RHEUMATIC AND VALVULAR HEART DISEASE

GW27-e0109

Surgical management or thrombolytic therapy for left-sided mechanical valve thrombosis: a systematic review and meta-analysis

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OBJECTIVES Mechanical valve thrombosis is a rare but disastrous complication after mechanical valve replacement. The preferred treatment for left-sided mechanical valve thrombosis is still under investigation. Our aim was to compare and evaluate the effectiveness and safety of surgical management and thrombolytic therapy (TT) for left-sided mechanical valve thrombosis.

METHODS Relevant studies published before Feb. 2016 were collected in several databases and analyzed with Comprehensive Meta-Analysis software version 2.0. Outcomes of interest were death, major thromboembolic events, major bleeding events, and success rate.

RESULTS Forty-nine studies including 2249 patients were included. Mortality for surgery was 17.56% (95% CI 15.38%-19.97%), which was significantly higher than the mortality rate of TT (6.22%, 95% CI 4.89%-7.87%, P<0.0001). The success rates were similar between the two groups. No significant difference was found in the incidence of the combined adverse event (death + major thromboembolic event + major bleeding event) between the surgery group (18.56%, 95% CI 16.32%- 21.02%) and TT group (16.38%, 95% CI 14.26-18.74, P=0.196).

CONCLUSIONS In the absence of randomized controlled trials, this meta-analysis including 2249 patients showed that thrombolytic therapy may be a preferred approach over surgery in the treatment of left-sided mechanical valve thrombosis.

GW27-e0168

Efficacy and safety of fixed-dose combination of irbesartan/atorvastatin in patients with hypercholesterolemia and hypertension

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OBJECTIVES Fixed dose combination of two or more drugs could reduce the number of pills for the patient with multiple risk factors or cardiovascular disease and thereby improve the patient-compliance.: To evaluate the superior blood pressure and cholesterol-lowering effect of fixed dose combination of irbesartan-atorvastatin over monotherapy by either agent over an 8-week treatment period.

METHODS A total of 733 patients with comorbid hypertension and hypercholesterolemia were screened for this randomized, double-blind, Phase III study. Eligible study patients were randomly assigned to test groups - receiving a combination of irbesartan 300 mg and atorvastatin 40 mg or 80 mg (IRB300+ATO40 and IRB300+ATO80). Comparator groups were monotherapy groups with irbesartan 300 mg (IRB300) or atorvastatin 40 mg (ATO40) or 80 mg (ATO80), or placebo (PLA). Patients who were eligible at screening were subjected to a 4-6 week washout period before commencing an 8-week therapy as per their assigned group. The primary efficacy endpoints were percent change of low-density lipoprotein-C (LDL-C) and sitting diastolic blood pressure (sitDBP) from baseline to end of therapy. Tolerability profiles of combination therapy were compared with other groups.

RESULTS Total 230 eligible patients were randomized. Mean age of patients was 58.9 ± 8.5 years and body-mass index was 25.8 ± 3.2 kg/m2. Over 2/3 (70.9%) of the study patients were males. Mean LDL-C and sitDBP levels at baseline were 149.54 ± 29.19 mg/dL and 92.32 ± 6.03 mmHg, respectively. Percent reduction of LDL-C after 8 weeks was 46.74% ± 2.06% in the IRB300+ATO40 and 48.98% ± 2.12% in the IRB300+ATO80 groups. In comparison, it was 47.13% ± 3.21% and 48.30% ± 2.98% in the ATO40 and ATO80 comparator groups, respectively. Similarly, Reduction of sitDBP after 8 weeks was -8.50 ± 1.06 mmHg in the IRB300+ATO40 group and 10.66 ± 1.08 mmHg in the IRB300+ATO80 group in comparison with 8.40 ±1.65 mmHg in the IRB300 group. Incidence rate for treatment-emergent adverse events was 22.27% and was similar between monotherapy and combination groups.

CONCLUSIONS Once-daily combination product of irbesartan and atorvastatin provided an effective, safe and compliable treatment for patients with coexisting hypertension and hyperlipidemia.

GW27-e0291

Elevated serum levels of immunoglobulin E promote the development of calcific aortic valve disease

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OBJECTIVES Increased mast cell numbers within the human stenotic aortic valve, mainly surrounding calcified areas, were associated with the severity of aortic valve stenosis. However, it is completely unknown whether elevated serum levels of immunoglobulin E (IgE) play a role in calcific aortic valve disease.

METHODS A total of 545patients were enrolled in our study. Based on echocardiography presentation, the patients were divided into 2 groups: the CAVD group (n=238) and non-CAVD group (n=307). Serum levels of IgE were examined by chemiluminescence. Furthermore, the collected aortic valve specimens were stained with toluidine blue to analyze mast cells and immunohistochemistry to detect IgE and mast cells. Finally, isolated aortic valve interstitial cells were seeded and subjected to line IgE stimulation; target protein expression was then detected via western blotting.

RESULTS The CAVD group's IgE serum levels were significantly higher than those of the non-CAVD group (125.50 IU/ml vs 61.26 IU/ml (P<0.05)), which was confirmed by multivariate logistic regression analysis (P<0.05). Also, mast cells were present in CAVD specimens but absent in non-CAVD specimens. Next, elevated levels of IgE and mast cells were detected in calcific aortic valves. Lastly, IgE stimulation of human aortic valve interstitial cells induces the expression of interleukin- 6 (IL-6), intercellular cell adhesion molecule-1 (ICAM-1), and bone morphogenetic protein-2 (BMP-2), as well as activation of NF- B. Inhibition of NF- B suppresses the expression of the inflammatory and osteogenic factors induced by IgE.

CONCLUSIONS The serum levels of IgE were elevated in patients with calcific aortic valve disease. IgE may play an important role in the development of calcific aortic valve disease.

GW27-e0339

Expression and significance of TGF-β1, CTGF in atrial tissue of atrial fibrillation patients with Rheumatic Heart Disease

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OBJECTIVES To investigate the expression and the possible role of transforming growth factor-beta 1 (TGF-β1) and connective tissue growth factor (CTGF) in atrial myocardial fibrosis of atrial fibrillation patients with rheumatic heart disease.

METHODS The right atrial muscles samples were obtained from 68 patients with rheumatic heart diseases (RHD) (30 sinus rhythm [SR], 38 atrial fibrillation [AF]) during heart valve replacement surgery. The expression of TGF-β1 mRNA, CTGF mRNA were detected by semiquantitative RT-PCR technique, the RT-PCR amplication production Reinhoit Zahl (RZ) were tested. The expression of CTGF protein were detected by immunohistochemistry technology. The area of myocardial fibrosis were measured by imaging analysis system, qualified by PU value. SPSS package was used to analyze the relationship between the expression of CTGF and the area of myocardial fibrosis.

RESULTS Compared with SR group(RZ 0.2398±0.1252; RZ 0.3126±0.1532; PU 23.1613±1.9325), the expression of TGF-β1 mRNA, CTGF mRNA and CTGF protein expression in atrial muscle samples were all significantly increased in AF group, (RZ 0.7656±0.2162; RZ 0.8962±0.2863; PU 49.760±7.672; P < 0.01). The expression of CTGFmRNA in atrial muscles of RHD was correlated positively with the expression of TGF-β1 mRNA (r = 0.793, P<0.01). The expression of CTGFmRNA and CTGF protein in atrial muscles of RHD were both correlated positively with the area of myocardial fibrosis (r =0.865; 0.632, P < 0.01). The expression of TGF-β1 mRNA, CTGFmRNA and CTGF protein in atrial muscles of both groups didn't