

Assessment of Risk Variables in the Post-Anesthesia Care Unit of a Tertiary Care Hospital in Dhaka

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Abstract

Original Research Article

Background: In a location apart from the regular intensive care unit (ICU), the postanesthetic care unit (PACU) provides postoperative high-dependency or intense care for high-risk surgical patients. Therefore, it meets the population's well-documented need for better postoperative care. **Objectives:** The aim of the study was to Assess the risk variables in the post-anesthesia care unit of a tertiary care hospital in Dhaka. **Methods:** This cross-sectional descriptive study was carried out in the Department of anesthesiology, Uttara Adhunik Medical College Hospital, during October 2020 to September 2021. A total of 100 patients were participate in this study. Patients underwent tonsillectomy, hysterectomy, caesarean section, and laparoscopic cholecystectomy, both male and female were included in this study. Patients who have not given consent to participate in the study were excluded from the study. Statistical Packages for Social Sciences (SPSS-26), where required. **Results:** About 40% patients were male and 60% were female. 80% of the patients were under ASA classification-1, 15% under ASA classification-2 and 5% were under ASA classification ≥ 3 . Here, 22.22% patients had pre-existing co-morbidity of respiratory, CVS neurological disease respectively. 30% had DM. Only 3.33% and more than 1 pre-existing co-morbidity. 94.20% patients had no risk of surgery and only 5.80% patients were under risk of surgery. About 40% patients stayed 60-120 minutes in the post anesthesia care unit, 30% patients stayed 120-180 minutes in the post anesthesia care unit, 20% patients stayed 180-240 minutes in the post anesthesia care unit and 10% patients stayed ≥ 240 minutes in the post anesthesia care unit. 5% patients had develop complication in the post anesthesia care unit for 1-2 hours, 32% for 2-3 hours, 20% for 3-4 hours and 25% for more than 4 hours. **Conclusion:** The main reasons for a prolonged stay in the post-anesthesia care unit are perioperative cardiovascular and respiratory adverse behaviours. The suggested scale of hazards, problems, and nursing interventions should be applied in real life to validate it.

Keywords: Post-Anesthesia, Risk Variable, Surgery.

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INTRODUCTION

In a location apart from the regular intensive care unit (ICU), the postanesthetic care unit (PACU) provides postoperative high-dependency or intense care for high-risk surgical patients. Therefore, it meets the population's well-documented need for better postoperative care. It offers a clinical setting in which interventions targeted at enhancing results, lowering morbidity, and consequently shortening length of stay, may be put into practice [1]. The idea of the PACU is based on the example provided by cardiac surgery, when high-risk patients with numerous comorbidities undergo major surgery with a coronary artery bypass grafting death rate of just 1.5% in 2008. In this scenario, the fact that all patients receive highly protocolized care, including routine admission to a Level 2 or 3 environment postoperatively, is probably

responsible for at least some of the low mortality for such a high-risk surgery [2]. The post-anesthesia care unit is expensive in terms of resources like staff and equipment. The personnel cost is determined by the number of nurses, doctors, and patients per nurse [3]. The initial prices of tools and ongoing costs of disposables depend on the level of activity monitoring is necessary. These costs can be greatly decreased by shortening the length of stay in the post-anesthesia care unit [4]. In an observational study, Seago *et al.*, identified age, the use of painkillers in the post-anesthesia care unit, the length of the procedure, and the reactions of the respiratory, cardiovascular, and pain systems in the immediate postoperative period as risk factors for prolonged Length of hospital Stay (LOS) [5]. Organisational factors have also been crucial predictors in the study. The primary reason for the prolonged stay was identified by Samad *et al.*, as the need for

postoperative monitoring, which was evidenced by the absence of beds for extraordinary care, pain treatment, a delay in the healing of a regional block, and unanticipated postoperative ventilation [6]. Reintubation after extubation failure during conventional anaesthesia is referred to as postoperative reintubation (POR). Acute airway compromise, postoperative cardiac, respiratory, or mental state issues are only a few examples of the indications for POR [7]. Numerous earlier studies investigated POR hazard factors in patients undergoing various types of surgery under general anaesthesia. However, the study results remain incredibly debatable because of the restricted pattern dimension and demography. Thus the aim of the study was to Assess the risk variables in the post-anaesthesia care unit of a tertiary care hospital in Dhaka

MATERIALS AND METHODS

This cross-sectional descriptive study was carried out in the Department of anesthesiology, Uttara Adhunik Medical College Hospital, during October 2020 to September 2021. A total of 100 patients were participate in this study. Patients underwent tonsillectomy, hysterectomy, caesarean section, and laparoscopic cholecystectomy, both male and female were included in this study. Patients who have not given consent to participate in the study were excluded from

the study. After taking consent and matching eligibility criteria, data were collected from patients on variables of interest using the predesigned structured questionnaire by interview, observation. Statistical analyses of the results were be obtained by using window based Microsoft Excel and Statistical Packages for Social Sciences (SPSS-26), where required.

