

Preoperative anesthesia clinic in Japan: a nationwide survey of the current practice of preoperative anesthesia assessment

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Abstract

Purpose In order to investigate the current practice of preoperative anesthesia assessment in Japan, we conducted a nationwide survey of the preoperative anesthesia clinic (PAC).

Methods A written questionnaire was sent to anesthesia teaching hospitals certified by the Japanese Society of Anesthesiologists.

Results Completed questionnaires were received from 789 hospitals (response rate 62.5 %). PACs were conducted in 52.0 % of these hospitals and were more frequently implemented in large hospitals. Services covered by the PAC included medical history taking, physical examination, review of laboratory data, and obtaining informed consent. Majority of the anesthesiologists at hospitals that did not have a PAC responded that although they acknowledged that a PAC is necessary, they were unable to set one up. The main obstacle preventing establishment of the PAC was shortage of human resources.

Conclusions Half the anesthesia teaching hospitals in Japan use a PAC for preoperative assessment. At such hospitals, all the procedures required before anesthesia are performed in the clinic. Lack of human resources is the major obstacle preventing establishment of PACs in all hospitals.

Keywords Preoperative assessment · Preoperative anesthesia clinic · Japan · National survey

Introduction

Preoperative anesthesia clinics (PAC) have been introduced to enable preoperative evaluation of the patient prior to hospital admission [1]. Previous investigations showed that the PAC can reduce the rate of cancellations of surgery, increase same day admission and reduce the duration of hospital stay [2–8]. In Japan, the need for outpatient evaluation by anesthesiologists is increasing due to several reasons. First, the patient usually gets admitted to the hospital on the day of surgery or a day prior to it, in order to reduce the duration of hospital stay. Second, there is an increased requirement to obtain adequate informed consent for anesthetic management [9]. Third, with the aging of society, the number of patients who require optimization of their health status before surgery is increasing. However, due to an increase in the number of surgeries performed and the relative shortage of anesthesiologists, implementation or maintenance of the PAC is not easy, even in large hospitals.

To date, there has been no report investigating the practice of preoperative anesthesia. In the present study, we conducted a survey to evaluate the implementation rate of PACs and describe the current status of preoperative anesthesia assessment in Japanese teaching hospitals.

Materials and methods

A written questionnaire along with a cover letter explaining the purpose of the survey was sent to the anesthesia

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teaching hospitals certified by the Japanese Society of Anesthesiologists. There were 1,258 anesthesia teaching hospitals in Japan when this study was conducted in September 2013. A follow-up e-mail was sent to encourage survey response.

The questionnaire was designed to inquire about the implementation of the PAC. For hospitals with PACs, detailed information about the clinic was obtained. We asked for the reason if a hospital did not have a PAC.

Chi square test was performed to assess the ratio for written informed consent among the hospitals with or without PACs by SPSS version 21 on a Macintosh computer. $p < 0.05$ was determined as being significant.

Results

Completed questionnaires were received from 786 hospitals (response rate 62.5 %). Table 1 demonstrates the details of the respondent hospitals. Respondents included university hospitals (12.6 %, $n = 99$), public general hospitals (33.7 %, $n = 265$), private general hospitals (29.4 %, $n = 231$), and others (23.5 %, $n = 185$) including small hospitals and specialist centers.

PACs were established in 52.0 % ($n = 409$) of the respondent hospitals. They were more frequently present in hospitals that had a large number of beds, with a large

number of cases requiring anesthesia and that employed a large number of full-time anesthesiologists (Fig. 1). The clinic was open every day in 55.5 % ($n = 227$) of hospitals with a PAC. The majority of PACs were staffed with one anesthesiologist (80.7 %, $n = 328$) and one nurse (59.3 %, $n = 232$). On average, 13 patients were referred to the PAC daily (Table 2). Medical clerks (28.1 %, $n = 115$) and pharmacists (3.9 %, $n = 16$), while sometimes present, did not commonly work at the PACs.

