Short- and long-term outcomes of patients with hypertrophic cardiomyopathy who received non-cardiac surgery

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Background

Recently, the influence of non-cardiac surgery on patients with hypertrophic cardiomyopathy (HCM) has attracted attention. Although several studies have demonstrated that non-cardiac surgery in HCM patients is safe, long-term outcomes remains unclear. The study aimed to evaluate short- and long-term outcomes in patients with hypertrophic cardiomyopathy who received non-cardiac surgery.

Method

Design: Single center retrospective analysis

Patients: Consecutive patients with HCM who underwent non-cardiovascular surgery from January 2007 through September 2015.

Data collection: Data were collected from medical and anesthesia records.

Primary outcome: Incidence of HCM-related events
(Defined as sudden death, delivery of ICD, heart failure, and thrombosis)

Subgroup analysis: We divided into 2 groups, depending on the experience of HCM-related events:
Group E; experienced intra- and postoperative events
Group NE; not experience such events

Event-free rate analysis: We divided into 2 groups, depending on presence of left ventricular outflow obstruction
Group HOCM and Group non-HOCM

Result

72 patients were included. Median postoperative follow up was 1382 days.

	Group E (N=12)	Group NE (N=60)	P-value
Female, N (%)	7 (58)	18 (30)	0.07
Age (years)	61 ± 15	69 ± 10	0.04
HOCM, N (%)	4 (29)	8 (14)	0.21
Preoperative HCM-related event, N (%)	3 (25)	9 (15)	0.42
General anesthesia, N (%)	10 (83)	38 (63)	0.16
Inhalation, N (%)	8 (67)	28 (47)	0.20
TIVA, N (%)	2 (17)	10 (17)	1.00
Use of invasive BP monitor, N (%)	8 (67)	27 (45)	0.17
Minimum mean BP (mmHg)	59 ± 15	66 ± 19	0.28
Duration of anesthesia (min)	215 ± 132	217 ± 134	0.97
Use of phenylephrine, N (%)	5 (42)	9 (15)	0.048
Use of ephedrine, N (%)	4 (33)	22 (37)	0.83
Intraoperative fluid balance (ml)	1074 ± 632	1159 ± 1104	0.80
Postoperative ICU admission, N (%)	2 (17)	8 (13)	0.77

Table 3. Patient background and intraoperative data in the event and non-event groups

Discussion

In-hospital mortality and morbidity rate were 2.8%.

>>> We thought that non-cardiac surgery in HCM patients might be **safe** if anesthesiologists pay attention to hemodynamic status.

2-year event-free rate in HOCM group was significantly lower than that in the non-HOCM group.

>>> Surgical procedures might be one of the **risk factors** causing instability of the disease condition in HOCM patients.

Conclusion

Our retrospective study suggests that non-cardiovascular surgery in HCM patients is safe in terms of short-term outcome. However, the 2-year event-free rate in the HOCM group was significantly lower than that in the non-HOCM group.

	N = 72
Female, N (%)	25 (35)
Age (years)	67 ± 11
Height (cm)	160 ± 9
Weight (kg)	62 ± 11
Hypertrophic obstructive cardiomyopathy, N (%)	14 (19)
Preoperative HCM-related events, N (%)	12 (17)
General anesthesia, N (%)	48 (67)
Inhalation: TIVA, N (%)	36 (75) : 12 (25)
Surgical procedure	
Abdominal surgery, N (%)	16 (22)
Craniotomy and neck, N (%)	13 (18)
Duration of anesthesia (min)	216 ± 133
Duration of surgery (min)	155 ± 109
Use of invasive blood pressure monitor, N (%)	35 (48)
Intraoperative minimum mean BP (mmHg)	65 ± 18
Use of phenylephrine, N (%), range (mg)	14 (19), 0.05 – 0.7
Use of ephedrine, N (%), range (mg)	26 (36), 4 - 44
Intraoperative fluid balance (ml)	1145 ± 1037
Postoperative ICU admission, N (%)	10 (14)

Table 1. Patient characteristics and intraoperative data

	N = 72
In-hospital mortality, N (%)	1 (1)
Median hospital stay (days)	15
Perioperative HCM-related events, N (%)	2 (3)
Intraoperative hear failure, N (%)	1 (1)
Postoperative heart failure during hospital stay, N (%)	1 (1)
Postoperative HCM-related events after discharge, N (%)	11 (15)
Sudden death, N (%)	3 (4)
ICD shock, N (%)	3 (4)
Successful CPR, N (%)	1 (1)
Unexpected HCM-related hospitalization, N (%)	6 (8)

Table 2. Outcome data

Figure. 2-year event-free rate