Cardiovascular Developments in 2015

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Relevant cardiology studies marked the year 2015, with important changes in clinical practice. This review highlights some of these developments following the criterion of citations and impact on medical management.

One of the studies was on the optimal hemoglobin threshold for blood transfusion decision after cardiac surgery. Observational studies suggest that the use of red blood cell concentrate transfusions are associated with higher rates of mortality and complications, leading a constant pursuit of more restrictive protocols. The TITRe2 study was a randomized trial with 2003 patients undergoing elective cardiac surgery, in which hemoglobin reached levels lower than 9 g/dL and have been tested using two different strategies: (1) liberal transfusions of red blood cell concentrates or (2) a more restrictive strategy in which the threshold for transfusion was reduced to 7.5 g/dL. The restrictive strategy was not better than the more liberal one regarding health costs or morbidity. Although it is a secondary outcome of the study, the fact that the more restrictive strategy was associated with higher mortality was worth of note, but it was not clear whether increased mortality was due to anemia. As pointed out in editorial comments, the study shows the need to develop institutional protocols to manage postoperative anemia.

Another significant development refers to the development of artificial pacemaker fully implanted in the heart. Each year, more than one million people receive pacemaker implants, but the rate of pacemaker-related complications is 10.0%. A substantial number of adverse events are related to the electrodes. An intracardiac pacemaker implanted percutaneously in the heart with no electrodes has been developed. The device was tested on 526 consecutive patients with successful implantation in 90.0% of the cases and an adverse event rate of 6.7% in six months. The cardiac perforation rate was 1.3%.

The new device is a great potential advancement and opens up new development possibilities for artificial cardiac pacing that should improve its characteristics and test it in new situations.

A study that is among the most cited of the year addresses the issue of the relationship of coffee intake and cardiovascular mortality. An assessment of more than 200,000 people from various cardiovascular epidemiological studies found that individuals who have 1-5 cups of coffee a day have a lower cardiovascular mortality compared to those who do not have any coffee, while in individuals having more than five cups, there is no modification in cardiovascular mortality. However, when the association between coffee intake and smoking was corrected (which has a directly linear relationship), consumption of more than five cups a day was associated
with lower cardiovascular mortality. Besides this association with lower cardiovascular mortality, a linear inverse association with mortality from suicide and neurological diseases was found.

Regarding the clinical practice, the European Society of Cardiology Guidelines for the Management of Infective Endocarditis brought major changes, the most important ones being: (1) special prevention with advice for patients of intermediate-high risk for infective endocarditis such as those with prosthetic valves, history of endocarditis and unrepaired cyanotic congenital heart disease; (2) introduction of the “Endocarditis Team” concept in which a group of multidisciplinary experts contributes to making clinical and surgical decision in patients with complicated endocarditis and provides support in the management of patients with uncomplicated endocarditis who are initially managed without their supervision; and (3) incorporation of other imaging techniques in the diagnosis of endocarditis, in addition to echocardiogram. Computed tomography takes an important role in detecting abscesses, fistulas and pseudoaneurysm, and the use of scintigraphy with labeled leukocytes and PET CT with 18F-FDG in the evaluation of endocarditis in valvar prostheses. With regard to antibiotics therapy, aminoglycosides are no longer recommended in cases of endocarditis in native valves and, when used, must be in a single daily dose.

The SPRINT study was one of the most important studies of the year and changes clinical practice by demonstrating that treating hypertensive patients to reduce the levels of systolic pressure to 120 mmHg offers additional benefit to the prevention of an adverse cardiovascular event in every 61 patients treated for 3.3 years. SPRINT researchers randomized 9361 patients older than 50, with high cardiovascular risk, systolic blood pressure between 130-180 mmHg for intensive care or conventional care of hypertension. There was a reduction in primary composite events (myocardial infarction, non-infarction coronary syndrome, stroke, heart failure or cardiovascular death) of 6.8% in the group of patients with conventional care to 5.2% in the group with intensive care (p<0.001). Mortality from all causes was also reduced from 4.5% to 3.3%. With the results of this study, medical practitioners can thoughtfully decide to reduce blood pressure that remains above 130 mmHg after treatment with antihypertensive drugs, as there is additional benefit in reduction to lower systolic pressure values.

In addition to these important items, the manuscript of the International Journal of Cardiovascular Sciences with the greatest number of downloads in just one month was the study of Ana Colombo et al. on the effect of chocolate intake on endothelial function in patients admitted with acute coronary syndrome. The authors conducted a randomized crossover study to demonstrate the vasodilator effect of chocolate on endothelial function, and this effect was superior to that of white chocolate intake.

Contributions like these, cemented on scientific methods and on medical research, boost the progress of Science in the pursuit of better health among the population and reduction of complications from cardiovascular diseases.

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Potential Conflicts of Interest
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References