Overall percentage of the hospitals obtaining written informed consent for anesthesia was 81.3 %. The percentage of hospitals obtaining written informed consent for anesthesia was significantly higher in hospitals that had a PAC (Table 3). In most of these hospitals, consent for anesthesia was obtained in the PAC (93.4 %, $n = 382$). Other medical interventions commonly performed in the PAC are described in Table 4.

The majority of anesthesiologists working at hospitals without PACs responded that they were unable to set up a

Table 1 Details of the hospitals that responded to the questionnaire

Number of anesthesia cases (April 2012–April 2013)	
≥ 6,000	28 (3.6)
4,000–5,999	65 (8.3)
2,000–3,999	217 (27.6)
1,000–1,999	223 (28.4)
500–999	141 (17.9)
≤ 499	88 (11.2)
Not indicated	24 (3.1)
Number of beds in the hospital	
≥ 1,000	25 (3.2)
800–999	35 (4.5)
500–799	174 (22.1)
300–499	294 (37.4)
100–299	222 (28.2)
1–99	29 (3.7)
Not indicated	7 (0.9)
Number of anesthesiologist	
≥ 11	86 (10.9)
5–10	202 (25.7)
2–4	357 (45.4)
1	141 (17.9)

Results are indicated as number (%)

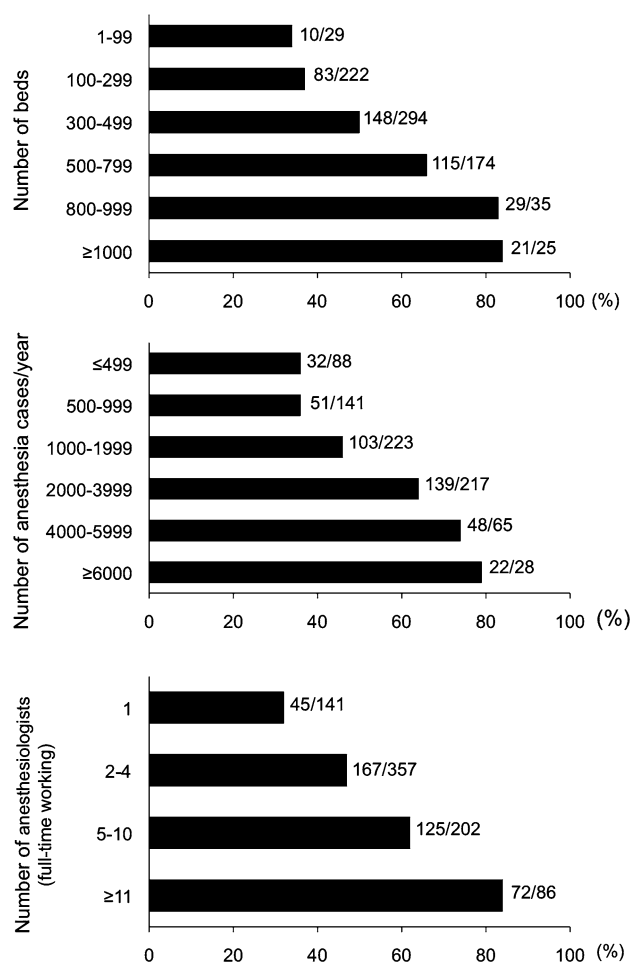


Fig. 1 Details of the hospitals with established PACs. Hospitals with a larger number of beds, conducting a large number of anesthesia cases and employing a large number of full-time working anesthesiologists more frequently had an established PAC

