

ANAESTHETIC TECHNIQUES FOR OPHTHALMIC SURGERIES IN BENUE STATE UNIVERSITY TEACHING HOSPITAL (BSUTH):- A REVIEW OF 100 CONSECUTIVE CASES.

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ABSTRACT

Background: Historically, ophthalmic surgeries were first performed without anaesthesia and then under local anaesthesia because of the accessibility of the eye and the disastrous effects of coughing under general anaesthesia. Regional anaesthesia in form of retro-bulbar block, peri-bulbar block, sub-conjunctival block, sub-tenon anaesthesia as well as topical anaesthesia has become the most prevalent form of anaesthesia used globally for ophthalmic surgical procedures. In spite of the global trend of preferred use of regional anaesthesia and judging from its advantages, some ophthalmic procedures are carried out under general anaesthesia. The choice of anaesthesia for surgical procedure is influenced by the type of surgery intended, patient related factors and surgeon's preference. This study was carried out to ascertain the anaesthetic techniques employed for ophthalmic surgeries in the Benue State University Teaching Hospital (BSUTH), Makurdi. **Methodology:** A total of 100 consecutive case files of eligible patients were retrieved from the records department. Relevant information were extracted from the patients' folders and transferred into a prepared proforma. Data collected were analyzed using SPSS version 25 using simple statistics. **Results:** A total of 100 patients were evaluated. There appears not to be dominance by any age group. Nevertheless, the age bracket that recorded the highest number of patients is the one between 61 and 70 years with 17 accounting for 17% of the study population. Fifty-eight males and 42 females were evaluated making up 58% and 42% of the study population respectively. Of 108 indications for surgery, cataract was observed 36 times accounting for 33.3% of the variables. This was followed by glaucoma with 25 making up 23.1% and pterygium with 10, making up 9.2%. Also, of the 111 surgical procedures undertaken, trabeculectomy took place 25 times accounting for 22.5% of the variables. This was followed by the two cataract surgical procedures of small incision cataract surgery + posterior chamber intraocular lens (SICS+PCIOL) and extracapsular cataract extraction+posterior chamber intraocular lens (ECCE+PCIOL) which were undertaken 24 (21.6%) and 12 (10.8%) respectively. Of the 100 patients evaluated, 22 (22%) underwent general anaesthesia with tracheal intubation while the rest, 79 (79%), had their surgeries done under local or regional anaesthesia. **Conclusion:** This study demonstrates overwhelmingly that in Benue State University Teaching Hospital, the anaesthetic technique of choice for ophthalmic surgery is local/regional anaesthesia. General anaesthesia comes a distant second, being employed mostly in the paediatric age group and in patients with penetrating eye injury where retro-bulbar block is contraindicated.

INTRODUCTION

Historically, ophthalmic surgeries were first performed without anaesthesia and then under local anaesthesia because of the accessibility of the eye and the disastrous effects of coughing under general anaesthesia.¹

Ophthalmic surgeries are being increasingly performed under general anaesthesia because of patients' expectations and the ability to control the intraocular pressure (IOP).^[1]

Regional anaesthesia in form of retro-bulbar block, peri-bulbar block, sub-conjunctival block, sub-tenon anaesthesia as well as topical anaesthesia has become the most prevalent form of anaesthesia used globally for ophthalmic surgical procedures.^[2,3,4,5,6,7,8] Regional anaesthetic techniques exclude the need for some routine investigations like chest X-ray, ECG, as well as risk associated with general anaesthesia.^[9] In addition, they are more tolerable for elderly and ill patients. Also, they are cheaper and generally more useful for ambulatory procedures as need for recovery from general anaesthesia is eliminated.^[4,5,6,7,8,9,10]

General anaesthetic procedures on the other hand, provide globe/lid akinesia, and varying degrees of intraocular pressure changes depending on the agent used in patients who are asleep during the surgery.^[3,11] In spite of the global trend of preferred use of regional anaesthesia judging from its advantages, some ophthalmic procedures are carried out under general anaesthesia. The choice of anaesthesia for surgical procedure is influenced by the type of surgery intended, patient related factors and surgeon's preference.^[5,6,8]

This study was carried out to ascertain the anaesthetic techniques employed for ophthalmic surgeries in the Benue State University teaching Hospital (BSUTH), Makurdi.

