

## Complications of General Anesthesia in Different Surgeries in Bangladesh

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### Abstract:

**Background:** A popular anesthetic technique utilized in many surgical techniques is general anesthesia. Many of these procedures are lifesaving or life-altering and would not be possible without general anesthesia. Even with expert performance, there is always a chance of difficulties with medical operations. The patient's age, overall lifestyle, and health status all influence the severity and frequency of these problems. Even while utilizing general anesthesia is thought to be safe, there are certain drawbacks. **Objective:** The aim of this study is to evaluate the Complications of General Anesthesia in Different Surgeries in Bangladesh. **Methods:** The cross-sectional observational study was conducted in the Popular Medical College Hospital, Dhaka, Bangladesh, from January 2018 to December 2018. A total of 68 patients were enrolled and analyzed in this study. The questionnaire was pretested, corrected and finalized. Data were collected by face-to-face interview and analyzed by appropriate computer based programmed software Statistical Package for the Social Sciences (SPSS), version 24. **Results:** In this study, maximum study subjects 29 (42.6%) were in >60 years age. Mean age of the study subjects was  $51.2 \pm 9.2$  years and most of the patients 41 (60.3%) were male and 27 (39.7%) were female. About 32 (47.1%) patients BMI were in between 25.0 – 29.9 kg/m<sup>2</sup>, 23 (33.8%) patients BMI in between 18.5 – 24.9 kg/m<sup>2</sup> and 13 (19.1%) of the patients were overweight (>30 kg/m<sup>2</sup>). Mean  $\pm$  SD of the study subjects was  $25.13 \pm 3.12$  kg/m<sup>2</sup>. The period of complaint prior to surgery was 1 – 2 months of 28 (41.2%) patients, >2 months of 27 (39.7%) patients and  $\leq$  1 month of 13 (19.1%) patients. Mean  $\pm$  SD of the period of complaint was  $1.1 \pm 0.12$  months. Among 68 patients, 13 (19.1%) had diabetes and 18 (26.5%) had hypertension. About 5 (7.4%) patients reported prior surgical interventions and 63 (92.6%) patients had no history of previous surgery. Majority of the cases were with ASA 1 status which was 36 (52.9%). In 32 (47.1%) cases the length of anesthesia was found as 61-120 minutes and in 14 (20.6%) cases that length was observed as 121-180 minutes. Blood loss of 22 (32.4%) patients was in between 111 – 120 ml and mean blood loss was  $121.76 \pm 13.81$  ml. Most of the patients 56 (82.4%) average length of stay in the hospital was 1 – 2 days. Mean  $\pm$  SD of the average length of stay was  $2.2 \pm 1.1$  days. Prophylactic antibiotics required for 60 (88.2%) patients. pain in operated place and dry mouth/increased thirst were found in 54 (79.4%) and 51 (75.0%) cases. Somnolence was found in 43 (63.2%) cases. On the other hand, disorder of consciousness 17 (25.0%), weakness and pain of muscles 21 (30.9%), nausea and vomiting 22 (32.4%), headache 25 (36.8%) and sore throat/hoarseness 28 (41.2%) were found separately. Besides these, breathing problems, urination problems and feeling cold/chills were observed in some cases. **Conclusion:** Although general anesthesia is generally a reliable method of guaranteeing the patient's safety and comfort during surgery, it is nonetheless linked to some issues that need to be identified and addressed. To minimize unintended complications, a contentious evolution in the general anesthetic process is required.

**Key words:** General Anaesthesia, Surgery, Complications, Pain, Unconsciousness.

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### I. Introduction:

Although general anesthesia is generally safe, there are certain risks and consequences associated with its usage. In order for the patient to undergo general anesthesia and perhaps need a ventilator during surgery, a breathing tube must be inserted. This is due to the fact that general anesthesia drugs block all of the body's muscles,

including those that are responsible for breathing, in addition to rendering the patient unconscious and unable to experience the agony of surgery. These complications might be mild or serious post-operative difficulties, or they can be prompt perioperative problems such as anesthetic anaphylaxis.