Table 2 Details of the PAC

Frequency per week (<i>n</i> = 409)	
1–2	92 (22.5)
3–4	68 (16.7)
5	227 (55.5)
6	22 (5.4)
Number of attending physicians (<i>n</i> = 404)	
1	328 (81.2)
2	51 (12.6)
3–4	20 (4.9)
≥ 5	5 (1.2)
Number of attending nurses (<i>n</i> = 391)	
0	87 (22.3)
< 1	11 (2.8)
1	232 (59.3)
2	45 (11.5)
3	10 (2.6)
4–5	6 (1.5)
Number of patients per day (<i>n</i> = 387)	
0–4	89 (23.0)
5–9	96 (24.8)
10–14	89 (23.0)
15–19	46 (11.9)
20–29	44 (11.4)
30–49	21 (5.4)
≥ 50	2 (0.5)

Results are indicated as number (%)

Table 3 Frequency of obtaining written informed consent for anesthesia

	Yes	No
Hospitals with PACs	368 (90.0)	41 (10.9)
Hospitals without PACs	280 (74.3)	97 (25.7)

Results are indicated as number (%). *p* < 0.01 by Chi squared test

PAC despite admittedly needing one (86.7 %), while the rest of the hospitals (13.5 %) responded that the PAC was not required (Fig. 2a). The major obstacles in running a PAC were man-power shortage (79.5 %), lack of adequate space (35.8 %) and lack of consensus by other sections of the hospital (14.4 %) (Fig. 2b). There was a negative correlation between the PAC implementation ratio and annual anesthetic case per one full-time anesthesiologist (Fig. 2c).

Discussion

The main findings of this study are (1) half of anesthesia teaching hospitals in Japan use PACs for preoperative anesthesia checks, (2) most of the PACs in Japan perform

Table 4 Details of the intervention performed in the PAC

Interventions	
Obtaining consent	382 (93.4)
Medical history taking	400 (97.8)
Physical examination	340 (83.1)
Review of preoperative medications	373 (91.2)
Review of laboratory tests and ordering of more, if required	314 (76.8)
Prescription of daily drugs on the day of surgery	203 (49.6)
Ordering preoperative fasting period	339 (82.9)
Instructions for postoperative analgesic intervention	320 (78.2)
Smoking cessation counseling	245 (59.9)

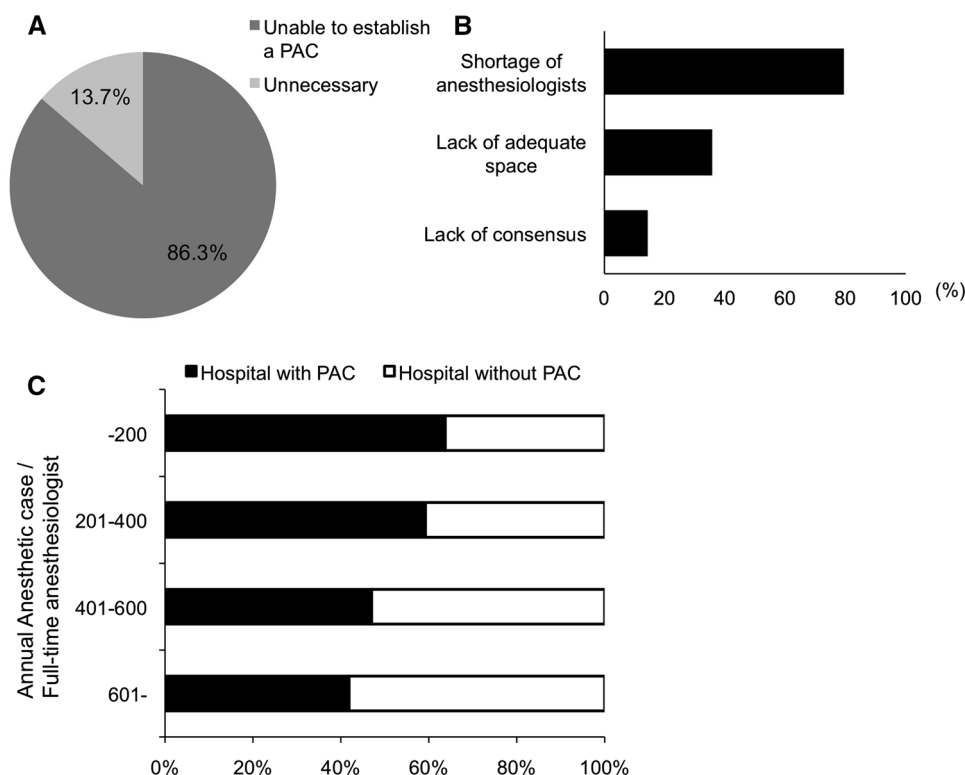
Results are indicated as number (%)

