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A drug profile pattern of anaesthetics in various surgical specialities in tertiary care hospital

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ABSTRACT

The preoperative period is a stressful experience for majority of the patients undergoing surgery. However, in the current practice the major objective of anaesthetic medication is to ensure comfort of the patient. Here by this study is to analyze and compare pattern of anesthetic medication use in various surgical specialties and compare the pattern of type of anaesthesia used. Data was collected retrospectively from inpatient records of major surgeries in the Department of Surgery, Orthopedics, Obstetrics and Gynecology (Ob.G), Ear-Nose-Throat (ENT) and Ophthalmology at MIMS and Teaching Hospital Mandya. Descriptive analysis was used to analyze the data. Microsoft Excel and Microsoft word was used for analysis of data.

Keywords Anaesthesia, Surgeries, Surgical specialities, Orthopedics, Obstetrics and Gynecology, Ear-Nose-Throat, Ophthalmology

INTRODUCTION

Anaesthesia is defined as a state of temporary induced loss of sensation or awareness. It may include analgesia (relief from or prevention of pain), paralysis (muscle relaxation), amnesia (loss of memory) or unconsciousness[1]. Major concerns during surgical procedures include anxiety among patients, post-operative pain, post- operative nausea and vomiting and the risk of aspiration pneumonitis. Preanaesthetic medicines are generally given to avoid the adverse events associated with general anaesthesia, facilitate surgery and reduce the risk of post-operative complications[2,]. The preoperative preparation of a patient for anaesthesia and surgery includes both psychologic and pharmacologic components. The psychologic aspect of preoperative preparation is provided by the anaesthesiologist's visit and interview. In addition a wide spectrum of pharmacologic agents [e.g., barbiturates, benzodiazepines, major tranquilizers, opioid (narcotic) analgesics, anticholinergics, histamine

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H_2-blockers, gastro kinetic drugs] are administered to facilitate the process of preoperative preparation[3] Anaesthesia usually involves a loss of memory and awareness, along with insensitivity to painful stimuli, during a surgical procedure. Many drugs aid anaesthesiologists in the management and comfort of their patients during the perioperative period. These compounds vary in their chemical and physical characteristics and in their usual routes of administration.

Contemporary anaesthetic management requires:

i. Rapid loss of consciousness, which eliminates awareness, memory of pain, anxiety, and stress throughout the surgical period;
ii. A level of analgesia sufficient to abolish the reflex reactions to pain, such as muscular movement and cardiovascular stimulation;
iii. Minimal and reversible influence on vital physiological functions, such as those performed by the cardiovascular and respiratory systems;
iv. Relaxation of skeletal muscle to facilitate endotracheal intubation, provide the surgeon ready access to the operative field, and reduce the dose of anaesthetic required to produce immobility;
v. Lack of operating room safety hazards, such as flammability and explosiveness;
vi. Prompt patient recovery to psychomotor competence, facilitating the clinician's assessment of the patient and the patient's ability to become physiologically self-supporting[4].

TYPES OF ANAESTHESIA

There are three main categories of anaesthesia, each having many forms and uses. They are:

1. General anaesthesia
2. Regional anaesthesia
3. Local anaesthesia

In general anaesthesia, a person is unconscious and have no awareness or other sensations. There are a number of general anaesthetic drugs - some are gases or vapors inhaled through a breathing mask or tube and others are medications introduced through a vein. In regional anaesthesia, the anaesthesiologist makes an injection near a cluster of nerves to numb the area of the person's body that requires surgery. He/She may remain awake, or may be given a sedative, either way he/she do not see or feel the actual surgery taking place. There are several kinds of regional anaesthesia; the two most common are spinal anaesthesia and epidural anaesthesia. In local anaesthesia, the anaesthetic drug is usually injected into the tissue to numb just the specific location of a person's body requiring minor surgery[5].