The number of people having surgeries increases yearly. Many of these individuals have several comorbidities and are older. Patients can get surgical operations in a safe and compassionate manner thanks to general anesthesia, a reversible condition of unconsciousness. While general anesthesia is becoming more and more safe, there are still dangers and problems. Over the previous 50 years, there has been a notable decrease in the incidence of mortality associated to anesthesia. General anesthesia-related morbidity can range from modest side effects that have no lasting effects on the patient's experience to serious side effects that cause permanent incapacity.

The most frequent problems are respiratory and cardiovascular in nature. There is a chance of myocardial infarction, disruption of lung mechanics, and aggravation of preexisting comorbidities. Acute renal impairment and the emergence of chronic postoperative cognitive dysfunction are two more grave consequences. Dental damage, sore throats, and postoperative nausea and vomiting are minor but significant side effects of general anesthesia. All of these issues may have a major effect on patients and increase the likelihood of an extended hospital stay and associated costs. Many of the possible side effects of general anesthesia can be anticipated and avoided by being aware of them. To identify risk variables and stratify patients for preoperative planning and optimization, a thorough preoperative assessment is essential.

Minor complications such as sore throat, hoarseness, chills, feeling chilly, sleeplessness, headache, breathing issues, muscular discomfort, post-operative nausea and vomiting, and dental damage are frequently experienced. Postoperative nausea and vomiting (PONV) are defined as nausea and vomiting that subsides within 24 hours of the operation [1]. With the exception of pain, it is the most typical complaint in the postoperative phase. Although the incidence is roughly 30% in all individuals, in high-risk patients it rises to 70% [2]. Patients who experience postoperative nausea and vomiting (PONV) may experience morbidity as a result of suture tightness or rupture, aspiration pneumonia, blockage, and dehydration of the airways [3].

It raises expenses and keeps patients from being discharged too soon [4]. According to a study, the most common side effects of general anesthesia include lung damage, brain damage, psychosis, nerve injury, cardiovascular collapse, and neurologic side effects. These are atypical side effects of general anesthesia. Numerous drugs, operations using general anesthesia, and the overall health of the patient can all lead to various problems.

In order to prevent major damage, additional complications, hospital care, or even death, it is critical for nurses to be able to react and recognize changes. It is reasonable to speculate that a "stress free" perioperative period may attenuate or prevent any harmful physiologic responses and decrease resulting morbidity [6].

Numerous researchers have noted a decrease in anesthesia-related morbidity and mortality rates throughout time, which has been linked to numerous safety enhancements. This includes improvements in monitoring methods, training advancements, the creation and widespread application of practice evidence-based guidelines, and other methodical approaches to error reduction like airway management tools, checklists and procedures, peer review and knowledge sharing, drug labeling, teamwork, and simulation [7–11].

## II. Methodology:

The cross-sectional observational study was conducted in the Popular Medical College Hospital, Dhaka, Bangladesh, Bangladesh, from January 2018 to December 2018. A total of 68 patients were enrolled and analyzed in this study. Patients who matched the inclusion and exclusion criteria were approached for participation in the study. Patients who were not willing to give consent were excluded. Purposive sampling was done according to the availability of the patients who fulfilled the selection criteria. Face to face interview was done to collect data with a semi-structured questionnaire. After collection, the data were checked and cleaned, followed by editing, compiling, coding, and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. Statistical evaluation of the results used to be obtained via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

## III. Result:

**Table I: Baseline Distribution of the patients (n = 68)**

Age (years)	Frequency	%
20 - 30	4	5.9
31 -40	7	10.3
41 - 50	9	13.2
50 - 60	19	27.9
>60	29	42.6

	Mean ± SD	51.2 ± 9.2	
<b>Sex</b>			
Male		41	60.3
Female		27	39.7
<b>Body Mass Index (kg/m<sup>2</sup>)</b>			
18.5 – 24.9		23	33.8
25.0 – 29.9		32	47.1
>30		13	19.1
<b>Period of complaint (months)</b>			
≤ 1 month		13	19.1
1 – 2 months		28	41.2
>2 months		27	39.7
<b>Total</b>		68	100.0
<b>Mean ± SD</b>		1.1 ± 0.12	

