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Original Article

Distribution of the Types of Anaesthesia Given Around the Year in A Tertiary Care Hospital

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Abstract

Background: *Anaesthesia is a state of controlled, temporary loss of sensation or awareness that is induced for medical or veterinary purposes. It may include some or all of analgesia, paralysis, amnesia and unconsciousness. An individual under the effects of anesthetic drugs is referred to as being anesthetized. Its roots and evolution, however, date back to centuries ago. Anaesthesia is one of the most significant developments of modern medicine that allows treatment involving unbearable pain to be performed while the person is relaxed, asleep, and with no memory of the procedure. Anaesthesia is either local in a specific area of the body, where the anesthetic drug is given in that area, or general anaesthesia that affects the entire body and is performed in major surgeries. In general anaesthesia, a drug is given that circulates in the bloodstream, causing the person to become unconscious. The objective of the study is to assess the types of anaesthesia given around the year in a tertiary care hospital.* ***Materials and Methods:*** *The cross-sectional study was conducted in Eastern Medical College and Hospital, Cumilla, Bangladesh for a period of 12 months starting from January to December 2023 with ethical clearance from respective IERB. The study population was the number of operations held. This study aimed to describe the type of anaesthesia used in different operations in Eastern Medical College Hospital in a calendar year.* ***Results:*** *In our study, we found discipline wise operation in a calendar year most of the operation was done in Gynaecology & Obstetrics (2,425) department then followed by Orthopedics (1,410), General Surgery (1,390), Eye (445), Pediatric Surgery (350) and ENT (330) department. Regarding the type of anaesthesia used in different operations, the regional anaesthesia 71% (4,533) was done in maximum cases and only 29% (1,852) cases general anaesthesia given. In the case of month wise distribution in August a maximum 11.56% (214) general anaesthesia and 10.61% (481) regional anaesthesia was given. In the Gynaecology & Obstetrics department, a maximum 80.54% (1,953) operation was done by regional anaesthesia (Sub Arachnoid Block (Spinal), epidural) and only 19.46% (472) operation was done by general anaesthesia.* ***Conclusion:*** *In a calendar year we found most of the operations were done in Gynaecology & Obstetrics department, according to type of anaesthesia in different operations in Eastern Medical College in a calendar year, the regional anaesthesia was done in maximum cases and General Anaesthesia given only a few cases.*

Key words: Anaesthesia, General Anaesthesia, Regional Anaesthesia.
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Introduction

Surgical anaesthesia is undoubtedly one of the greatest contributions to humankind. William TG Morton was the first man to administer an anesthetic publicly on 16 October 1846 in Massachusetts General Hospital, Boston[1]. Since that day, anaesthesia and Anaesthesiology have changed and evolved to become one of the major branches in the field of medicine. Anaesthesia is a medical procedure in which the patient is given certain medications that cause the patient to lose sensation and feeling. Anaesthesia is either local in a specific area of the body, where the anesthetic drug is given in that area, or general anaesthesia that affects the entire body and is performed in major surgeries. In general anaesthesia, a drug is given that circulates in the bloodstream, causing the person to become unconscious. This medication can be given into a vein, or it can be inhaled whereas regional anaesthesia occurs when a local anesthetic is injected into an area of the body around major nerve bundles. Spinal anaesthesia means anesthetic substance that is injected into the cerebrospinal fluid (CSF) in the subarachnoid space[2].

One of the newest fields of medicine that has advanced significantly is Anaesthesiology. Advances in surgery and anaesthesia go parallel to each other. The function of an anesthesiologist has

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expanded over the past thirty years, both inside and outside of conventional operation rooms. Anaesthesiologist plays a very critical role in intensive critical care units, trauma centers, pain clinics and as a member of resuscitation team all over the world[3-8]. The American Society of Anesthesiologists defines anesthesiologists as "the practice of medicine dedicated to the relief of pain and total care of surgical patients before, during, and after surgery[9]."

Developments in the area of anaesthesia contribute to successful surgical outcomes at a growing rate[10]. Numerous international studies have shown that, despite these advancements, society still knows very little about anaesthesia procedures and the roles and responsibilities of anesthetists[11,12]. Accurate clinical patient data is essential to perioperative management to guarantee the professional expectations and safety of anaesthesia and surgery. Over the past 50 years, perioperative mortality, including anaesthesia-related mortality, has declined, which is significant in developed countries, mainly because of new anaesthetics, improved monitoring equipment and training, availability of recovery rooms and improved airway management[13]. The use of general anaesthesia is generally harmless, but it may cause certain risks and complications. General anaesthesia requires the patient to have a breathing tube placed into trachea so they may be on a ventilator during surgery[14].

