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Original Research Article

Evaluation of Risk Factors in the Post-Anesthesia Care Unit of a Tertiary Care Hospital

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Abstract: ***Background:*** Surgery and anesthesia are safer nowadays than ever before, thanks to persevering with advances in science. But this doesn't suggest there is zero risk. In fact, surgical treatment and anesthesia are inherently dangerous, and as with any medicine or procedure, there is constantly the chance that something can go wrong. Certain patients are greater probably to experience problems or issues and perchance even death than others due to the fact of their age, clinical conditions, or the kind of surgical treatment they're having. If you're planning to have surgery, there are approaches to decrease your risk, including meeting with your anesthesiologist. ***Objectives:*** The aim of this study is to assess the Evaluation of risk factors in the post-anesthesia care unit of a tertiary care hospital. ***Methods:*** This is an observational study. The study used to be carried out in the admitted patient's department of anesthesiology, Monno Medical College and Hospital, Manikgonj, Bangladesh. The duration of the study period from July 2020 to June 2021. ***Results:*** This study shows that the according to age of 110 Patients aged 10 to 60 years. Here according to Age distribution, 11(10.0%) were <10, 5(4.54%) were 11-20, 21(19.09%) were 21-30, 22(20.0%) were 31-40, 37(33.64%) were 41-50, 8(7.27%) were 51- 60 and 6(5.45%) were >60. And according to gender 57(51.82%) were Male, 53(48.18%) were Female. ***Conclusions:*** Perioperative cardiovascular and respiratory damaging activities are the principal motives for extended remain in Post anesthesia care unit. Post anesthesia care unit as triggering elements for problems in the instant postoperative period: hypothermia, hypoxemia, pulmonary edema; apnea, tremors, nausea and vomiting; urinary retention, modifications in coronary heart rhythm.

Keywords: Anesthesia, risk factor, post anesthesia care unit, surgery, complication.

INTRODUCTION

Post anesthesia care unit (Post anesthesia care unit) requires costs in phrases of space, personnel and equipment. The numbers of nurses and doctors and nurse to patient ratio determines the personnel cost [1]. The stage of activities monitoring required influences the capital expenses for tools and running costs for disposables. By

lowering the recuperation instances in Post anesthesia care unit, these charges can significantly be reduced [2]. Post anesthesia care unit size of continue to be (LOS) is viewed as a medical indicator and typically two hours are taken as benchmark time due to the fact research have proven that patients gain a satisfactory discharge rating at some stage in 1st two hours of postoperative period in majority of cases.

Seago *et al.,* in an observational study mentioned risk factors for extended LOS in Post anesthesia care unit which protected age, use of pain medications in Post anesthesia care unit, duration of surgery, respiratory, cardiovascular and pain responses in postoperative period [3]. Organizational elements have been additionally essential predictors in the study. Samad *et al.,* confirmed most important cause for extended continue to be as want for postoperative monitoring observed by means of unavailability of extraordinary care beds, pain management, delayed healing from regional block and unplanned postoperative ventilation [4]. The goal of this study about was to evaluate the incidence and risk factors for prolonged LOS in Post anesthesia care unit.

Postoperative reintubation (POR) refers to intubation after extubation failure following typical anesthesia. Indications for POR vary from acute airway compromise to postoperative cardiac, respiratory or mental status complications [5]. Given the wide range of medical scenarios, the timing of POR after surgical treatment varies from occurring immediately after extubation in the running room to after various postoperative days. POR is nonetheless a considerable unfavourable event after general anesthesia the use of endotracheal intubation seeing that it has negative consequences for the patient, along with longer intensive care unit (ICU) length of stay (LOS), greater associated morbidity and mortality [6]. Therefore, it is necessary to stop the incidence of POR in patients following GA.

The reasons of POR can be divided into respiratory reasons and non-respiratory causes. The former encompass hypoxia, respiratory muscle weakness, muscle relaxant residue, airway obstruction, phrenic nerve injury, to title a few, whilst the latter include accidental catheter prolapse, hemodynamic imbalance, sudden alternate of operation, to identify a few [7]. Many preceding research have explored POR threat elements in patients undergoing different types of surgery under general anesthesia. However, due to constrained pattern dimension and demographics, the learn about outcomes stay exceedingly controversial.