Table I shows that, maximum study subjects 29 (42.6%) were in >60 years age. Mean age of the study subjects was 51.2 ± 9.2 years. Table shows that, most of the patients 41(60.3%) were male and 27 (39.7%) were female. Table shows that, 32 (47.1%) patients BMI were in between 25.0 – 29.9 kg/m<sup>2</sup>, 23 (33.8%) patients BMI in between 18.5 – 24.9kg/m<sup>2</sup> and 13 (19.1%) of the patients were overweight (>30kg/m<sup>2</sup>). Mean±SD of the study subjects was 25.13 ± 3.12kg/m<sup>2</sup>. Table shows that, the period of complaint prior to surgery was 1 – 2 months of 28 (41.2%) patients, >2 months of 27(39.7%) patients and ≤ 1 month of 13 (19.1%) patients. Mean ± SD of the period of complaint was 1.1 ± 0.12 months.

**Table II: Distribution of the patients according to co morbidities and previous surgery and ASA status (n = 68)**

Comorbidities	Frequency	%
Diabetes Mellitus	13	19.1
Hypertension	18	26.5
<b>Previous surgeries</b>		
Yes	5	7.4
No	63	92.6
<b>ASA status</b>		
	Frequency	%
ASA I	36	52.9
ASA II	21	30.9
ASA III	9	13.2
ASA IV	2	2.9
<b>Total</b>	68	100.0

Table II shows that, among 68 patients, 13(19.1%) had diabetes and 18(26.5%) had hypertension, Table shows that, 5(7.4%) patients reported prior surgical interventions and 63 (92.6%) patients had no history of previous surgery. Table III shows that; majority of the cases were with ASA 1 status which was 36 (52.9%). Besides this 21 (30.9%), 9 (13.2%) and 2 (2.9%) cases were with ASA II, ASA III and ASA IV status respectively.

**Table III: Distribution of the patients according to surgical specialty and surgical risk grade (n = 68)**

Surgical specialty	Frequency	%
Gynecology	32	47.1
Orthopedics	21	30.9
Ear, nose & throat	13	19.1
Oncology	2	2.9
<b>Surgical risk grade</b>		
	Frequency	%
Minor	7	10.3
Intermediate	53	77.9
Major	8	11.8
<b>Total</b>	68	100.0

Table III shows that, in 32 (47.1%), 21 (30.9%), 13 (19.1%) and 2 (2.9%) cases surgeries of Gynecology, Orthopedics, Ear, nose & throat: ENT and Oncology were performed by using general anesthesia respectively. Table shows that, majority of the cases were with intermediate surgical risk grade which was found in 53 (77.9%) cases.

**Table IV: Distribution of the patients according to average operative time and use of length of anesthesia (n = 68)**

Operative time (minutes)	Frequency	%
30 - 45	20	29.4
46 - 60	16	23.5
61 - 75	14	20.6
76 - 90	11	16.2
>90	7	10.3
<b>Total</b>	68	100.0
<b>Mean ± SD</b>	38.17 ± 10.12	
Length of anesthesia (min)	Frequency	%
Up to 60	9	13.2
61 - 120	32	47.1
121 - 180	14	20.6
181 - 240	8	11.8
> 240	5	7.4
<b>Total</b>	68	100.0

Table IV shows that, operating time of 20 (29.4%) patients was in between 30 – 45 minutes and average operative time was 38.17 ± 10.12minutes. Table shows that, in 32 (47.1%) cases the length of anesthesia was found as 61-120 minutes and in 14 (20.6%) cases that length was observed as 121-180 minutes.