Regional anaesthesia is considered a safe technique and has gained worldwide popularity. It is reasonable to assume that different countries and cultures will choose different anesthetic techniques, which may account for the low demand for regional anaesthesia in developing nations[15]. Patient perioperative safety is a global medical priority, and perioperative mortality is an important indicator for evaluating the quality and safety of anaesthesia and surgery. Anaesthesia-related death is defined as a death that is entirely related to anaesthesia or partially related to anesthetic behavior. These deaths can be caused by several factors, such as anaesthesia, surgery, the progression of a disease, and the interactions between these factors. One of the first studies on peri-anaesthesia mortality was conducted in 1954, and the results showed that the anaesthesia-related mortality incidence was 64.05 per 100,000 anaesthesia procedures[16]. The risks associated with anaesthesia have progressively decreased, but the mechanisms of action of anesthetic drugs remain poorly understood. This lack of knowledge has limited the optimum use of drugs that are currently available and has slowed efforts to develop even safer anesthetics[17]. The aim of our study was to assess the type of anaesthesia used in different operations in Eastern Medical College in a calendar year.

Materials and Methods

The cross-sectional study was conducted in Eastern Medical College Hospital (EMCH), Cumilla, Bangladesh. The study population was the number of operations held. This study aimed to describe the type of anaesthesia used in different operations in Eastern Medical College Hospital in a calendar year. The descriptive and quantitative data were collected based on the aim of the study. This study was conducted for a period of 12 months starting from January to December 2023. Ethical approval of the study was taken from the Institutional Ethical Review Board (IERB) of EMCH. The study was conducted using a standard questionnaire to collect the data from the respondent. A paper-based questionnaire was developed according to the purpose of the study. After constructing a sample questionnaire, data was collected from the register book of Operation Theater. The data were then compiled and tabulated manually according to key variable in master sheet. Finally, data was analyzed in computer using MS Excel.

Results

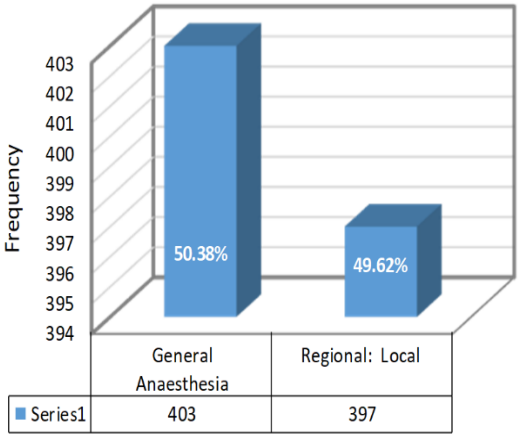

Figure-1: Distribution of the respondent according to type of anaesthesia used in ENT & Eye department in Eastern Medical College in a calendar year (n=800)

Table-I: Distribution of the respondent according to discipline wise operation at Eastern Medical College & Hospital in a calendar year (n=6,385)

Month	Gynae & Obs. n (%)	General Surgery n (%)	Pediatric Surgery n (%)	Orthopedics n (%)	ENT n (%)	Eye n (%)	Total n (%)
January	170 (7.01%)	90 (6.47%)	30 (8.57%)	115 (8.16%)	30 (9.09%)	50 (11.2%)	485 (7.60%)

February	225 (9.27%)	160 (11.5%)	20 (5.71%)	140 (9.93%)	35 (10.6%)	40 (8.99%)	620 (9.71%)
March	220(9%)	140 (10.1%)	25 (7.14%)	150 (10.6%)	35 (10.6%)	45 (10.1%)	660 (10.3%)
April	230 (9.48%)	120 (8.63%)	30 (8.57%)	90 (6.38%)	25 (7.58%)	35 (7.87%)	530 (8.30%)
May	230 (9.48%)	130 (9.36%)	35 (10%)	70 (4.96%)	30 (9.09%)	25 (5.62%)	520 (8.14%)
June	180 (7.24%)	100 (7.19%)	40 (11.4%)	130 (9.22%)	20 (6.06%)	30 (6.74%)	500 (7.83%)
July	205 (8.45%)	75 (5.40%)	45 (12.9%)	155 (11%)	25 (7.58%)	35 (7.87%)	540 (8.46%)
August	265 (10.9%)	190 (13.7%)	35 (10%)	140 (9.93%)	35 (10.6%)	30 (6.74%)	695 (10.9%)
September	180 (7.42%)	60 (4.32%)	30 (8.57%)	110 (7.80%)	30 (9.09%)	25 (5.62%)	435 (6.81%)
October	200 (8.23%)	150 (10.8%)	25 (7.14%)	95 (6.74%)	25 (7.58%)	60 (13.5%)	555 (8.69%)
November	180 (7.24%)	105 (7.55%)	20 (5.71%)	140 (9.93%)	35 (10.6%)	45 (10.1%)	525 (8.22%)
December	140 (5.77%)	70 (5.04%)	15 (4.29%)	75 (5.32%)	30 (9.09%)	35 (7.87%)	365 (5.72%)
Total	**2,425 (100%)**	**1,390 (100%)**	**350 (100%)**	**1,410 (100%)**	**330 (100%)**	**445 (100%)**	**6,385 (100%)**

