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Periprocedural Complications and Long-Term Outcome After Alcohol Septal Ablation Versus Surgical Myectomy in Hypertrophic Obstructive Cardiomyopathy

A Single-Center Experience

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CME Objective for This Article: At the completion of this article, the learner should be able to: 1) describe the alcohol septal ablation procedure and its potential complications; and 2) describe the myectomy procedure and its potential complications.

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ABSTRACT

OBJECTIVES This study compared alcohol septal ablation (ASA) and surgical myectomy for periprocedural complications and long-term clinical outcome in patients with symptomatic hypertrophic obstructive cardiomyopathy.

BACKGROUND Debate remains whether ASA is equally effective and safe compared with myectomy.

METHODS All procedures performed between 1981 and 2010 were evaluated for periprocedural complications and long-term clinical outcome. The primary endpoint was all-cause mortality; secondary endpoints consisted of annual cardiac mortality, New York Heart Association functional class, rehospitalization for heart failure, reintervention, cerebrovascular accident, and myocardial infarction.

RESULTS A total of 161 patients after ASA and 102 patients after myectomy were compared during a maximal follow-up period of 11 years. The periprocedural (30-day) complication frequency after ASA was lower compared with myectomy (14% vs. 27%, $p = 0.006$), and median duration of in-hospital stay was shorter (5 days [interquartile range (IQR): 4 to 6 days] vs. 9 days [IQR: 6 to 12 days], $p < 0.001$). After ASA, provoked gradients were higher compared with myectomy (19 [IQR: 10 to 42] vs. 10 [IQR: 7 to 13], $p < 0.001$). After multivariate analysis, age (per 5 years) (hazard ratio: 1.34 [95% confidence interval: 1.08 to 1.65], $p = 0.007$) was the only independent predictor for all-cause mortality. Annual cardiac mortality after ASA and myectomy was comparable (0.7% vs. 1.4%, $p = 0.15$). During follow-up, no significant differences were found in symptomatic status, rehospitalization for heart failure, reintervention, cerebrovascular accident, or myocardial infarction between both groups.

CONCLUSIONS Survival and clinical outcome were good and comparable after ASA and myectomy. More periprocedural complications and longer duration of hospital stay after myectomy were offset by higher gradients after ASA.
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Obstruction of flow in the left ventricular outflow tract (LVOT) is found in ~70% of patients with hypertrophic cardiomyopathy, referred to as hypertrophic obstructive cardiomyopathy (1). Although medical treatment can provide relief of symptoms, a sizable subset of patients with hypertrophic obstructive cardiomyopathy remains symptomatic, and in these subjects, invasive treatment (i.e., septum reduction) is an established treatment option (2,3). Both alcohol septal ablation (ASA) and surgical myectomy have proved to be effective methods for relief of symptoms (4–6). In recent studies, ASA is associated with excellent survival, comparable to survival in an age- and sex-matched population (7,8). Because ASA is also a less invasive treatment than myectomy, it may thus be a preferred treatment. On the other hand, previous studies have also reported a greater need for pacemaker implantation and a higher rate of reinterventions after ASA compared with myectomy (3,4), and in a single-center study, a warning was given that ASA may in fact increase cardiac mortality (9). We report our experience in a comprehensive study of both procedures including periprocedural complications, survival, cardiac survival, long-term symptomatic status, and clinical outcome.

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METHODS

STUDY DESIGN AND PATIENT POPULATION. All patients who underwent either ASA or a surgical