**Table V: Distribution of the patients according to blood loss and average length of stay (n = 68)**

Estimated blood loss (ml)	Frequency	%
100 - 110	13	19.1
111 - 120	22	32.4
121 - 130	16	23.5
131 - 140	10	14.7
>140	7	10.3
<b>Mean ± SD</b>	121.76 ± 13.81	
Average length of stay (days)	Frequency	%
<24 h	7	10.3
1 - 2	56	82.4
3 - 4	3	4.4
>4	2	2.9
<b>Total</b>	68	100.0
<b>Mean ± SD</b>	2.2 ± 1.1	

Table V shows that, blood loss of 22 (32.4%) patients was in between 111–120 ml and Mean±SD blood loss was 121.76±13.81 ml. Table shows that, most of the patients 56 (82.4%) average length of stay in the hospital was 1 – 2 days. Mean ± SD of the average length of stay was 2.2 ± 1.1days.

**Table VI: Distribution of the patients according to use of prophylactic antibiotics (n = 68)**

Use of prophylactic antibiotics	Frequency	%
Yes	60	88.2
No	6	8.8
<b>Total</b>	68	100.0

Table VI shows that, prophylactic antibiotics required for 60 (88.2%) patients

**Table VII: Distribution of the patients according to type of complication (n = 68)**

Type of complication	Frequency	%
Pain in operated place	54	79.4
Dry mouth/increased thirst	51	75.0
Somnolence	43	63.2
Sore throat, hoarseness	28	41.2
Headache	25	36.8
Nausea and vomiting	22	32.4
Weakness and pain of muscles	21	30.9
Disorder of consciousness	17	25.0

Feeling cold, chills	12	17.6
Urination problems	9	13.2
Breathing problem	8	11.8

Table VII shows that, pain in operated place and dry mouth/increased thirst were found in 54 (79.4%) and 51 (75.0%) cases. Somnolence was found in 43 (63.2%) cases. On the other hand, disorder of consciousness 17 (25.0%), weakness and pain of muscles 21 (30.9%), nausea and vomiting 22 (32.4%), headache 25 (36.8%) and sore throat/hoarseness 28 (41.2%) were found separately. Besides these, breathing problems, urination problems and feeling cold/chills were observed in some cases.

#### IV. Discussion:

In developing nations, general anesthesia (GA) is still a high-risk procedure [12-13]. The high number of diseases, the lack of supplies and medications, the infrastructure, and the human resources all present significant problems for the profession [14-16]. The situation in Sub-Saharan Africa is also getting worse due to a seriously broken healthcare system. To enhance the anesthetic outcome, however, sufficient infrastructure, knowledgeable anesthesiologists, and the use of good cleanliness are essential [17-19].

The cross-sectional observational study was conducted in the Popular Medical College Hospital, Dhaka, Bangladesh, from January 2018 to December 2018. A total of 68 patients were enrolled and analyzed in this study. In this study, maximum study subjects 29 (42.6%) were in >60 years age. Mean age of the study subjects was 51.2 ± 9.2 years and most of the patients 41 (60.3%) were male and 27 (39.7%) were female. About 32 (47.1%) patients BMI were in between 25.0 – 29.9 kg/m<sup>2</sup>, 23 (33.8%) patients BMI in between 18.5 – 24.9 kg/m<sup>2</sup> and 13 (19.1%) of the patients were overweight (>30 kg/m<sup>2</sup>). Mean ± SD of the study subjects was 25.13 ± 3.12 kg/m<sup>2</sup>. The period of complaint prior to surgery was 1 – 2 months of 28 (41.2%) patients, >2 months of 27 (39.7%) patients and ≤ 1 month of 13 (19.1%) patients. Mean ± SD of the period of complaint was 1.1 ± 0.12 months. Among 68 patients, 13 (19.1%) had diabetes and 18 (26.5%) had hypertension. About 5 (7.4%) patients reported prior surgical interventions and 63 (92.6%) patients had no history of previous surgery. In another study, among total 57 participants, 54% were male whereas the rest 46% were female. So male participants were dominating in number and the male-female ratio was 1.2:1. The highest number (n=28) of our patients were from >60 years age groups which was 38% besides this 20%, 15% and 12% were from 51-60, 41-50- and 31-40- years age groups respectively which were also noticeable. Uncomfortable postoperative ailments are heightened by the awakening of the patient with the tube in the throat (in the case of patients after endotracheal intubation) [20]

