EXAMINATION UNDER ANAESTHESIA IN OPHTHALMIC PRACTICE

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ABSTRACT

Ocular examination is a sophisticated procedure. The patient has to be exceptionally cooperative and relaxed. If those are not achieved, not only the examination is not reliable but it may be dangerous also. This study is aimed to determine the ophthalmic indications and the final diagnosis in children were examined under general anaesthesia (EUA) in Albasar Ophthalmic clinic, Masuria- Libya over a period of six years (2008-2013). All examined children underwent cycloplegic refraction and dilated fundoscopy. Other recordings like corneal diameter, axial length and intra ocular pressure measurements were done when needed. 265 cases were included. The commonest ophthalmic indication for EUA among children was strabismus in 235 cases (89%). In 30 cases (11%) the indications for EUA were nystagmus, corneal haziness, white pupil, trauma, fundus examination and ptosis. Ocular pathology was found in two cases only (less than 1%) in strabismus group, while it was found in 19 cases (63.3%) in the other group. A complete precise ocular examination is mandatory procedure in all ophthalmic patients who are unable to tolerate a complete examination within the ophthalmic clinic setting. The higher the rate of performing this relatively safe and effective technique is an indicative of improvement of ophthalmic survives.

KEY WORDS: General anaesthesia, Refraction, fundoscopy, Axial length, Nystagmus.

INTRODUCTION

Ocular examination is a sophisticated procedure. Examination under anaesthesia (EUA) has to be resorted for ophthalmic patients who are unable to tolerate a detailed examination within the outpatient clinic[(1)]. Paediatric patients form the bulk of such patients due to the lack of cooperation because of their age. They therefore have to be examined under short period of general anaesthesia in the operating room. The use of ketamine anaesthesia is safe and effective[(2)].

Ocular morbidities and blindness in children constitute serious public health challenges[(3),(4)] for a number of reasons. Firstly, treatable causes of blindness in children, if left uncorrected, may leave them permanently blind. Secondly, a blind child poses great challenge to education and emotional development[(5)]. Many amblyopic children will suffer irreversible vision loss that could have been prevented. The consequences of not identifying and treating strabismus and amblyopia early include permanent visual impairment, adverse effects on school performance, poor fine motor skills, social interactions and self-image[(6)].

MATERIALS AND METHODS

The files of 265 children examined under general anaesthesia using ketamine in Albasar Ophthalmic clinic, Misurata-Libya over a period of six years (2008-2013) were analysed retrospectively. Age, sex, presenting complain, indication of examination, refraction results (spherical error, cylindrical error and its axis), fundoscopic finding and other clinical findings when found were collected from the files. The name age of each child were recorded by the receptionist, the decision for the examination under anaesthesia (EUA) was taken by the consultant eye specialist on duty. In all cases a strong cycloplegic mydriatic drug (atropine 1% eye drops) was applied twice daily in both eyes three days prior to examination. Each child was kept fasting for 4- 5 hours prior to anaesthesia, in all cases short general intravenous ketamine anaesthesia in the operating room was given. Retinoscopic refraction by streak Nitez retinoscope, plane mirror effect technique with 0.5 D step power of trial spherical lenses in two meridian and the cylinder axis was approximated to the nearest 30 degrees.. The refractive error up to two dioptres of hypermetropia in the first twelve months of life and one dioptre of hypermetropia in the age group above twelve to twenty four months of age were regarded as normal. Any spherical error above the age of 24 months was regarded as abnormal. Isolated astigmatic error of half dioptre or less at any age was regarded as normal also.

The fundi were examined by Keeler direct and indirect ophthalmoscope. Special attention to the media clarity, optic disc and retina were considered. Intraocular pressure, corneal diameter and axial length were recorded when indicated by the use of Schiotz tonometer, squint calliper and A-scan ultrasonography respectively.

RESULTS

A total of 265 children whose age and sex distribution is as illustrated in (table 1) had examined under general anaesthesia (EUA) between 2008 and 2013. 108 cases (41%) were males and 157 cases (59%) were females. More than 40% of the children were presented before age of one year.

Strabismus (latent, manifest or history of deviation of one or both eyes from the fixation point) was the indication for examination under anaesthesia (EUA) in 235 cases (89%) while the other indications include nystagmus, corneal haziness, white pupil,

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trauma, fundus examination and ptosis constitute for 30 cases (11%).

(Table 1) Age and Sex distribution

Age	No. of cases	%	Males	Females
>6 months	42	(15.9%)	24	18
6->12 months	73	(27.5%)	31	42
12->18 months	52	(19.6%)	15	37
18->24 months	56	(21.1%)	25	31
24 months & more	42	(15.9%)	13	29
Total	265	(100%)	108 (41%)	157 (59%)

(Table 2) gives a breakdown of the indications and results for EUA in the study population.

(Table 2) Distribution of the indications and results of the EUA.

Strabismus indication				Other indications			
Ametropia	Emmetropia	Ocular pathology	Total	Ocular pathology	Normal	Refractive error	Total
204 (87%)	29 (12%)	2 (1%)	235	19 (63.3%)	10 (33.3%)	1 (3.3%)	30

In the strabismus indication group, 204 cases (87%) were suffering from refractive errors, where only two cases (less than 1%) were found to have ocular pathology. In the other indications group, ocular pathology was found in 19 cases (63.3%).

Two patients found to have refractive error in one eye only. So 408 eyes (77%) found to have refractive error in the examined children. Astigmatism is found in 278 eyes in the examined children who suffer a refractive error (68%). Ocular pathology were found in 21 cases (8%) of all the studied population. (Table 3) gives the distribution of ocular pathology in the study group.

In general, examination was positive in 226 cases (85%) of the examined children, out of them 21 cases (8%) were found to have ocular pathology.

(Table 3) Distribution of ocular pathology

Ocular pathology	No. of cases
Retinopathy of prematurity	4
Optic atrophy	3
Congenital glaucoma	4
Microphthalmia	2
Congenital cataract	3
Commotio retinae	3
Retinoblastoma	1
Keratitis	1

DISCUSSION AND CONCLUSION

Most of the children needed examination under anaesthesia (EUA) in this study were below age of two years, 223 children (84%), as older children are likely to understand spoken instructions and co-operate better with some of the different diagnostic procedures without anaesthesia. Female to male ratio was 1.45 which is coincides with the general population in the city of the study.

In the study the indications for examination under general anaesthesia and clinical findings were studied. The examination was positive in 226 (85%) of the examined children, out of them 8% (21 cases) were found to have ocular pathology, while the others were found to have refractive errors. Both causes are significant. Some ocular diseases are not only vision threatening like retinopathy of prematurity, congenital glaucoma and congenital cataract but also dangerous for life like retinoblastoma.

Strabismus (latent, manifest or suspicion of strabismus) was the major indication of examination (89%) under anaesthesia in this study while in a similar study done in Nigeria strabismus indication was only in 5.1% of the cases[(1)]. This difference may be explained by the large difference in the study population (265 versus 39 children). Global estimates indicate that more than 2.3 billion people in the world suffer from poor vision due to refractive error, of which 670 million people ate considered visually impaired because they do not have access to corrective treatment[(7)]. In this study 205 cases (77%) were found to have refractive error, these refractive errors if uncorrected, results in an impaired quality of life.

In conclusion if the child forced to receive the ophthalmic examination, it is difficult to deliver accurate diagnosis and treatment which may cause negative influence up on physical and mental health. Ketamine anaesthesia is safe and effective and should be considered in any child to do complete and comfortable examination.

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