MATERIALS AND METHODOLOGY

Study Design: This was a retrospective study. was conduct

Site of the study: The study ed in MIMS and teaching hospital, Mandya. It is a 650 bedded hospital which provides specialized health services to all groups of people in and around Mandya, in addition to rural community. The study was conducted in the ENT, Ophthalmology, Surgery, Orthopedics & Ob.G department of MIMS and teaching hospital.

Source of data: Data were collected from the patient's case records and treatment chart.

Sample: Records of in-patients aged 18 years or more, both male & female patients who had undergone surgery in the department of ENT, Ophthalmology, Surgery, Orthopedics & Ob.G in MIMS and teaching hospital, Mandya.

Sample Size: The sample size is 404 including all departments.

Study Approval: The study was approved by Institutional Ethics Committee, MIMS and teaching hospital Mandya.

Criteria for sample collection

Inclusion Criteria: Records of in-patients aged 18 years or more, both male & female patients who had undergone surgery in the above cited surgical specialties of MIMS and teaching hospital, Mandya.

Exclusion Criteria: Records of in-patients less than 18 years, both male & female patients who had undergone surgery in the above cited surgical specialties of MIMS and teaching hospital, Mandya.

Study Procedure: The study was conducted in Mandya Institute of Medical Sciences and Teaching Hospital, Mandya. Eligible patients who have fulfilled the inclusion criteria from ENT, Ophthalmology, Surgery, Orthopedics & Ob.G departments were enrolled in the study. A suitably designed data collection form was used to collect the necessary data including patient's name, age, sex, address, department, diagnosis, list of preanaesthetic medications and including type of anaesthesia. The collected information were documented and subjected for analysis using suitable statistical method**.**

Analysis of results: For the analysis of the results, simple percentage calculation, mean and standard deviation were used to arrive at a conclusion of our study. Microsoft Word and Microsoft Excel are used to generate graphs and tables where ever required.

RESULTS

The Mandya Institute of Medical Sciences (MIMS) and Teaching Hospital Mandya and the various major and minor surgeries are performed during study period in inclusion departments. A total of 404 anaesthetic records were analyzed. The mean age of patients were 42.81 ± 20.32 years and demographics shown males (43.8%) and females (56.2%). In our study, patients received subarachnoid block (SAB) with local anaesthesia (67.8%) followed by general anaesthesia (14.3%), local anaesthesia (13.9%), brachial plexus block (BPB) (3.5%). 0.5%Bupivacaine followed by lignocaine, 2% xylocaine and proparacaine as and peripheral block (0.5%). Majority of the patients received anaesthesia and co- induction with isoflurane, vecuronium, adrenaline, thiopentane, neostigmine, propofol, clonidine and tramadol.

RESULT

Demographics: The study conducted in MIMS and Teaching Hospital, Mandya. Total 404 preanaesthetic records were analysed in various surgical departments, the mean age was 42.81 ± 17.72 years. 43.8% were male and 56.2% were female**. (**Table 1) (Figure.1)

Table 1: Patient's demographic characteristics

TOTAL NUMBER OF RECORDS		**404**
Age Mean (SD) 42.81 ± 17.72 years		
Gender	**Frequency (n)**	**Percentage (%)**
Male	**177**	**43.8**
Female	**227**	**56.2**

Surgical distribution of gender among various specialties: The study conducted in various departments including surgery, orthopedics, Ob.G, ENT and ophthalmology in MIMS and teaching hospital, Mandya. The mean age and demographic characteristics of individualized surgical departments are represented (Table 2)(FIG.2)

Distribution of cases among various surgical specialities: Total 404 cases were collected in various five departments in our study and distribution of cases in department of surgery – 106 (26.3%), orthopedics – 97 (24%), Ob.G – 112 (27.7%), ENT – 53 (13.1%) and ophthalmology – 36 (8.9%) (Table 3) (Figure 3).

Distribution of surgeries performed among various surgical specialities: The MIMS and Teaching Hospital in Mandya is a 650 bedded hospital and the various major and minor surgeries are performed during study period in department of surgery, orthopedics, Ob.G, ENT and ophthalmology

Various surgeries performed in department of general surgery: The various surgeries carried out in the department of general surgery are represented in (Table 4)

Various surgeries per formed in department of orthopedics: The various surgeries carried out in the department of orthopedics are represented in Table 5.