Majority of the cases were with ASA I status which was 36 (52.9%). Besides this 21 (30.9%), 9 (13.2%) and 2 (2.9%) cases were with ASA II, ASA III and ASA IV status respectively. In 32 (47.1%), 21 (30.9%), 13 (19.1%) and 2 (2.9%) cases surgeries of Gynecology, Orthopedics, Ear, nose & throat: ENT and Oncology were performed by using general anesthesia respectively. Majority of the cases were with intermediate surgical risk grade which was found in 53 (77.9%) cases. Operating time of 20 (29.4%) patients was in between 30 – 45 minutes and average operative time was 38.17 ± 10.12 minutes. In 32 (47.1%) cases the length of anesthesia was found as 61-120 minutes and in 14 (20.6%) cases that length was observed as 121-180 minutes. Blood loss of 22 (32.4%) patients was in between 111 – 120 ml and mean blood loss was 121.76 ± 13.81 ml. Most of the patients 56 (82.4%) average length of stay in the hospital was 1 – 2 days. Mean ± SD of the average length of stay was 2.2 ± 1.1 days. Prophylactic antibiotics required for 60 (88.2%) patients. In analyzing the ASA status of the participants, we observed that, majority of the cases were with ASA I status which was 53%. Besides this 33%, 12% and 2% cases were with ASA II, ASA III and ASA IV status respectively. In this study, majority of the cases were with intermediate surgical risk grade which was found in 84% cases. In this intervention, in 47% cases the length of anesthesia was found as 61-120 minutes and in 26% cases that length was observed as 121-180 minutes which were noticeable. In this study in 42%, 33%, 21% and 4% cases surgeries of Gynecology, Orthopedics, Ear, nose & throat: ENT and Oncology were performed by using general anesthesia respectively. Despite improvement in the understanding of the mechanisms of pain formation and the introduction of modern, safe analgesics and anesthesia techniques, the level of post-operative pain relief is not sufficient [21]. In a study it was reported that, in using general anesthesia, effective control should be multidimensional [22]. Responsibility for providing proper care in pain management after surgery depends heavily on the nurse [23].

Pain in operated place and dry mouth/increased thirst were found in 54 (79.4%) and 51 (75.0%) cases. Somnolence was found in 43 (63.2%) cases. On the other hand, disorder of consciousness 17 (25.0%), weakness and pain of muscles 21 (30.9%), nausea and vomiting 22 (32.4%), headache 25 (36.8%) and sore throat/hoarseness 28 (41.2%) were found separately. Besides these, breathing problems, urination problems and feeling cold/chills were observed in some cases. In another study revealed that as the complications of general anesthesia among our participants, we found somnolence, dry mouth/increased thirst and pain in operated place were found in more than

50% cases separately which were found in 67%, 79% and 82% cases respectively. On the other hand, in 25>50% cases disorder of consciousness (25%), weakness and pain of muscles (28%), nausea and vomiting (30%), headache (33%) and sore throat/hoarseness (37%) were found separately which was noticeable. Besides these, breathing problems, urination problems and feeling cold/chills were observed in some cases. In analyzing the complications among several age groups, we observed that, the frequencies of complications were more frequent in aged patients groups. Effective pain relief reduces the risk of further complications like nausea-vomiting, anxiety, thromboembolic processes or an increase in blood pressure [24]. Patients of this study reported a feeling of cold and/or chills in the post-operative room, immediately after the procedure. There were also measures to control the occurrence of hypothermia in patients [25]. In a study it was reported that, female was the most exposed to post-operative nausea and vomiting [26]. All the findings of this study may be helpful in further similar studies.

## V. Conclusion:

Although general anesthesia is generally a reliable method of guaranteeing the patient's safety and comfort during surgery, it is nonetheless linked to some issues that need to be identified and addressed. To minimize unintended complications, a contentions evolution in the general anesthetic process is required. To obtain more precise data, we would like to suggest carrying out additional research with a larger sample size.

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