Title: Prosthetic heart valve-related stroke: a single center experience

Category: Valvular Heart Disease

Abstract

Introduction: Thromboembolic events or bleeding are by far the most frequent complications of prosthetic heart valves. Cerebrovascular stroke is one of the major thromboembolic complications of anticoagulation-related issues of prosthetic heart valves.

Aim of the work: To determine the pattern and risk factors of acute stroke in patients with prosthetic heart valves.

Methods and Patients: A retrospective single-center analysis of the database registry of consecutive acute stroke patients with mitral or aortic heart valve prostheses admitted to a tertiary care stroke specialized center from 01/01/2012 to 01/12/2017.

All patients were examined by a certified neurologist and underwent a complete work-up evaluation (Computed Tomography or Magnetic Resonance Imaging, Carotid Doppler ultrasound examination, complete blood tests, and electrocardiogram) and a transthoracic echocardiography (TTE) examination as well as transesophageal echocardiography (TOE) if valve dysfunction or thrombosis were suspected.

Results: 214 patients with mitral or aortic valve prostheses were admitted by acute stroke in the duration from 01/01/2012 to 01/12/2017 with a mean age of 44±15 years, 132 were males (61.7%) and 178 patients had mechanical valves (83.2%). 135 patients had mitral prosthesis (63.1%) and ischemic stroke was encountered in 151 patients (70.6%).

Table 1: Baseline patient demographic, clinical, laboratory, echocardiographic parameters (n=214)

1- Baseline patient characteristics and risk factors (n=214)	
Age (years)	44±15
Male Sex	132 (61.7%)
History of Stroke	17 (7.9%)
Mechanical Valve	178 (83.2%)
Diabetes	34 (15.9%)
Hypertension	46 (21.5%)
Atrial Fibrillation	101 (47.2%)
Ischemic Heart Disease	6 (2.8%)

Rheumatic Heart Disease	175 (81.8%)
2- Laboratory and Echocardiographic data	
Hemoglobin (g/dl)	11±2.3
INR	3.2 ±4.4
Creatinine (mg/dl)	0.85 ±0.7
LVEF (%)	54 ±13
LAVI (ml/m2)	36 ±9.2
3- Types and sites of Valve Prosthesis	
Mitral Only	**135 (63.1%)**
Aortic Only	51 (23.8%)
Double Valve Prosthesis	28 (13.1%)
Bioprosthesis	36 (16.8%)
Mechanical Prosthesis	**178 (83.2%)**
4- Types of stroke	
Ischemic	**151 (70.6%)**
Hemorrhagic	47 (22%)
Both	16 (7.4%)

Data are represented as mean(±SD) or number (Percentage)

Conclusion: In a single center experience, mechanical prosthesis at the mitral valve position was associated with higher incidence of ischemic stroke. Proper close follow-up of INR levels as well as the surgical shift to biological instead of mechanical valve should decrease significantly the incidence of prosthetic valve related strokes.