Various surgeries performed in department of Ob.g, Ent and ophthalmology: The various surgeries carried out in the department of ENT, Ob.G and ophthalmology are represented in Table 6.

Distribution of anaesthesia among various surgical specialities: Various types of anaesthesia were used to perform surgeries in our hospital. The majority of patients received subarachnoid block with local anaesthesia (SAB) (67.8%) followed by general anaesthesia (14.3%), local anaesthesia (13.9%), brachial plexus block (BPB) (3.5%) and peripheral block (PB) (0.5%). SAB, BPB and PB are technique of regional anaesthesia (Table 07)(FIG.4)

In our study site, drug utilization pattern of anaesthesia vary with departments and with individual patients who undergo various surgeries. Majority of the patients received 0.5% Bupivacaine followed by lignocaine, 2% xylocaine and proparacaine as anaesthesia (Table 8)(Figure 4)

Table 2: Distribution of gender among various surgical specialties

Department	**Total no. of cases**	**Mean age (SD)**	**Gender**	
			Male	**Female**
Surgery	**106**	**38.6 ± 15.91**	**62**	**44**
Orthopedics	**97**	**52.0 ± 19.06**	**69**	**28**
Ob. G	**112**	**30.6 ± 10.88**	**00**	**112**
ENT	**53**	**36.6 ± 14.89**	**30**	**23**
Ophthalmology	**36**	**56.9 ± 14.30**	**16**	**20**

Table 03: Distribution of cases among various surgical specialities

	Surgery	Orthopedics	Ob. G	ENT	Ophthalmology	Total
Frequency (n)	106	97	112	53	36	404
Percent (%)	26.3	24.0	27.7	13.1	8.9	100

Table 4: Various surgeries performed in department of general surgery

CONDITION	N (%)	CONDITION	N (%)
Hernia	16 (16.5)	Phimosis	2 (1.9)
Appendicitis	12 (11.3)	Uteric calculus	5 (4.7)
Pilonidal sinus	6 (5.7).	Breast cancer	4 (3.8)
Diabetic foot	12 (11.3)	Hemorrhoids	2 (1.9)
Duodenal ulcer perforation with	5 (4.7)	Injected LSCS scar for exploration	1 (0.9)
Cholelithiasis	5 (4.7)	Fibrocystic lesion	1 (0.9)
Carcinoma bladder	4 (3.8)	Epididymis orchitic	1 (0.9)
Anal fistula	4 (3.8)	Pyrogenic granuloma	1 (0.9)
Bladder outlet obstruction	3 (2.8)	Balanitis xerotica obliterans	1 (0.9)
Gynecomastia	3 (2.8)	Leg varicose vein	2 (1.9)
Stricture urethra	3 (2.8)	Torsion of testis	1 (0.9)
Anal fissure with hemorrhoids	3 (2.8)	Lipoma in hypochondial region	1 (0.9)
Extensor tendon injury	4 (3.8)	Cellulitis lower limb	1 (0.9)
Hallow viscous perforation	2 (1.9)	Post traumatic nasal deformity	1 (0.9)

Table 5: Various surgeries performed in department of orthopedics

CONDITION	N (%)	CONDITION	N (%)
Volar barton – radius	3 (3.1)	Baker's cyst knee	3 (3.1)
Tibia - distal & plateau	8 (8.2)	Dislocation hip bone	3 (3.1)
IT – femur	18 (18.5)	Radial head	5 (5.1)
Bimalleolar	2 (2)	Hip replacement	10 (10.3)
Ganglion (L) below lateral malleus	2 (2)	Intercondylar facture	2 (2)
Supracondylar (R) humerus with	3 (3.1)	Humerus shaft	3 (3.1)
Patella	3 (3.1)	Intertrochanteric	1 (1)
Osteomyelitis	4 (4.1)	Metacarpal bone	1 (1)
Acromioclavicular joint AC	3 (3.1)	Displaced clavicle	2 (2)
Radius upper	5 (5.1)	Comminueted – IT	3 (3.1)
Mild shaft tibia	2 (2)	Bone dislocations	11 (11.3)

