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ORIGINAL ARTICLE

Ocular Trauma Score comparison with open globe receiving early or late care☆

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Abstract

Background: The Ocular Trauma Score (OTS) is a scale that estimates the prognosis of injured eyes after treatment, with results that are consistent with those of longitudinal studies. The time between injury presentation and initial care has been described as a prognostic factor for visual outcome, but the OTS variables of eyes receiving early or delayed care after trauma have not been compared.

Material and methods: A non-experimental, comparative, retrospective, cross sectional study including patients from either gender, aged 5-80 years, with open globe trauma, without previous diseases that reduced visual acuity or previous intraocular surgery. The distribution of the OTS variables was identified. The sample was divided into two groups: group 1 (time between trauma occurrence and initial care ≤ 24 hours), and 2 (time > 24 hours). The frequency of OTS categories of unfavourable prognosis (1-3) was compared between groups (x^2).

Results: A total of 138 eyes of 138 patients were studied. The mean age of the patients was 28.8 years, with 65.2% male. The waiting time ranged 2-480 hours (mean 39.9). Group 1 had 103 eyes assigned (74.6%), and 35 to assigned to group 2 (25.4%). The proportion of categories 1-3 in group 1 (82.5%, n = 85) did not differ from that in group 2 (80%, n = 28; p = 1.0).

Conclusion: The proportion of OTS categories with an unfavourable prognosis did not show significant differences between the eyes who received care before or after 24 hours that could be contributed to a different outcome, besides the delay in starting treatment.

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PALABRAS CLAVE
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Comparación del Ocular Trauma Score en traumatismo con globo abierto, atendido temprana o tardíamente

Resumen

Antecedentes: El Ocular Trauma Score (OTS) es una escala que estima el pronóstico del ojo lesionado después del tratamiento. El tiempo entre la presentación de la lesión y el tratamiento inicial se ha descrito como un factor pronóstico en el desenlace visual, pero las características del OTS en ojos que reciben tratamiento temprano o tardío después del traumatismo no han sido comparadas.

Material y métodos: Estudio observacional, comparativo, retrospectivo, transversal. Se incluyó a pacientes de cualquier género, con edades entre los 5 y los 80 años, con traumatismo con globo abierto, sin enfermedades previas que disminuyeran la agudeza visual ni cirugía intraocular previa. Se identificaron la distribución de las variables del OTS y la frecuencia de las categorías de pronóstico desfavorable (1-3). La muestra se dividió en 2 grupos: 1 (tiempo transcurrido entre el traumatismo y la atención ≤ 24 h) y 2 (tiempo transcurrido > 24 h). Se comparó la frecuencia de las categorías de pronóstico desfavorable entre grupos (x^2).

Resultados: Ciento ochenta y tres ojos de 138 pacientes, con una edad promedio de 28.8 años, el 65.2% de género masculino. El rango del tiempo transcurrido fue 2-480 h (media 39.9); 103 ojos se asignaron al grupo 1 (74.6%) y 35 al grupo 2 (25.4%). La proporción de las categorías 1-3 en el grupo 1 (82.5%, n = 85) no difirió de la del grupo 2 (80%, n =28; p = 1.0).

Conclusión: La proporción de las categorías del OTS con pronóstico desfavorable no mostró diferencias significativas, entre los ojos atendidos antes y después de 24 h, que pudieran contribuir a un resultado distinto, además del retraso en el tratamiento.

Background

Ocular trauma leads to monocular blindness during productive age with a significant socio-economic impact which turns it into a world-wide issue of public health[1]. It is more frequent among men (78.6%)[2]; age of presentation differs across studies, with peaks between 25 and 34 years (19.7%)[3] or between 45 and 64 years (30.2%)[4].

The classification system of mechanic ocular lesions classifies ocular trauma, according to the ocular wall condition (cornea and sclera), as closed-globe (without resolution of total continuity) or open-globe (with resolution of total continuity of ocular wall). 4 parameters are assessed: type (lesion mechanism), degree (visual acuity), pupil (afferent pupil defect) and area (utmost posterior localization of lesion)[5], which have a prognosis value for visual outcome[6].

There are characteristics that reduce recuperation probability, regardless of initial visual acuity. In a multiple regression analysis, the characteristics related to the worst visual outcome were the following: initial low visual acuity (ß = 0.35; p < 0.001), postoperative afferent pupil defect (ß = 0.24; p < 0.001), retinal detachment (ß = 0.168; p < 0.001), scleral laceration (ß = 0.139; p < 0.004)[7], and period of time between lesion and surgery (rho = −0.144; p = 0.003)[8], although some studies have not found that relation[9]. Plestina Borjan et al. reported low frequency of endophthalmitis in open-globe trauma due to war-like scenarios[10]; Ahmed and his team discovered that prophylaxis with antibiotics reduced its incidence[11]. The reason for poor prognosis in eyes in which the wound heals late could be because, even before surgery, its condition was worse than the condition of promptly operated eyes.

Pre-operative characteristics can be compared through the Ocular Trauma Score (OTS), a standardised scale that estimates visual prognosis 6 months after trauma; such scale places the injured eye in one of 5 categories according to the following variables: initial visual acuity, ocular rupture, endophthalmitis, ocular perforation, retinal detachment and afferent pupil defect[12]. OTS estimate is consistent with longitudinal study results[13-16]; there is a < 50% of probability to a reach visual acuity > 20/40 after treatment in eyes classified from 1 to 3[12].

Some studies have assessed the time elapsed between lesion and surgery as a prognosis factor. However, there were no OTS characteristics reported in the samples. Therefore, it is difficult to compare pre-operative prognosis between late and promptly treated eyes.

A study was conducted in order to compare the distribution of OTS categories among patients with open-globe trauma treated before and after 24 hours, for the purpose of identifying significant differences that could contribute to the result, as well as the delay in treatment.

Material and methods

A comparative, retrospective, cross-sectional and observational study was carried out. The target population was made up of patients with open-globe trauma in Mexico City and the metropolitan area. The available population was patients treated due to open-globe trauma in a general hos-