

Grading of severity of ocular trauma by various ocular trauma scores and its effect on prognosis

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Abstract-OBJECTIVE: Study of Various ocular trauma scores and its effect on prognosis using a prospective study.

MATERIAL AND METHODS: Studied 30 eyes in 30 patients with open globe injury underwent full history taking and ophthalmic examination at the time of presentation in our institute. patients were graded by using Ocular Trauma Score (OTS), Ocular Trauma Severity Score (OTSS) and ISOT Score. Outcome measure was final visual acuity (six month after the primary surgical procedure). The significance of various scoring scales in relation to final visual acuity was assessed.

RESULT: Out of 30 patients mean age was 25.13 years, with majority between 5 to 10 years of age and 76.7% were males. The common source of injury was metallic object in 33.3%, wood and bamboo stick and thorn in 30%. At presentation as per OTS, ocular injury in 16 out of 30 patients were in category 1 and 2, 100% had final visual acuity $< 6/18$. Out of 11 patients in category 3, 72.7% had final visual acuity $< 6/18$. All 3 patients in category 4-5 had final visual acuity $> 6/18$. Hence, OTS proved as a good pre operative predictor of visual prognosis. ($P = 0.001$). According to OTSS at presentation 9 patients were graded as mild, 13 as moderate and 8 as severe. Final visual acuity in 55% patients of mild group was $> 6/18$, in moderate group 100% cases had final visual acuity $> 6/18$, 87.5% patients of severe group had final visual acuity of $< 6/18$. The OTSS underestimated the severe injuries in our case series but found to be significant statistically ($P = 0.023$).

As per ISOT, 4 patients lied in grade 0, 13 patients were in grade 1-2 and 13 were in grade 3-4. 75% patients of grade 0 had final visual acuity $> 6/18$, 76.9% patients of grade 1-2 had final visual acuity $< 6/18$. 100% patients of grade 3-4 had final visual acuity $< 6/18$. It was found to be statistically significant for assessing final visual outcome ($P = 0.002$).

CONCLUSION: The Ocular Trauma Score is considered to be a valuable tool in establishing the severity of an open globe injury. In our study another pre-operative scoring system which ISOT was found to be very sensitive and on putting the data in this score could accurately predict the outcome.

Index Terms- Endophthalmitis, ISOT score, Ocular Trauma Score, Ocular Trauma Severity Score, Retinal Detachment.

I. INTRODUCTION

Ocular trauma has now gained attention as a major cause of visual morbidity.¹ The terminology and classification of ocular

trauma adopted by the International Society of Ocular Trauma in 1997 has provided a clear definition and standardization of ocular trauma terminology.² Assessment of severity of ocular injury at presentation using a standardized scoring system is helpful for unambiguous interpretation and reporting of research results to allow for internationally valid comparisons.³

Our aim in this study was to identify the factors that significantly predicted visual outcome after open globe injuries and reliability of various ocular trauma indices in predicting severity of trauma.

II. METHOD OF STUDY

This is a prospective study, conducted in Department of Ophthalmology at MGM Medical College and M.Y. Hospital, Indore from Dec 2010 to May 2012 including all patients who meet the inclusion and exclusion criteria of this study.

All patients with open globe injury were included.

Patients with previous ocular surgery, previous ocular trauma, major eye disease, new injury during follow up were excluded.

At presentation, all patients underwent a detailed history and ophthalmic evaluation and were graded as per following scoring systems

a) Ocular Trauma Score (OTS) – Kuhn et al⁴

b) Ocular Trauma Severity Score (OTSS) – Vasu et al⁵

c) ISOT Score⁶

Outcome measure was final visual acuity (six month after the primary surgical procedure). The significance of various scoring scales in relation to final visual acuity was assessed.

III. OBSERVATION AND RESULTS

A total of 30 patients of open globe injuries were included in the study with mean age 25.13 years, with majority between 5 to 10 years of age. 76.7% were males. Most of injuries (93.3%) were unintentional, while only 6.7% injuries were the result of assault. The source of injury was metallic object in 10 cases (33.3%), consisting of iron rod and nail. Second most common source of injury was wood and bamboo stick and thorn in 9 cases (30%). Stones and gravel in 7 (23.3%) cases. The other source of injury were due to pen tip in 2 cases (6.7%), glass was the source of injury in 2 cases (6.7%).

At presentation as per OTS, ocular injury in 16 out of 30 patients were in category 1 and 2, 100% had final visual acuity $< 6/18$. Out of 11 patients in category 3, 72.7% had final visual acuity

<6/18. All 3 patients in category 4-5 had final visual acuity >6/18. Hence, OTS proved as a good pre operative predictor of visual prognosis. (Extended Mantel-Haenszel test for trend: chi-sq. = 11.844) (P = 0.001)

According to OTSS at presentation 9 patients were graded as mild , 13 as moderate and 8 as severe. Final visual acuity in 55% patients of mild group was >6/18, in moderate group 100% cases had final visual acuity >6/18, 87.5% patients of severe group had final visual acuity of <6/18. The OTSS underestimated the severe injuries in our case series but found to be significant statistically.(Extended Mantel-Haenszel test for trend:chi-sq. = 5.142) (P = 0.023)

As per ISOT , 4 patients lied in grade 0, 13 patients were in grade 1-2 and 13 were in grade 3-4.

75% patients of grade 0 had final visual acuity >6/18 , 76.9%patients of grade 1-2 had final visual acuity<6/18. 100% patients of grade 3-4 had final visual acuity of<6/18.It was found to be statistically significant for assessing final visual outcome. (Extended Mantel-Haenszel test for trend: chi-sq. = 9.797) [DF = 1] (P = 0.002)

IV. CONCLUSION

The Ocular Trauma Score is considered to be a valuable tool in establishing the severity of an open globe injury. However, as the presence of Endophthalmitis and Retinal detachment are delayed complications of trauma, the value of the score in predicting pre-operative evaluation of open globe injury is uncertain, but in our case series it was found to be statically significant. In our study another pre-operative scoring system which was based on internationally accepted factors to classify an open globe injury named ISOT was found to be very sensitive and on putting the data in this score could accurately predict the outcome. The OTSS underestimated the severe injuries in our case series but found to be significant statistically.

This completes the entire process required for widespread of research work on open front. Generally all International Journals

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