RESULT

Table 1: Distribution of patients by age

Age Distribution	N=100	%
11-20	20	20
21-30	30	30
31-40	20	20
41-50	15	15
51-60	10	10
≥60	5	5

Table-1 shows that 20% of the patients were aged between 11-20 years of age , 30% were aged between 21-30 years of age, 20% were aged between 31-40 years of age, 15% were aged between 41-50 years of age, 10% were aged between 51-60 years of age and 5% had more than 60 years of age.

Figure-1 shows that about 40% patients were male and 60% were female.

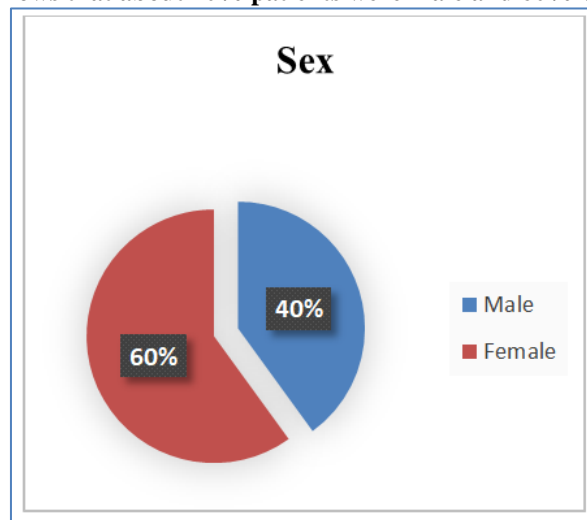


Figure 1: Distribution of patients by Sex

Table 2: Distribution of the patients according to ASA Classification

ASA Classification	N=100	%
1	80	80
2	15	15
≥3	5	5

Table -2 shows that 80% of the patients were under ASA classification-1, 15% under ASA

classification-2 and 5% were under ASA classification ≥3.

Table 3: Distribution of the patients according to Pre-existing Co-morbidity

Pre-existing Co-morbidity	N=90	%
Respiratory	20	22.22
CVS	20	22.22
Neurological	20	22.22
Endocrine (DM)	27	30
>1 Co-morbidity	3	3.33

Table-3 shows that 22.22% patients had pre-existing co-morbidity of respiratory, CVS neurological disease respectively. 30% had DM. Only 3.33% and more than 1 pre-existing co-morbidity.

Figure-2 shows that 94.20% patients had no risk of surgery and only 5.80% patients were under risk of surgery.

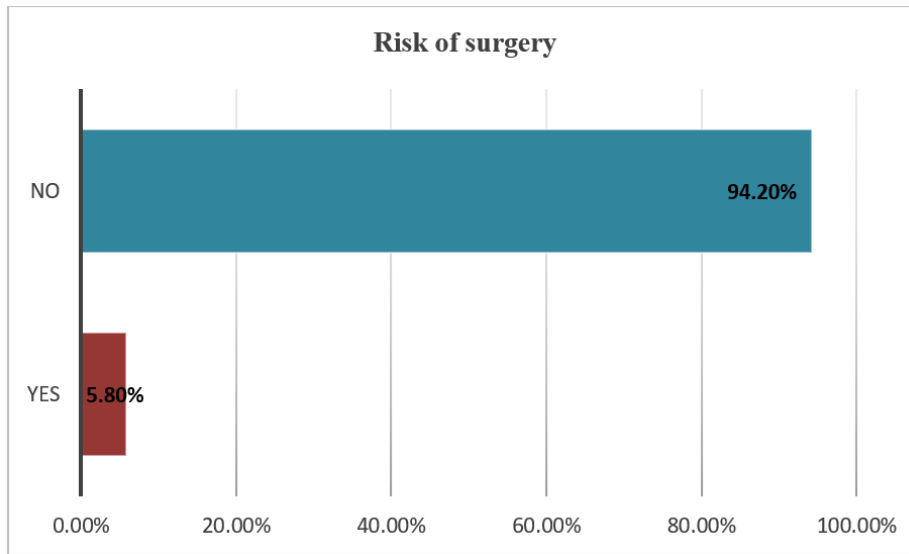


Figure 2: Distribution of the patients according to Risk of surgery

Figure-3 shows that 40% patients stayed 60-120 minutes in the post anesthesia care unit, 30% patients stayed 120-180 minutes in the post anesthesia

care unit, 20% patients stayed 180-240 minutes in the post anesthesia care unit and 10% patients stayed ≥ 240 minutes in the post anesthesia care unit.

