Aortic valve prolapse and aortic regurgitation in 2283 patients with isolated ventricular septal defect

Atik S. U., Eroglu A. G., Sengenc E., Gunes S., Oztunc F., Saltik L.
İstanbul University Cerrahpasa Medical Faculty İstanbul Turkey

There are many reports concerning aortic valve prolapse and aortic regurgitation associated with subpulmonic ventricular septal defect, but there are limited data about the natural history of aortic valve prolapse associated with other types of ventricular septal defect. Echocardiography has provided a reliable assessment of the presence and location of ventricular septal defect, aortic valve deformity, and degree of aortic regurgitation noninvasively, even in infancy and early childhood. This study evaluates aortic valve prolapse, onset and progression of aortic regurgitation, and ventricular septal defect location in 2283 patients with ventricular septal defect.

Materials and Methods: The study population consisted of 2283 patients with isolated ventricular septal defect who had been studied at our institution from 1988 to 2014 with transthoracic echocardiography. Ventricular septal defects were classified according to their location and relation to the tricuspid annulus and semilunar valves. Defect size was expressed in terms of the size of the aortic root. SPSS 17 was used for statistical analysis and statistical significance was inferred at p < 0.05.

Results: Aortic valve prolapse was detected in 173 (7.6) of 2283 patients with ventricular septal defect by echocardiography (27 at initial echocardiographic examination and 146 at follow up). Of 173 patients with aortic valve prolapse, aortic regurgitation was detected in 103 (59.5), resulting in an incidence of aortic regurgitation of 4.5 of ventricular septal defects. The percentage of aortic valve prolapse in muscular outlet ventricular septal defects (12.2%) and perimembranous ventricular septal defects (10.2%) was similar but associated aortic regurgitation was common in muscular outlet defects (12.2%) then in perimembranous defects (6.6%) (p<0.05). One hundred twenty three patients were followed up after aortic valve prolapses appeared. Initially there was no aortic regurgitation in 63 of these patients, trivial aortic regurgitation in 22 and mild aortic regurgitation in 38.

Discussion: We recommend frequent echocardiographic evaluation (every 6 months) for detecting of appearance of aortic regurgitation in patients with perimembranous or muscular outlet ventricular septal defect after aortic valve prolapse develops.