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PPTOPIC 11 - Surgery

January 14th , Friday 2011

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Height of the anterior leaflet (A2), measured by echocardiography predicts accurately the annuloplasty ring size used during mitral valve reconstruction using Carpentier's techniques.

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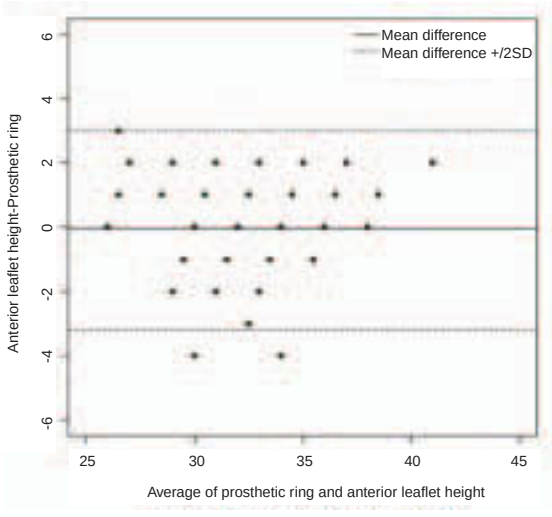
Rationale: Remodeling concept annuloplasty is one of the golden rule of long term efficacy of mitral valve reconstruction using Carpentier's techniques. Sizing is a key issue to avoid undersizing (risk of SAM) or oversizing (residual MR) in degenerative mitral regurgitation (MR). There are no studies who try to predict the accurate ring annuloplasty size based upon echocardiographic measurement of the height of anterior leaflet height (A2)

Aim: To establish a correlation between height of the anterior leaflet height (A2) measured by intra-operative (IOE) transesophageal echocardiography (TEE) and annuloplasty ring size measured by surgeons in type II degenerative MR.

Method: Prospective monocentric study. Measurement of the height of anterior leaflet (A2) in long axis view using multiplane IOE TEE (pre pump) and mitral annuloplasty ring size (Carpentier-Edwards Physio) measured systematically by surgeons with sizers. Intra Class Correlation test and Bland-Altman plot were done.

Results: Fifty patients were included. The mitral ring diameter was 41.4 mm +/- 3.7. The anterior leaflet height was 32.7 mm +/- 2.9. Size of annuloplasty ring was 32.8 mm +/- 2.9. The anterior leaflet height was significantly correlated with the prosthetic ring used, r =0.869 [0.780, 0.923], p <10-3. The mitral ring diameter was not concordant with the prosthetic ring used, r =-0.432 [-0.632,-0.178], p=0.39. The Bland-Altman plot shows that there is a good correlation between the anterior leaflet height and the prosthetic ring used.

Conclusion: The anterior leaflet height (A2) measured by echocardiography predicts accurately annuloplasty mitral ring size measured systematically by surgeons.



Bland-Altman plot

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The infectious endocarditis with aortic localization. A surgical emergency

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Introduction: The course of aortic post endocarditic incapacity is unpredictable. It requires a particular management and an early or urgent surgery because of the subsequent serious complications. The aim of our retrospective study is to review the epidemiological and clinical features and to emphasize on the early of this clinical entity.

Material and method: Forty seven patients was admitted in our heart department for infectious endocardite (I.E) with isolated aortic location . Patients with other localisations of I.E were withdrawn.
Patients were separated in two groups according to availability of the cardiac surgery in our institution.
- A first group of 22 patients hospitalized between 1989 and 1995 where cardiac surgery was not available and
- The second group of 25 patients hospitalized between 1997 and 2009 where cardiac surgery was available
The IE diagnosis was made according to the modified criteria DUCKE.

Results: The average of age was 32 ± 12 years (extremes 16 - 67 years) with 77 % of males . The previous cardiac state is documented in 45 % of the cases. Rheumatoid arthritis is found in 86 % of the cases. An étiology was fund in 43% of cases, 89 % out of them had dental étiology .
Vegetations were found in 100 % of the cases at the echocardiagraphic exam. The left ventricle is of normal size or dilated. DOPPLER exam showed the aortic leak were of grade III or IV in all cases.
Bloodcultures were positive in 27 % in the 1st group and 60 % in the second. A negative coagulase staphylococcus was found in 71 % of the cases.