METHODS

This is an observational study. The study used to be carried out in the admitted patient's Department of anesthesiology, Monno Medical College and Hospital, Manikgonj, Bangladesh. The duration of the period from 2020- 2021. This study was carried out on 110 patients the find out about the population including male and female patients in the Department of anesthesiology, Monno Medical College and Hospital, Manikgonj, Bangladesh. The medical Anesthesiologist and the surgeon were primarily involved in the decision-making process. The choice of treatment was made by the patient after a full discussion with the multidisciplinary team consisting of anesthesiologist and surgeons.

The data for this study about had been accumulated from patients' medical information and radiographs. Statistical evaluation of the results used to be got via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

RESULTS

Table-I: Distribution of patients by age (n=110)

Age Distribution	n=110	%
<10	11	10.0
11-20	5	4.54
21-30	21	19.09
31-40	22	20.0
41-50	37	33.64
51-60	8	7.27
>60	6	5.45

Table I demonstrated the age of 110 Patients aged <10 to >60 years. Here according to Age distribution, 11(10.0%) were <10, 5(4.54%) were 11-20, 21(19.09%) were 21-30, 22(20.0%) were 31-40, 37(33.64%) were 41-50, 8(7.27%) were 51- 60 and 6(5.45%) were >60.

Table -II: Distribution of the patients by sex (n=110)

Sex Distribution	n=110	%
Male	57	51.82
Female	53	48.18

The total study population was 110 patients, according to gender 57(51.82%) were Male, 53(48.18%) were Female.

Table-III: Distribution of the patients according to ASA Classification

ASA Classification	n=110	%
1	82	74.55
2	19	17.27
≥3	9	8.18

Table III demonstrated the distribution of the patients according to ASA Classification. Here according to ASA Classification 82(74.55%) were 1, 19(17.27%) were 2 and 9(8.18%) were ≥3.

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

Pre-existing Co-morbidity	n=67	%
Respiratory	4	3.63
CVS	6	5.45
Neurological	3	2.72
Endocrine (DM)	20	29.85
RVI	19	17.27
>1 Co-morbidity	15	22.38

The total study population was 110 patients, according to Pre-existing Co-morbidity the Respiratory, CVS, Neurological, Endocrine (DM), RVI and >1 Co-morbidity were 4(3.63%), 5(5.45%), 3(2.72%), 20(29.85%), 19(17.27%) and 15(22.38%) respectively.

Table-V: Distribution of the patients according to Risk of surgery.

Intraoperative Complication presence	n=110	%
Yes	4	3.64
No	106	96.36

Table V demonstrated the patients according to Risk of surgery. Here according to Intraoperative Complication presence, yes were 4(3.64%) and were No 106(96.36%).

