STUDY OF FACTORS AFFECTING VISUAL PROGNOSIS AFTER SURGERY FOR SOFT TRAUMATIC CATARACT PATIENTS IN ALEXANDRIA MAIN UNIVERSITY HOSPITAL

Tarek Abd El Razek Hafez, Islam Shereen Hamdy, Mohamed Hassan El Khawaga, Ahmed Elsayed Mohamed Elsayed Mansour
Department of Ophthalmology, Faculty of Medicine, Alexandria University

Introduction

Ocular trauma is the most common cause of unilateral visual impairment in pediatric cases, especially in developing countries. Fortunately, it can be prevented through adequate supervision by parents and caregivers.

The main risk factors for eye injury have been identified by several descriptive studies from all over the globe. Those risk factors include socioeconomic status, lifestyle, gender, and age

Mechanical ocular traumas are caused due to either sharp or blunt objects. Blunt objects are the leading cause of ocular trauma worldwide. Blunt object ocular trauma is the leading cause of eye injuries in Egypt, usually due to thrown stones and sticks.

The Ocular Trauma Score (OTS) was invented to be a standardized classification system to predict visual prognosis of the eye after ocular trauma[30]. The OTS is determined by assessing 6 main risk factors: rupture of the eye globe, initial visual acuity, perforating trauma, endophthalmitis, the presence of a relative afferent pupillary defect (RAPD), and retinal detachment (RD).

Open globe injury (OGI) is a substantial cause of permanent visual impairment and visual loss worldwide.

Open globe injuries (OGIs) are medical emergencies that necessitate urgent surgical procedure. Either blunt or penetrating injury to the eyeball can cause traumatic cataracts. The lens fibers are disrupted by these injuries, which lead to opacification of the lens.

Although a broad body of research focused on traumatic cataract, comprehensive assessment of cases is scarce in terms of detailed description of the injury, objective representation of injury severity (e.g. OTS), operative data, and thorough follow-up post-intervention. Relevant data on the Egyptian population is especially lacking.

Aim of the Work

The aim of the work was to study the factors affecting visual prognosis after cataract surgery in patients with soft traumatic cataract in Alexandria Main University Hospital.

Patients and Methods

The current prospective study involved 30 eyes of thirty patients undergoing traumatic cataract surgery in Ophthalmology department of Alexandria Main University Hospital.

Inclusion criteria: Patients below 40 years that had undergone traumatic cataract surgery in Ophthalmology department of Alexandria Main University Hospital.

Exclusion criteria: - Patients above 40 years

-Presence of posterior segment affection as vitreous haemorrhage, retinal detachment, traumatic optic neuropathy and intra-ocular foreign bodies 'IOFBs'.

-**Pre-operatively:** All cases were subjected to:

- Thorough history taking including age and mode of trauma.
- Imaging (CT/X-ray) to detect presence or absence of IOFBs in suspected cases.
- Scoring according to Ocular Trauma Score.
- Description of the ocular zone(s) affected by injury.
- Description of the corneal zone(s) affected by injury.

Pre-operative examination:

- Uncorrected and best corrected visual acuity using Landolt chart. Measurements were converted to LogMAR for a smoother statistical analysis.
- Pupillary reaction, colour discrimination using green and red filters.
- Slit lamp examination including:
- Description of the corneal wound if present eg: central, peripheral, etc. and whether sutures are removed or not.
- Lens status: type of cataract, presence or absence of capsular tear, presence of any subluxation.
- Fundus examination.
- Associated globe injuries.

Operatively: - Technique used during the surgery and type of IOL used.

Post operatively:

- Patients were examined on the next day after surgery, three days, one week, one month, three months and six months following the procedure.
- Uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA) and subjective refraction were documented. Measurements were converted to LogMAR for a smoother statistical analysis.

Results

Table 1 shows that the rate of long-term complications at one year post operatively (e.gPosterior Capsule Opacification 'PCO', Corneal decompensation or scarring necessitating PKP, or RD) was higher in blunt trauma cases (n: 7, 43.8%) compared to sharp trauma (n: 3, 21.4%). Measurements show no statistically significant differences in ocular outcomes as per mode of trauma (p-values: >0.05).

Table 1: Comparing post-operative outcomes as per mode of trauma (n: 30)

		Mode of trauma		
Term	**Overall N (%)**	**Blunt N (%) (n=16)**	**Sharp N (%) (n=14)**	**p-value**
Long-term Complications	10 (33.33)	7 (43.8)	3 (21.4)	0.365
P-values obtained from Pearson's chi-square test of independence				
		Mode of trauma		
Term	Overall	Blunt	Sharp	p-value
UCVA day 1 Med (IQR)	0.6 (0.8)	0.9 (1)	0.6 (0.4)	U: 1.0000
UCVA day 3 Med (IQR)	0.5 (0.8)	0.8 (0.9)	0.5 (0.5)	U: 0.6716
UCVA week 1 Med (IQR)	0.4 (0.8)	0.7 (0.8)	0.3 (0.6)	U: 0.1978
UCVA month 1 Med (IQR)	0.5 (0.8)	0.7 (0.8)	0.4 (0.5)	U: 0.5547
Sphere month 1 Med (IQR)	-0.5 (0.5)	-0.5 (0.6)	-0.5 (0.2)	U: 0.4166
Cylinder month 1 Med (IQR)	-1.6 (1.9)	-1.6 (2.4)	-1.6 (1.7)	U: 0.7381
Axis month 1 Med (IQR)	90 (55)	90 (35)	117.5 (63.8)	U: 0.1253
BCVA month 1 Med (IQR)	0.2 (0.7)	0.4 (0.9)	0.2 (0.6)	U: 0.3990
UCVA month 3 Med (IQR)	0.5 (0.8)	0.7 (0.8)	0.4 (0.5)	U: 0.5547
Sphere month 3 Med (IQR)	-0.5 (0.4)	-0.5 (0.4)	-0.5 (0.4)	U: 0.7303
Cylinder month 3 Med (IQR)	-1.6 (1.9)	-1.6 (2.4)	-1.6 (1.7)	U: 0.8021
Axis month 3 Med (IQR)	90 (55)	90 (35)	117.5 (63.8)	U: 0.1253
BCVA month 3 Med (IQR)	0.2 (0.7)	0.4 (0.9)	0.2 (0.6)	U: 0.3990
BCVA year 1 Med (IQR)	0.5 (0.9)	0.6 (0.6)	0.2 (0.6)	U: 0.1344
α = 0.05. p < 0.05*, p < 0.01, p < 0.001*** **				
P-values obtained from two-sample t-test (t) or Mann-Whitney test (U)				

Conclusion

- The current study emphasizes the prognostic relevance of zone 1 injury, central corneal involvement, and ocular trauma score in determining surgical outcomes in soft traumatic cataracts.
- Recognizing these factors pre-operatively allows for better surgical planning, patient education, and tailored follow-up, ultimately improving care for this unique and often underserved patient population.