Table-II: Distribution of the respondent according to type of anaesthesia used in different operations in Eastern Medical College & Hospital in a calendar year (n=6,385)

Month	General Anaesthesia n (%)	Regional Anaesthesia n (%)	Total Number of Operation n (%)
January	155 (8.37%)	330 (7.28%)	485 (7.60%)
February	190 (10.2%)	430 (9.49%)	620 (9.71%)
March	181 (9.77%)	434 (9.57%)	615 (9.63%)
April	156 (8.42%)	374 (8.25%)	530 (8.30%)
May	169 (9.13%)	351 (7.74%)	520 (8.14%)
June	116 (6.26%)	384 (8.47%)	500 (7.83%)
July	128 (6.91%)	412 (9.09%)	540 (8.46%)
August	214 (11.5%)	481 (10.6%)	695 (10.8%)
September	121 (6.53%)	314 (6.93%)	435 (6.81%)
October	153 (8.26%)	402 (8.87%)	555 (8.69%)
November	142 (7.67%)	383 (8.45%)	525 (8.22%)
December	127 (6.86%)	238 (5.25%)	365 (5.72%)
Total	**1,852 (100%)**	**4,533 (100%)**	**6,385 (100%)**

Table-III: Distribution of the respondent according to type of anaesthesia used in Gynaecology & Obstetrics department in Eastern Medical College & Hospital in a calendar year (n=2,425)

Types of Anaesthesia	Frequency	Percentage
General Anaesthesia	472	19.46
Regional: Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)	1,953	80.54
Total	**2,425**	**100**

Table-IV: Distribution of the respondent according to type of anaesthesia used in General Surgery department in Eastern Medical College & Hospital in a calendar year (n=1,390)

Types of Anaesthesia	Frequency	Percentage
General Anaesthesia	867	62.37
Regional: Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)	523	37.63
Total	**1,390**	**100**

Table-V: Distribution of the respondent according to type of anaesthesia used in Orthopedics department in Eastern Medical College & Hospital in a calendar year (n=1,410)

Types of Anaesthesia	Frequency	Percentage
General Anaesthesia	78	5.53
Regional: Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)	1,332	94.47
Total	**1,410**	**100**

Discussion

Regarding distribution of the respondent according to discipline wise operation at Eastern Medical College in a calendar year most of the operation was done in Gynae & Obs. (2,425) department then followed by Orthopedics (1,410), General Surgery (1,390), Eye (445), Pediatric Surgery (350) and ENT (330) department. In the Gynae & Obs. department the maximum number of operations was done in the month of August and that is 10.9% (265). In Orthopedics department maximum number of operations was done in July 11% (155), In February the maximum number of operations was done in General Surgery 11.5% (160), in case of Eye, Pediatric Surgery and ENT department the number of operations was done as follows October 13.5% (60), July 12.9% (45) and February, March, November 10.6% (35).

According to the type of anaesthesia used in different operations in Eastern medical college hospital in a calendar year, the regional anaesthesia (RA) 71% (4,533) was done in maximum cases and only 29% (1,852) cases General Anaesthesia given. In their study, Khokhar, et al.[18] revealed that out of the 25,246 patients who underwent cataract surgery over the course of a ten-year period, 2,883 (11.42%) needed general anaesthesia. Tawfeeq, et al[19]. found in their study that among 813 participants 54% had chosen spinal anaesthesia, 22% had chosen general anaesthesia and 24% had chosen neither. Yonekura, et al.[20] demonstrated that the percentage of all cesarean deliveries requiring general anaesthesia ranged from 3.9% in the clinical definition to 14.4% in the insurance definition. According to Habtu, et al.[21] research, sub gluteal sciatic block and intravenous RA were the least common forms of RA (8.5% each), whereas spinal anaesthesia (98.5%), caudal anaesthesia (72.3%), and axillary block (69.2%) were the most performed types.

In case of month wise distribution in August maximum 11.56% (214) General Anaesthesia and 10.61% (481) Regional Anaesthesia was given. In the Gynae & Obs. department maximum 80.54% (1,953) operation was done by Regional Anaesthesia [Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)] and only 19.46% (472) operation was done by General Anaesthesia. In the General Surgery department 62.37% (867) operation was done by General Anaesthesia and only 37.63% (523) operation was done by Regional Anaesthesia [Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)]. In the ENT & Eye department 50.38% (403) operation was done by General Anaesthesia and 49.62% (397) operation was done by Regional Anaesthesia [Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)]. In the Orthopedics department maximum 94.47% (1,332) operation was done by Regional Anaesthesia [Subarachnoid Block (Spinal), epidural, caudal, Nerve block (Supra clavicular and Axillary Brachial Plexus Block)] and only 5.53% (78) operation was done by General Anaesthesia.

Conclusion

In a calendar year we found most of the operations were done in Gynaecology & Obstetrics department, according to type of anaesthesia in different operations in Eastern Medical College. Most cases underwent regional anaesthesia, with only a small number requiring general anaesthesia.

Conflict of interest

The authors declared that they have no conflict of interest.

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