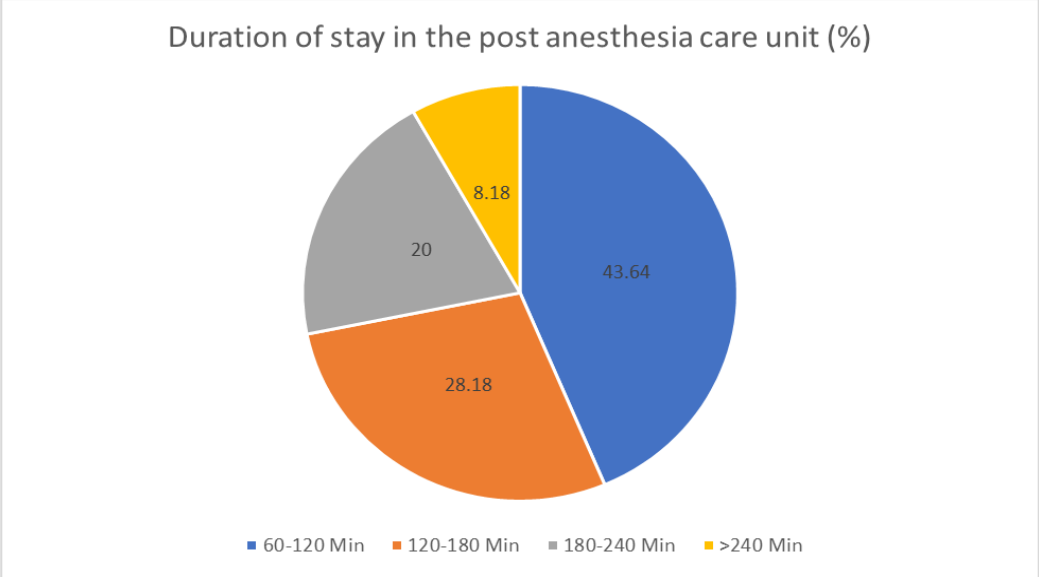

Fig. I: Distribution of the patients according to duration of stay in the post anesthesia care unit

Figure I demonstrated the patients according to duration of stay in the post anesthesia care unit. Here, 43.64 were 60-120 Min, 28.18% were 120-180 Min, 20% were 180-240 Min and 8.18% were >240 Min.

Table VI: Duration of post anesthesia care unit with complication

Duration of post anesthesia care unit (hour)	Complication		p-value
	No	Yes	
1-2	6	4	
2-3	40	38	0.27
3-4	20	24	0.050
>	21	25	0.018

Table V demonstrated the patients according to Duration of post anesthesia care unit with complication. When complication is Yes 1-2 were 6%, 2-3 were 40% and 3-4 were 20%. And when complication is No 1-2 were 4%, 2-3 were 38% and 3-4 were 24%. The P-value of 2-3 and 3-4 were 0.27 and 0.050.

DISCUSSION

Surgery and anesthesia are safer nowadays than ever before, thanks to persevering with advances in science. But this doesn't imply there is zero risk. In fact, surgical procedure and anesthesia are inherently dangerous, and as with any medicine or procedure, there is constantly the danger that something can go wrong [8]. Certain patients are extra probably to ride issues or problems and maybe even death than others due to the fact of their age, scientific conditions, or the kind of surgical operation they're having. If you're planning to have surgery, there are approaches to decrease your risk, inclusive of assembly with your anesthesiologist [9, 10]. In this study, according to age of 110 Patients aged 10 to 60 years. Here according to Age distribution, 11(10.0%) were <10, 5(4.54%) were 11-20, 21(19.09%) were 21-30, 22(20.0%) were 31-40, 37(33.64%) were 41-50, 8(7.27%) were 51- 60 and 6(5.45%) were >60. And according to gender 57(51.82%) were Male, 53(48.18%) were Female.

Delayed discharges and transfers end result in congestion and bottleneck at a number of levels alongside perioperative care [12]. Mann-Farrar *et al.,* concluded that patients having extended stays in Post anesthesia care unit due to clinical motives tend to advance clinical deterioration in ward greater often than patients with movements Post anesthesia care unit stay [13]. Also, extended Post anesthesia care unit continue to be occurred extra in patients who had been older, had high ASA, and have been discharged later in the day. Rose *et al.,* confirmed that preoperative elements like age > 60 years, male gender, diabetes and obesity, and operative elements like emergency surgical procedure and surgical operation with longer period (> hours), resulted in accelerated danger of essential respiratory events, Post anesthesia care unit remain and greater cardiac associated problems [14-16]. A retrospective evaluation with the aid of Toby *et al.,* [10] revealed PONV as the most frequent event related with extended Post anesthesia care unit stay. History of hypertension and the need for antihypertensive medicinal drug in Post anesthesia care unit have been additionally necessary motives for extended Post anesthesia care unit stays.

Our present study shows that, according to ASA Classification. Here according to ASA Classification 82(74.55%) were 1, 19(17.27%) were 2 and 9(8.18%) were ≥3. Here, the Pre-existing Co-morbidity the Respiratory, CVS, Neurological, Endocrine (DM), RVI and >1 Co-morbidity were 4(3.63%), 5(5.45%), 3(2.72%), 20(29.85%), 19(17.27%) and 15(22.38%) respectively. And according to Intraoperative Complication presence, yes were 4(3.64%) and were No 106(96.36%).

