveira M, Cunha PS, et al. Does permanent atrial fibrillation modify response to cardiac resynchronization therapy in heart failure patients? *Rev Port Cardiol.* 2017;36:687–94.
9. Amorim S, Campelo M, Moura B, et al. The role of biomarkers in dilated cardiomyopathy: assessment of clinical severity and reverse remodeling. *Rev Port Cardiol.* 2017;26:709–16.
10. Ferreira D, Sousa JÁ, Felicíssimo P, et al. Venous thromboembolism risk and prophylaxis in the Portuguese hospital care setting: the ARTE study. *Rev Port Cardiol.* 2017;36:823–30.
11. Silva MP, Caeiro D, Fernandes P, et al. Extracorporeal membrane oxygenation in circulatory and respiratory failure – a single-center experience. *Rev Port Cardiol.* 2017;36:833–42.