Table 6: Various surgeries performed in department of Ob. G, ENT and Ophthalmology

CONDITION	N (%)	CONDITION	N (%)
ENT		**OPTHALMOLOGY**	
Bilateral ethmoidal polyposis	3 (5.6)	Cataract (immature/ mature)	26 (72.2)
Follicular neoplasm of thyroid	6 (11.3)	Pseudo pterygium	10 (27.8)
Goiter surgery	8 (15.1)	**OB.G**	
Deviated nasal septum	15 (28.3)	LSCS (lower segment cesarean	78 (69.5)
Vocal cord polyp	2 (3.8)	Fibroid uterus with cervicitis	10 (8.9)
Chronic supportive otitis media	6 (11.3)	Uterine prolapse with cystoscope	12 (10.7)
Chronic adenotonsillitis	3 (5.6)	Uterine fibroid with complex	4 (3.6)

Nodular goiter	7 (13.2)	Cervical polyp	2 (1.8)
Malignancy hypopharynx	3 (5.6)	Complex cyst	2 (1.8)
		G2 ruptured ectopic pregnancy	2 (1.8)
		Torsion ovarian cyst	2 (1.8)

TABLE 7: Types of anesthesia used in various surgeries

	General anaesthesia	Local anaesthesia	Sub- arachnoid block	Brachial plexus block	Peripheral block
Frequency (n)	58	56	274	14	2
Percent (%)	14.3	13.9	67.8	3.5	0.5

TABLE.8: Types of anesthesia used in various surgeries

Department	Anaesthesia (%)				
	General anaesthesia	Local anaesthesia	SAB	BPB	PB
Surgery	14 (13.2%)	9 (8.5%)	81 (76.4%)	0 (0%)	2 (1.9%)
Orthopedics	2 (2%)	2 (2%)	79 (81.5%)	14 (14.3%)	0 (0%)
Ob. G	0 (0%)	0 (0%)	112 (100%)	0 (0%)	0 (0%)
ENT	44 (83%)	9 (17%)	0 (0%)	0 (0%)	0 (0%)
Ophthalmology	0 (0%)	36 (100%)	0 (0%)	0 (0%)	0 (0%)