The course of the disease of the 51 % of the patients with left ventricular impairment and the 11 % of the cerebral embolism was the death. Although mortality is decreasing (77 % in the 1st group and 48 % in the second) , this mortality remains high in our population.

Conclusion: Strong mortality is the burden of aortic localization. If in developed countries, it is below 30 % due to early surgery, much remains to make in emergent countries.

January 15th , Saturday 2011

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Predictive factors for late cardiac tamponade after cardiac surgery

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Background: Cardiac tamponade (CT) occurs in about 1% to 2% of patients after cardiac surgery .
In order to know which patients should be closely followed up,it is important to determine predictive factors for late CT.

Methods: in the POPE study, 196 patients with a moderate to large persistent pericardial effusion persisting more than 7 days after cardiac surgery (grades 2, 3, or 4 on a scale of 0 to 4, as measured by echocardiography) were consecutively included.The main result showed the absence of effectiveness of a non steroidal anti inflammatory drug to reduce the size of the effusions. As Twenty patients (10.2 %) required pericardial drainage 22.5 ± 8.7 days after surgery, we looked for predictive factors for late CTs by comparing baseline characteristics of the CT (n=20) and non CT groups (n = 176).

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Results: The incidence of late CTs was higher with higher grades of pericardial effusion at baseline: 2.9% for grade 2, 14% for grade 3, and 24.3% for grade 4 ($P < 0.001$) . vitamin K antagonist (VKA) administration was not correlated with the risk of CT (42.9% of the patients in the non CT group versus 45.0% in the CT one, p = 0.8) but a high INR at baseline was correlated with development of a late CT: mean baseline INR and percentage of patients with a baseline INR>2.5 were of 2.56 ± 1.0 and 47.8%in the non CT group versus 3.25 ± 1.03 and 88.9% in the late CT group (p = 0.05 and 0.02 respectively). Finally, the rate of diabetic patients was significantly lower in the non CT group (16.6% vs 35% ; p = 0.04).
Age, gender, body mass index, history of high blood pressure, left ventricular ejection fraction, type of surgery (valvular surgery or coronary artey bypass graft, mean internal thoracic artery implants), baseline C reactive protein rate, antiplatelet therapy, non steroidal anti inflammatory drug administration, creatininemia, haemoglobinemia, atrial fibrillation and localisation of the pericardial effusion were not correlated with the development of a late CT.

Conclusion: Baseline pericardial effusion grade, oral anticoagulant and diabetes are correlated with the risk of development of a late cardiac tamponade after cardiac surgery.

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A 6 years mortality conferences analysis in a cardiac department : ethical considerations about practices and evidence-based medicine.

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Context: Mortality and Morbidity conferences (MMCs) are needed for identification of the mechanisms of in hospital poor outcomes which are often considered to be related to medical errors.

Objectives: To determine the leading causes of death and the ethical issues raised from mortality conferences.

Design, Setting, and Participants: Between January 2002 and January 2008, reports of 146 patients deceased at an hybrid surgical and interventional cardiac department were analyzed during MMCs.

Main Outcome Measures: System failure, causes of death, ethical questions.

Results: The majority of reports presented for discussion concerned patients referred to cardiac surgery (n=115), followed by interventional cardiology (n=25) and medical treatment alone (n=11). Interventions were recommended as class I in 120 cases (82%). History of renal failure (25%), peripheral artery disease (21%), diabetes (18%), cancer (16%) and respiratory disease (16%) were frequently noticed. Nosocomial infections rate was 35%. The most frequent questionable attitudes concerned preoperative strategy (58%), surgical technique (50%), monitoring (47%), reactivity (43%), drug prescription (32%), diagnostic difficulty or delay (27%) and transfer (21%). At least one transgression from normative medical practice was identified in 66 (45%) patients with a causal relation to death suggested in 33 cases (23%). Serious errors concerned 5 patients (3%) with a causal relation to death suggested in 2 cases. Ethical discussion focused on therapeutic alternatives (73%), good medical practice (44%), secondary recommendations (18%), information (12%), consent (12%), non-malfeasance (7%) and equity (6%).

Conclusion: Participation to MMCs offers the opportunity to evidence numerous system failure. Poor outcome is multifactorial. The concept of medical errors might be redefined as questionable or transgressive attitudes which were rarely considered as the main cause of hospital death.

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