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Low procedure-related mortality achieved with alcohol septal ablation in European patients[☆]



Josef Veselka^{a,*}, Morten Kvistholm Jensen^b, Max Liebrechts^c, Jaroslav Januska^d, Jan Krejci^e, Thomas Bartel^f, Maciej Dabrowski^g, Peter Riis Hansen^h, Henning Bundgaard^b, Robbert Steggerdaⁱ, Lothar Faber^j

^a Department of Cardiology, 2nd Medical School, Charles University, University Hospital Motol, Prague, Czech Republic

^b Unit for inherited cardiac diseases, Department of Cardiology, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark

^c Department of Cardiology, St. Antonius Hospital Nieuwegein, Nieuwegein, The Netherlands

^d Cardiocentre Podlesí, Třinec, Czech Republic

^e 1st Department of Internal Medicine/Cardioangiology, International Clinical Research Centre, St. Anne's University Hospital and Masaryk University, Brno, Czech Republic

^f Department of Internal Medicine III, Medical University Innsbruck, Austria and Cleveland Clinic Abu Dhabi, United Arab Emirates

^g Department of Interventional Cardiology and Angiology, Institute of Cardiology, Warsaw, Poland

^h Department of Cardiology, Gentofte Hospital, Copenhagen University Hospital, Hellerup, Denmark

ⁱ Department of Cardiology, Martini Hospital, Groningen, the Netherlands

^j Department of Cardiology, Heart and Diabetes Centre NRW, Ruhr-University Bochum, Bad Oeyenhausen, Germany

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Two thirds of patients with hypertrophic cardiomyopathy (HCM) suffer from a left ventricular obstruction associated with more symptoms and worse prognosis [1–2]. According to American and European Guidelines on HCM, there are two main therapeutic alternatives for treating the left ventricular obstruction: surgical myectomy and alcohol septal ablation (ASA) [1–2]. Both these alternatives are considered safe and effective. However, Panaich et al. have recently demonstrated real world American data from the Nationwide Inpatient Sample (NIS) database showing an almost 6% in-hospital mortality rate associated with surgical myectomy [3]. This study is important because it contradicts lower, previously established post-operative mortality rates, which were estimated to be ~1% and were calculated using data from high-volume centers. Importantly, however, current guidelines on HCM have been based only on results of these high-volume centers [1–2]. Along this line, Maron et al. recently found that in five major high-volume HCM centers in North America, the 30-day operative mortality rate was only 0.4% over the past 15 years ($n = 3,696$, mean age 54 ± 14 years) [4], i.e., one fifteenth of mortality rate reported by Panaich et al. [3]. A recent meta-analysis of long-term outcomes after septal reduction therapy, including 24 studies from tertiary HCM centers around

the world, showed that the peri-procedural mortality rate of ASA was 1.3%, compared to 2.5% in patients undergoing myectomy [5]. However, when studies from before the year 2000 were excluded, as Maron et al. suggest [4], these figures became similarly low (1.3% vs. 1.1%, respectively). The same held true for the long-term mortality rates.

The strikingly high surgical mortality reported from NIS database [3] led us to analyze ASA data from 10 European institutions specializing in HCM. Individual centers initiated the ASA program from 1996 to 2005. A total of 962 HCM consecutive, highly symptomatic adult patients (59 ± 13 years, 49% male) in functional class III/IV with the maximal (provocable) outflow gradient ≥ 50 mmHg who were refractory or intolerant to medical therapy were treated by ASA between 2001 and 2014, and followed-up for 4.6 ± 3.4 years; the left ventricular outflow gradient was reduced from 70 ± 38 mmHg to 18 ± 23 mmHg ($p < 0.01$), and NYHA class from 2.9 ± 0.5 to 1.6 ± 0.7 ($p < 0.01$). The most frequent complication was a transient peri-procedural complete heart block [6]. This occurred in 273 (28%) patients and 90 of them (9.4% of all treated patients) subsequently required an early permanent pacemaker implantation. The occurrence of 30-day major adverse events was 1.8% (Table 1). The 30-day procedure-related mortality rate was 0.4% identical to the five surgical centers reported by Maron et al. [4].

Two lessons may be learned from these contradictory results. First, among the most important trends in current medicine are a specialization of physicians and a centralization of medical care. This trend deepens differences between results achieved in small- and high-volume centers. The more complex the therapeutic goal, the bigger is the gap between the safety and the efficacy of performed procedures in high- and low-volume centers. Therefore, we have to look at these discrepancies between real-world data and extremely good results of dedicated centers with understanding, and similar differences might be found in many different parts of current medicine. This fact again emphasizes the important caveat that replication of excellent surgical results achieved at the Mayo or Cleveland Clinic is not possible at lower volume centers. Second, contemporary mortality data for septal

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* Corresponding author at: Department of Cardiology, Motol University Hospital, V úvalu 84, Prague 5, Czech Republic.

E-mail address: veselka.josef@seznam.cz (J. Veselka).

Table 1

Baseline characteristics, 30-day cardiovascular mortality rate, and occurrence of major adverse events (hierarchically: all-cause death, resuscitation, defibrillation, appropriate discharge of ICD).

Center	N	Male (%)	Age (years)	30-day cardiovascular mortality rate (%)	30-day major adverse events (%)
Bad Oyenhausen	249	53	59 ± 13	0.4	0.8
Nieuwegein/Groningen	193	53	61 ± 13	0.5	3.1
Prague	176	45	58 ± 12	0	2.3
Copenhagen/Rigshospitalet	104	43	62 ± 13	0	1.9
Třinec	84	37	60 ± 13	2.4	2.4
Brno	50	62	60 ± 12	0	0
Warsaw	50	50	56 ± 11	0	0
Innsbruck	31	52	57 ± 13	0	3.2
Copenhagen/Gentofte	25	56	62 ± 13	0	0

reduction therapy published by major HCM centers (whether being proponents of myectomy or ASA) have been incorporated into guidelines on HCM, and therefore they have become a source of safety reassurance for clinical cardiologists indicating their patients for septal reduction therapy. However, as is well known, the best centers have the best results and it seems too simplified to automatically take the best achieved data and include it in the guidelines.

In conclusion, septal reduction therapy performed in dedicated centers is safe and effective. Although the Guidelines on HCM state that septal reduction therapy should be performed in tertiary centers with experience in the procedure [1–2], more “real-world” data from less specialized hospitals are needed to compare the results of Panaich paper [3] and should be taken into account when writing medical guidelines. Also, more dedicated centers are necessary to achieve high-volume expert competence. Probably, in smaller European countries and less developed health-care settings, implementation of this strategy may be far more difficult than in large countries.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

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