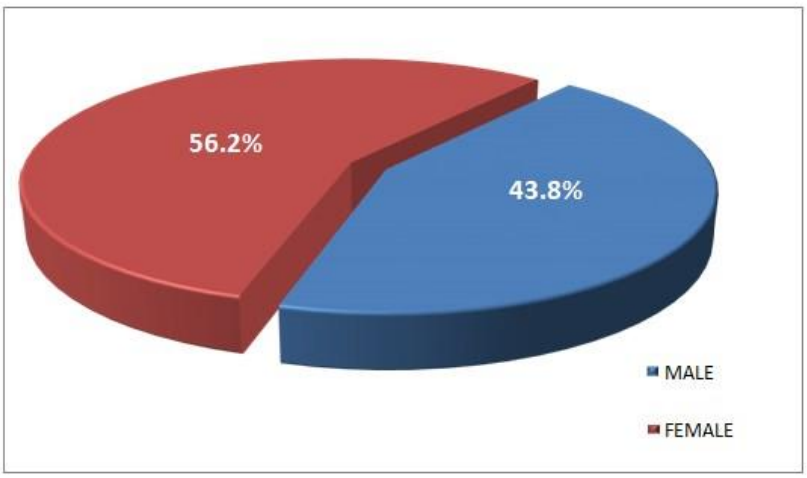

Fig 1: Distribution of gender among various surgical specialities

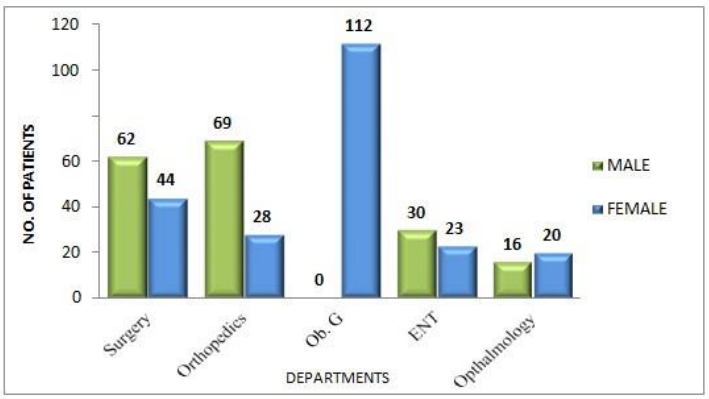

Fig.2: Distribution of gender among various surgical specialities

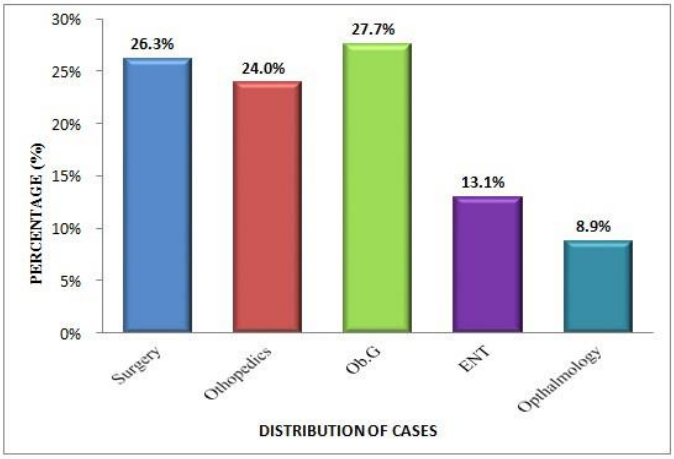

Fig.3: Distribution of cases among various surgical specialities

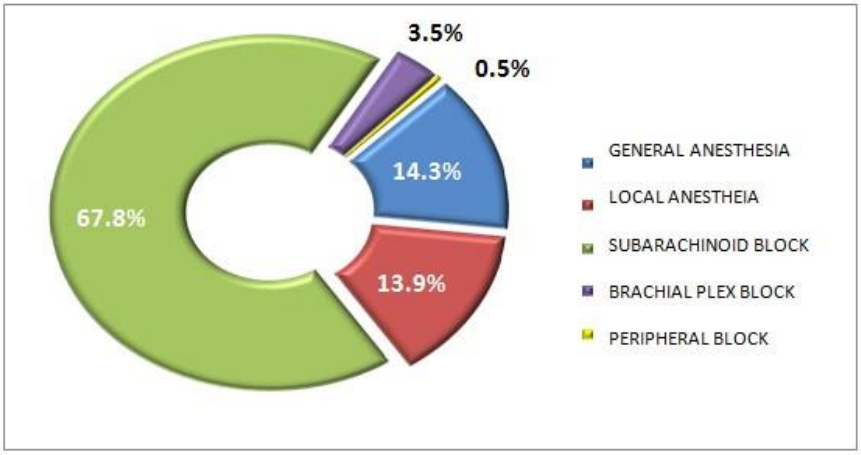

Fig.4: Types of anesthesia used in various surgeries

Conclusion

There is a great variability in utilization of anaesthetic drugs among the different departments. In our hospital majority of the patient received subarachnoid block (SAB) with local anesthesia because it is a safe and effective alternative to general anesthesia when the surgical site is located on the lower extremities and also it is having benefits ie, Less confusion after surgery, better pain relief, reduced need of pain killers, less impact on heart and lungs. The drug utilization pattern of anaesthesia varies with departments and with individual patients who undergo various surgeries. Majority of the patients received 0.5% Bupivacaine followed by lignocaine, 2% xylocaine and proparacaine as anaesthesia. Our study gives an insight into the current practice pattern of anaesthetics in various surgical specialties in a tertiary care hospital.

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