METHODOLOGY

This was a retrospective study of 100 consecutive ophthalmic surgeries carried out with effect from January 2016 in ophthalmology theatre of BSUTH, Makurdi, a 360 bed hospital situated in the capital city of Benue State, North Central of Nigeria.

Ethical Considerations

The approval of the BSUTH research and ethical committee was sought and obtained.

Eligibility

Inclusion criteria

One hundred consecutive ophthalmic surgeries carried out in the Ophthalmology theatre in BSUTH starting from January 2016 were evaluated.

Exclusion Criteria

Surgeries other than ophthalmic were excluded.

Procedure

A total of 100 case files of eligible patients were retrieved from the records department of BSUTH after an application was approved. Relevant information were extracted from the patients' folders and transferred into a prepared proforma. Data collected include age, sex, pre-operative diagnosis, surgical procedure undertaken, whether the surgeries were on day-case basis or in-patient, anaesthetic technique employed, complications of the technique and the management of such

complications. The data so collected were analyzed using SPSS version 25 using simple statistics.

RESULTS

A total of 100 patients were evaluated.

Age distribution

There appears not to be dominance by any age group. Nevertheless, the age bracket that recorded the highest number of patients is the one between 61 and 70 years with 17 accounting for 17% of the study population. While the age groups between 0 and 10 years and the group between 21 and 30 years recorded 15 (15% each), the groups from 11 to 20 years, 51 to 60 years and 41 to 50 years recorded 13 (13%), 12 (12%) and 9 (9%) respectively. The least figures recorded were for the groups between 31 and 40 years as well as that between 81 and 90 years with 7 (7%) and 2 (2%) respectively. (tab.1).

Sex distribution

Fifty-eight males and 42 females were evaluated making up 58% and 42% of the study population respectively. (tab.1).

Pre-operative diagnosis

A total of 108 pre-operative diagnosis were recorded amongst these patients either singly or combination. Of these, cataract was observed 36 times accounting for 33.3% of the variables. This was followed by glaucoma with 25 making up 23.1%. While pterygium and retinoblastoma were observed 10 times (9.2%) and 4 times (3.7%) respectively, iris prolapse, corneoscleral laceration, squamous cell carcinoma and entropion were seen 3 times accounting for 2.8% of the variables each. Furthermore, cortical blindness, anterior chamber intraocular lens (ACIOL) extrusion, upper eyelid laceration, rhabdomyosarcoma and ankyloblepharon were encountered 2 times accounting for 1.9% of the variables each. (tab.2).

Mode of admission

Fifty-five of the patients underwent surgery on day-case basis while 45 were in-patients accounting for 55% and 45% of the study population respectively. (fig.1).

Surgical procedures undertaken

A total of 111 procedures were undertaken, again either singly or in combination. Of these trabeculectomy took place 25 times accounting for 22.5% of the variables. This was followed by the two cataract surgical procedures of small incision cataract surgery + posterior chamber intraocular lens (SICS+PCIOL) and extracapsular cataract extraction+posterior chamber intraocular lens (ECCE+PCIOL) which were undertaken 24 (21.6%) and 12 (10.8%) respectively. While pterygium excision was carried 10 times (9.0%), incisional biopsy was done 6 times (5.4%). Procedures undertaken 4 times (3.6%) each include examination under anaesthesia (EUA), corneoscleral repair, exenteration and iris abscission. Furthermore, while

excision was undertaken 3 times (2.7%), ankyloblepharon release, eyelid repair and ACIOL repositioning took place 2 times making up 1.8% each of the variables. (tab.3)

Anaesthetic techniques

Of the 100 patients evaluated, 22 (22%) underwent general anaesthesia with tracheal intubation while the rest, 79 (79%), had their surgeries done under local or regional anaesthesia. (fig.2).