the preoperative procedures required for anesthesia, (3) a fairly large number of hospitals do not have PACs due to a shortage of human resources.

Our study is the first national survey conducted to investigate preoperative anesthesia management. The response rate of 62.5 % indicates that the present results adequately represent the current status of preoperative anesthesia management in Japan. Our study showed that the implementation rate of PACs in Japan is not high compared to that in European countries. In the Netherlands, the PAC implementation ratio was 74 % in 2004 [10]. In Japan, PACs are more frequently established in larger hospitals. Preoperative anesthesia evaluation would be complicated if a large number of patients receive preoperative assessments by many anesthesiologists. Our result that PACs are more commonly established in large hospitals probably reflect this, since preoperative anesthesia evaluations at these hospitals have been simplified by establishing the PAC.

The advantages of the PAC are reductions in the cancellation rate of surgery and decreases in the duration of hospital stay [4, 5, 8], by ensuring that all evaluations required before anesthesia are completed prior to admission. The vast majority of pre-anesthesia procedures, including medical history taking, physical examination, and laboratory test checking, are performed at the clinic. The percentage of Japanese teaching hospitals that required written informed consent for anesthesia before surgery in our survey was 81.3 %, which is an increase from 47.5 % in 2005 [11]. Our survey demonstrates that written informed consent is achieved more frequently in the hospital with the PAC. More than 90 % of PACs obtain informed consent suggesting that the PAC is a convenient place to obtain informed consent. It worth to note, however, that 70 % of hospitals without PACs obtain informed consent, suggesting that PAC is not essential for the anesthetic informed consent. It is widely accepted that the preoperative period is a “teachable moment” for smoking

Fig. 2 **a** Details of the hospitals that did not have PACs. Majority of the anesthesiologists working at hospitals without PACs responded that they were unable to set up a PAC although they knew it would be useful. **b** The major reason for this was a shortage of anesthesiologists. **c** Relationship between the PAC implementation ratio and annual anesthetic cases per one full-time working anesthesiologist. $p < 0.05$ by Chi squared test



cessation [12]. Two prospective studies demonstrated the effectiveness of PAC-based counseling on smoking cessation [13, 14]. Counseling for smoking cessation is performed in 60 % of PACs in Japan.

Notably, 85 % of anesthesiologists who work at hospitals without PACs believe that the PAC would be useful for preoperative assessment. The main reason for their inability to implement PACs is a shortage of human resources, which is similar to the results of a national survey conducted in the Netherlands in 2004 [15]. This is in accordance with our observation that there is a lower implementation ratio of the PAC in a hospital with a large number of annual anesthetic cases per one anesthesiologist. In Japan, PACs are typically conducted by one anesthesiologist with one nurse, and there is rarely a medical clerk or pharmacist. The implementation rate of PACs in the Netherlands significantly increased after publication of national guidelines for preoperative evaluation [10]. Development of Japanese guidelines for preoperative assessments and economic incentives from medical insurance companies would facilitate the implementation of PACs in Japan.

In conclusion, we conducted the first survey on the current practice of preoperative anesthesia assessment in Japan. PACs are established in 52.0 % of the teaching hospitals in Japan. Most PACs take care of the preoperative processes required before receiving anesthesia. Shortage of

human resources is the main obstacle to the establishment of PACs.

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Conflict of interest The authors do not have any conflict of interest to declare.

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