We additionally seen that incidence of postoperative cardiovascular damaging activities used to be extra frequent in patients with records of hypertension. Surgical motives have been the second most frequent cause as 32% of complete extended Post anesthesia care unit stay [17]. Non-medical motives or administrative motives had been accounted for only eight instances which used to be no longer steady with findings by using Samad *et al.,* and Cowie *et al.,* [18, 19]. Cowie *et al.,* in their find out about noted that the most frequent motives for extended remain in Post anesthesia care unit had been non-availability of ward mattress accompanied with the aid of non- availability of Post anesthesia care unit nurses and ward nurses. We will advise to enhance communication amongst different specialties to limit extended Post anesthesia care unit stays and unplanned ward admissions [20]. It is additionally necessary to diagram postoperative care for patients who are viewed at greater hazard of extended Post anesthesia care unit continue to be based totally on our study.

Our study demonstrated the patients according to duration of stay in the post anesthesia care unit. Here, 43.64 were 60-120 Min, 28.18% were 120-180 Min, 20% were 180-240 Min and 8.18% were >240 Min. And our study also demonstrated the Duration of post anesthesia care unit with complication. When complication is Yes 1-2 were 6%, 2-3 were 40% and 3-4 were 20%. And when complication is No 1-2 were 4%, 2-3 were 38% and 3-4 were 24%. The P-value of 2-3 and 3-4 were 0.27 and 0.050.

Many European hospitals have pronounced the exercise of now not administering NMDB reversal marketers then again there is presently adequate proof to no longer advise this practice [21], health facility is frequent exercise to use reversal agents in all patients as popular of care. This may also account for the clinically RNMB incidence of 30% observed. Many elements' contributions to RNMB, such as demographic variables such as history of continual obstructive lung disease, the type and length of surgery, main stomach and thoracic surgical operation and use of lengthy lasting NMBD [22]. The encapsulation of rocuronium via sugammadex may want to have a have an impact on

in reducing the charge of RNMB and in CRE. Preliminary evidence indicates that sugammadex is no longer related with RNMB in the Post anesthesia care unit.

The incidence of CRE in this learns about used to be 26%. Patients with RNMB introduced a greater incidence of CRE in contrast to patients with enough neuromuscular recovery [23]. This can be defined by using the many hazard elements for CRE as already stated. Interestingly, the proportion of patients receiving neostigmine was once greater in the RNMB group than in the group with ample neuromuscular recovery [24]. Although most of the anesthesiologists automatically administered a reversal drug, some would possibly have used subjective criteria. Patients who acquired neostigmine have been in all likelihood already at a greater chance of creating RNMB (due to a shorter time interval when you consider that the remaining dose of NMBD and the stop of surgery, or a greater profound than suspected neuromuscular block) [25]. On the different hand, patients with a longer time interval considering that the remaining dose of NMBD and the cease of surgical treatment may additionally have now not obtained neostigmine. This may have led to the administration of the reversal drug extra regularly in patients who have been sure to have RNMB anyway [26]. Two different associations have been found. First, the patients who underwent high-risk surgical procedure introduced a greater incidence of RNMB in the Post anesthesia care unit. Second, patients with RNMB had been greater hypoactive in the Post anesthesia care unit. Abdominal surgical procedure is a chance issue related with hypoactive emergence. In this way, abdominal surgical procedure may be linked to the affiliation observed between high-risk surgical operation and the incidence of RNMB and additionally with the reality that patients with RNMB have been greater susceptible to strengthen hypoactive emergence [27].

The consequences of the RNMB delaying Post anesthesia care unit discharge are tough to consider and depend on individual institutional elements along with staffing models, Post anesthesia care unit measurement and availability of ward beds [28]. The Post anesthesia care unit for all patients that may also be defined by means of the existence of intermediate level surgical units the place the patients had been discharged. This partially can also explain the truth that there had been no variations in Post anesthesia care unit size of stay.

CONCLUSION

Perioperative cardiovascular and respiratory detrimental activities are the most important motives for extended remain in Post anesthesia care unit. Post anesthesia care unit as triggering elements for problems in the instant postoperative period: hypothermia, hypoxemia, pulmonary edema; apnea, tremors, nausea and vomiting; urinary retention, adjustments in heart rhythm, arterial hypertension; hypotension, respiratory depression; bleeding; pain; and surgical positioning. Proposed scale of complications, risks and nursing interventions should be validated with its practical application.

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