In all, a total of 126 local or regional techniques were carried out either singly or in combinations. Of these

techniques the commonest employed were retro-bulbar block, sub-conjunctival block, topical local anaesthetic application, O'Brien technique and sub-tenon block with 36 (28.6%), 23 (18.3%), 21 (16.7%), 18 (14.3%) and 10 (7.9%) respectively. Furthermore, while peri-bulbar block and van Lint technique were employed 7 times (5.5% each), local infiltration was carried out 4 times making up 3.1% of the variables. (tab.4).

Complications of the anaesthetic technique.

No complication was recorded with any of the techniques used.

Table 1: Socio-demographic characteristics of patients (n=100).

Age group	Frequency	Percent
0-10	15	15.0
11-20	13	13.0
21-20	15	15.0
31-40	7	7.0
41-50	10	10.0
51-60	12	12.0
61-70	17	17.0
71-80	9	9.0
81-90	2	2.0
Sex		
Male	58	58.0
Female	42	42.0

Table 2: Indications for surgery (Multiple variable n = 108).

Variable	Frequency	Percent
Cataract	36	33.3
Glaucoma	25	23.1
Pterygium	10	9.2
Retinoblastoma	4	3.7
Iris prolapse	3	2.8
Corneoscleral laceration	3	2.8
Squamous cell carcinoma	3	2.8
Entropion	3	2.8
Cortical blindness	2	1.9
ACIOL extrusion	2	1.9
Upper eyelid laceration	2	1.9
Rabdomyosarcoma	2	1.9
Ankyloblepharon	2	1.9
Others	11	10.2

Table 3: Surgical procedures performed (Multiple variable n = 111).

Variable	Frequency	Percent
Trabeculectomy	25	22.5
SICS+PCIOL	24	21.6
ECCE+PCIOL	12	10.8
Pterygium excision	10	9.0
Incisional biopsy	6	5.4
EUA	4	3.6
Corneoscleral repair	4	3.6
Exenteration	4	3.6
Iris abscission	4	3.6

Excision	3	2.7
Ankyloblepharon release	2	1.8
Eyelid repair	2	1.8
ACIOL repositioning	2	1.8
Others	9	8.1

Table 4: Local/Regional Techniques (Multiple variable n = 126).

Variable	Frequency	Percent
Retrobulbar block	36	28.6
Subconjunctival block	23	18.3
Topical	21	16.7
O'Brien	18	14.3
Subtenon block	10	7.9
Peribulbar block	7	5.5
van Lint	7	5.5
Local infiltration	4	3.1

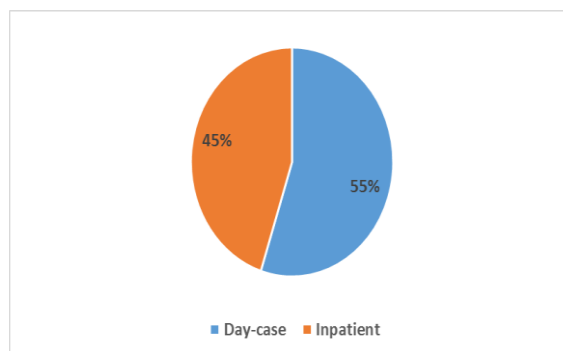


Figure 1: Mode of Admission of Patients (n=100)

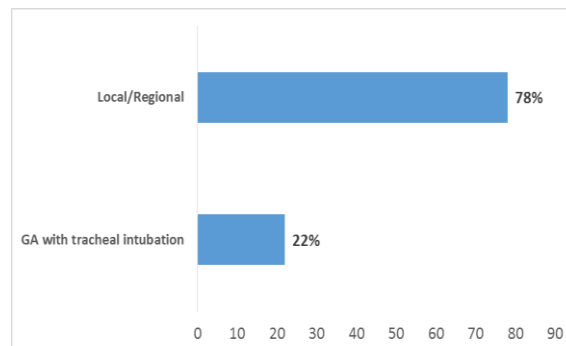


Figure 2: Anaesthetic techniques performed (n=100).