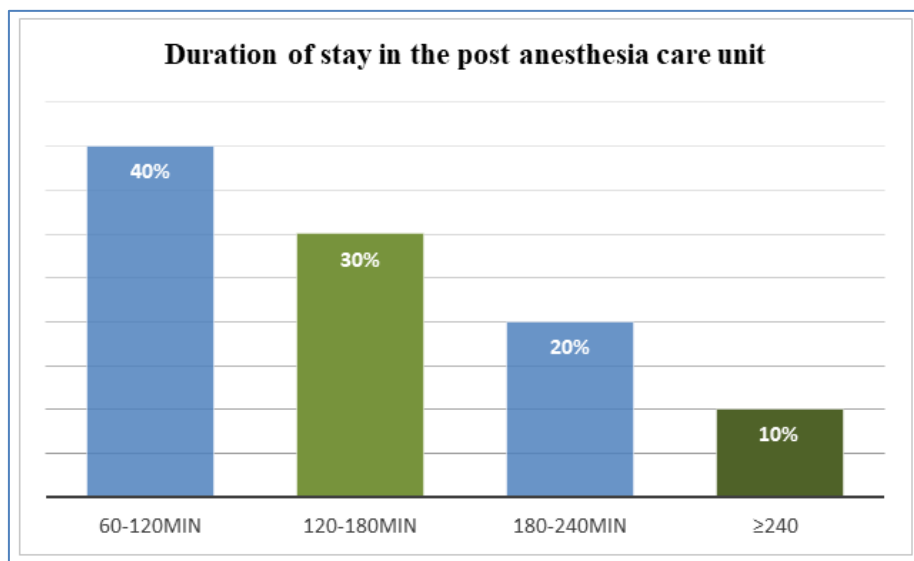


Figure-3: Distribution of the patients according to duration of stay in the post anesthesia care unit

Table-4: Duration of post anesthesia care unit with complication

Duration of post anesthesia care unit (hour)	Complication		P value
	Yes	No	
1-2	5%	4%	0.23
2-3	32%	30%	0.05
3-4	20%	20%	0.017
≥4	25%	21%	0.231

Table-4 shows that 5% patients had develop complication in the post anesthesia care unit for 1-2 hours, 32% for 2-3 hours, 20% for 3-4 hours and 25% for more than 4 hours.

DISCUSSION

Today's surgery and anaesthesia are safer than ever before because to persistent scientific advancements. However, this does not indicate that there is no risk. In truth, anaesthesia and surgery are inherently risky, and as with any treatment or operation, there is always a chance that something could go wrong [8]. Due to their age, medical circumstances, or the type of surgery they are having, certain patients are more likely than others to experience complications, problems, and possibly even death. There are ways to lower your risk if you plan to have surgery, such as consulting with your anesthesiologist [9, 10]. In our study 20% of the patients were aged between 11-20 years of age , 30% were aged between 21-30 years of age, 20% were aged between 31-40 years of age, 15% were aged between 41-50 years of age, 10% were aged between 51-60 years of age and 5% had more than 60 years of age. About 40% patients were male and 60% were female. This findings are similar with a previous study [11].

In this current study 80% of the patients were under ASA classification-1, 15% under ASA classification-2 and 5% were under ASA classification ≥3. Extended Post-Anesthesia Care Units are still more common in patients who were older, had high ASA levels, and were released later in the day [11].

Our study shows that, 22.22% patients had pre-existing co-morbidity of respiratory, CVS neurological disease respectively. 30% had DM. Only 3.33% and more than 1 pre-existing co-morbidity. 94.20% patients had no risk of surgery and only 5.80% patients were under risk of surgery. 40% patients stayed 60-120 minutes in the post anesthesia care unit, 30% patients stayed 120-180 minutes in the post anesthesia care unit, 20% patients stayed 180- 240 minutes in the post anesthesia care unit and 10% patients stayed ≥240 minutes in the post anesthesia care unit. According to Mann-Farrar *et al.*, patients who stay longer in the post-anesthesia care unit for medical reasons are more likely to have clinical deterioration in the ward than patients

who move out of the post-anesthesia care unit during their stay [12].

Preoperative factors like age > 60, male gender, diabetes, and obesity as well as operative factors like emergency surgery and longer surgery times (> hours) were confirmed by Rose *et al.*, to increase the risk of essential respiratory events, post-anesthesia care unit stay, and cardiac-related problems [13- 15]. Extended stays in the post-anesthesia care unit have been necessitated by the history of hypertension and the requirement for antihypertensive medications in this setting [10]. Additionally, we observed that individuals with a history of hypertension had a higher incidence of postoperative cardiovascular harmful behaviors. The second most common reason for an extended Post Anaesthesia Care Unit stay (32% of the total) was surgical [16]. In their study, Cowie *et al.*, found that the lack of ward mattresses, together with the absence of post-anesthesia care unit nurses and ward nurses, were the most common causes of prolonged stays in the post-anesthesia care unit. To reduce prolonged Post-Anesthesia Care Unit stays and unforeseen ward admissions, we would propose improving communication among various specialists [17].

Our study revealed that, 5% patients had develop complication in the post anesthesia care unit for 1-2 hours, 32% for 2-3 hours , 20% for 3-4 hours and 25% for more than 4 hours. Although several European hospitals have advocated against delivering NMDB reversal marketes, there is currently enough evidence to no longer recommend this practice [18]. Even though the majority of anesthesiologists automatically supplied a reversal medication, some may have utilised subjective standards. Due to a shorter time gap between the last dosage of NMDB and the end of surgery, or a more severe than predicted neuromuscular block, patients who took neostigmine were most likely already at an increased risk of developing RNMB (Residual Neuromuscular Block) [19].

CONCLUSION

The main reasons for a prolonged stay in the post-anesthesia care unit are perioperative cardiovascular and respiratory adverse behaviours. The suggested scale of hazards, problems, and nursing interventions should be applied in real life to validate it.

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