Alcohol septal ablation in elderly patients: Is it as effective as in young patients?

Moo Hyun Kim

Department of Cardiology, Dong-A Medical College, Busan, 602715 Korea

Hypertrophic cardiomyopathy (HCM) is a common genetic abnormality that can occur in as many as 1 in 500 persons.1 Researchers have found multiple mutations in 10 different sarcomeric proteins such as myosin heavy chain and tropomyosin can cause this disease. HCM is the most common monogenic cardiac disorder and the most common cause of sudden cardiac death (SCD) in children and adolescent. Patients with obstructive HCM typically complain of dyspnea, angina, nearsyncope and/or syncope on exertion. Patients with non-obstructive HCM rarely present with these symptoms or the symptoms are milder. At present, the risk factors for SCD are young age, syncope, a malignant family history, sustained ventricular tachycardia in electrophysiologic testing or holter monitoring and severe hypertrophy with significant left ventricular (LV) outflow obstruction.2,3

Beta-blockers and other negative inotropic drugs such as verapamil and disopyramide can reduce LV outflow obstruction and diminish symptoms. However, in some patients medical therapy was ultimately insufficient to control symptoms. Myomectomy for symptomatic obstructive HCM that was refractory to medical therapy has been successfully done for more than 3 decades.2 The procedure consists of excising a portion of the hypertrophied septum, mobilization of papillary muscles and reattachment of the mitral subvalvular apparatus. The operative procedure has a relatively high mortality rate of 1.6% to 10%, with the possible perioperative complications of ventricular septal defect, complete heart block (CHB) or cerebral emboli.

The beneficial effects of myomectomy led to the concept of nonsurgical septal reduction therapy.4 The induction of a limited therapeutic infarction, through alcohol ablation of septal branch, leads to a reduction in the LV outflow pressure gradient and associated symptoms. This is possibly due to remodeling process comparable to that occurring after myocardial infarction. Therefore, symptomatic improvement could be seen in approximately 80% of the patients. In this issue of the Journal of Geriatric Cardiology, Dokanish and associates5 showed the result of alcohol septal ablation in the elderly patients with HCM who failed medical therapy. This procedure resulted in significant reduction of the LV outflow obstruction, septal thickness, heart failure symptom with acceptable complication rate of one death (1%) and 14% incidence of CHB. Similar and significant improvement was reported in the elderly and young patients by Gietzen et al.6 Therefore, alcohol septal ablation seemed to be a good alternative for elderly patients who have refractory symptoms.

Regarding the complication, thirteen out of 95 patients developed CHB requiring permanent pacemaker in this present study.5 The frequency of CHB requiring pacing after septal ablation varied from 10% to 33%. In contrast, the rate of postoperative CHB requiring pacing after surgical septal myomectomy has remained low among experienced surgeons (less than 1% in the absence of pre-existing RBBB).7 The higher incidence of CHB in the early series of septal ablation might have resulted from higher volume of ethanol injection. Multivariate logistic analysis8 showed that female gender, volume of ethanol, number of septal arteries treated and pre-existing LBBB are independent predictors of CHB after septal ablation. Postprocedural pacemaker implantation rates were greater than 25% in the early studies which included young and elderly population and are currently at 5 to 10%. This decrease in pacemaker insertion rate are thought to be related to smaller amount of alcohol injection (1-2 ml) versus larger amount (4.5 ml) and slower rate of injection (1 ml/min). Interestingly, CHB recovered spontaneously in about two third of young and old patients within the first 3 days.9

To avoid the possibilities of CHB, accidental alcohol spillage or toxic effects of alcohol on the adjacent myocardium, I have been thinking of the possibility for coil embolization in the septal artery for HCM. Recently there was a case report of coil embolization in the septal artery of patients with obstructive HCM. The result showed no

Corresponding author: Moo-Hyun Kim MD Department of Cardiology, Dong-A Medical College, Busan, Korea
Email: kimmh@dau.ac.kr
significant pressure gradient reduction after treatment. The failure to create a limited infarction is speculated that the experiment was conducted without contrast echocardiography to confirm the angiographic success. So further evaluation is necessary to prove the efficacy of this newer and innovative concept of treatment for HCM.

References