DISCUSSION

A total of 100 consecutive ophthalmic surgical cases that were carried out in the ophthalmic theatre of the Benue State University Teaching Hospital (BSUTH) were evaluated.

With regards to the age of the patients, there is no dominance of any age group. However, the highest number of 17 was recorded for the age between 61 and 70 years accounting for 17% of the study population. This was followed by the age groups of 0 to 10 years and 21 to 30 years with 15 making up 15% of the study population each. It is noteworthy that the patients aged between 0 and 50 years account for 60% of the study population. This is not unexpected as the commonest

indications for ophthalmic surgeries (cataract and glaucoma) can be congenital as much as they are acquired.

On sex distribution, 58% were male while 42% were female. Just like the age distribution, gender does not appear to be a determinant of the occurrence of ophthalmic diseases requiring surgical operations.

From this study, cataract is the commonest indication for ophthalmic surgery with 36, accounting for 33.3% of the variables. This was followed by glaucoma with 25, making up 23.1%. Pterygium with 10 (9.2%) is in third place. This results are in tandem with a study conducted by Onakpoya et al,^[12] in which cataract, glaucoma and

pterygium were the leading indications for ophthalmic surgery with 64.8%, 20.3% and 5.5% respectively. Adeoye *et al.*,^[13] also agree that cataract is the commonest eye disease.

Fifty-five percent of the patients were handled as out-patients while 45% were in-patients. Because most eye surgical procedures are minimally invasive, they can be carried out on day-care basis. However, children and the very ill or elderly patients would require to be treated as in-patients.

This study has shown that surgical procedures for cataract are the highest carried out with 32.4%.

Trabeculectomy accounted for 22.5% of the procedures. These surgical procedures are understandably high because of the observed high level of diseases that require the employment.

Cataract surgery remains the most commonly performed ophthalmic surgery in Nigeria and other countries.^[14,15,16]

With regards to the anaesthetic technique used, this study shows that 22 patients underwent general anaesthesia with tracheal intubation accounting for 22% of the study population, while 78 patients underwent local/regional anaesthesia making up 78%. In all, a total of 126 local/regional procedures were carried out on the 78 patients. Of these, retro-bulbar block, sub-conjunctival block, topical anaesthesia and O'Brien technique are the most commonly used with 28.6%, 18.3%, 16.7% and 14.3% respectively.

General anaesthesia was employed mostly in the paediatric age group. This is because younger children have short attention span and cannot maintain the required head position for eye surgery.^[12] General anaesthesia in paediatric ophthalmic surgical procedures permits complete access to the eye as well as control of the head position during the surgery and thus remains the ideal technique of choice in this age group.^[17]

The high percentage of region anaesthesia agrees with the study carried out by Onakpoya *et al.*,^[12] in which most (92.1%) of the surgeries in their study were carried out under regional anaesthesia. Imanrengiaye *et al* in their study equally reported similar high preference for local anaesthesia.^[8] Local anaesthetic procedures for eye surgeries are safe and have economic benefits.^[18] Most patients presenting for ophthalmic surgery are elderly and have pre-existing medical problems; thus regional anaesthesia remains the technique of choice except when contraindicated.^[2,3,4,5,6,7,8,17] Local anaesthesia is favoured especially in the elderly.^[1]

CONCLUSION

This study demonstrates overwhelmingly that in Benue State University Teaching hospital, the anaesthetic technique of choice for ophthalmic surgery is

local/regional anaesthesia. General anaesthesia comes a distant second, being employed mostly in the paediatric age group and in patients with penetrating eye injury where retro-bulbar block is contraindicated.

Conflict of interest: None.

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