

MEDICAL SCIENCES

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THE PECULIARITIES OF PROVIDING OPHTHALMOSURGICAL CARE FOR THE PATIENTS WITH OCULAR TRAUMAS

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Abstract

The article focuses on the eye injuries inflicted during emergencies, mass unrest and warfare; the authors define the principles and levels of managing the health care in the cases of ocular traumas; the study analyzes the structure of the eye traumatism and the peculiarities of the ophthalmosurgical treatment for the patients with the combined traumatic injuries of the organ of vision in the Dnipropetrovsk Regional Clinical Ophthalmologic Hospital; the results of the investigation prove that nowadays the character of ocular trauma presumes the highly specialized surgical care using advanced techniques of surgical interventions such as vitreoretinal surgery, combined operations, primary surgical treatment with the removal of intraocular foreign bodies.

Keywords: etiological causes of the eye injuries, anatomical localization of the ocular trauma, severity of the injury, complex Faber-reconstructive surgery.

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The conduct of hostilities during the armed conflicts confronts the physicians of all specialties with many issues on the organization of the medical aid to the victims. Despite numerous studies performed all over the world in the field of helping people with the eye injuries inflicted during emergencies, mass unrest and warfare, as well as diseases that are associated with these events, the last twenty years such a work was not carried out in this country.

The evolution of the military tactics has led to causing the majority of combat ocular traumas in all the armed conflicts by anti-infantry mines and different explosive devices, handcraft and produced by the industry. Analysis of the literature shows that the share of both isolated and combined eye injuries in the whole structure of traumatic injuries can be quite large and range from 2% to 15% [1, 2, 3, 4]. The main causes of the majority of combat ocular traumas are shrapnel damage, dust, powder gases emitted in the explosion, gunshot wounds.

The studies of the combined traumatic eye injuries, inflicted in the military terms, focus on the combat traumas, as a rule, and form the scientific sphere covered by the military physicians [5, 6]. During the Great Patriotic War of 1941-1945 combat ocular traumas amounted to 1-2%. Under the conditions of the contemporary wars the frequency of the combat sanitary losses of ophthalmological profile increased to 4.5% in Afghanistan (1979-1989) and up to 8% in the North Caucasus (1999-2002). Such dynamics was predetermined by the growing use of fragmentation shells and explosive ordnance [7].

The optimal tactics of surgical treatment of patients with the results of eye shrapnel wounds should be elaborated on the base of the precise localization of the fragment, as well as the diagnostics of all concomitant complications. Currently, the principle of the simultaneous comprehensive surgical treatment of penetrating wounds of the eyeball is considered to be all-accepted, implying not only the wound closure, the plastic surgery of defects and the assignment of remedies, improving tissue trophism, but also the formation of the anterior chamber, the reposition and plastic surgery of the iris in the cases of its injury, phaco-vitreo-phagy accompanying the destruction of both the crystalline lens and the vitreous body.

The combined character and polymorphism of post-traumatic changes in the anterior and posterior segments of the eye and its appendages significantly complicate the conduct of Fiber-reconstructive surgery intended to restore the normal anatomic and topographic relations. However, one-stage surgical correction of several abnormal structures of the eye provides the most complete and effective medical and social rehabilitation of patients [8,9,10,11,12].

These facts prove **the topicality** of studying the system of providing the health care for the victims with the combined ocular trauma under the

7th International Conference «Recent trend in Science and Technology management» 2017, V.1

current circumstances. Nowadays there is a need for elaborating the special diagnostic and treatment techniques, defining the specificity of both approaches and organization of the comprehensive emergency specialized medical care for this category of victims.

The aim of this investigation is to study the peculiarities of managing the ophthalmosurgical care for the patients with the combat ocular trauma.

The Material and Methods. The study analyzes the structure of the eye traumatism and the peculiarities of providing the ophthalmological care for the patients with the combat ocular trauma in the Dnipropetrovsk Regional Clinical Ophthalmologic Hospital (DRCOH). The observation took place in the period from May 2014 to September 2016.

The Results and its Discussion.

The principles of managing the health care for the patients with the combat ocular trauma should be clarified due to the following levels:

- **Level 0** predicts the primary (basic) pre-hospital care implying the imposition of aseptic dressings (mono or binocular) using the IDP, intramuscular analgesia and evacuation.

- **Level 1** presupposes the primary medical care including Epibulbar anesthesia, washing the wound, instillation and parenteral administration of antibiotics, antiseptics, removal of superficial foreign bodies, tetanus toxoid.

- **Level 2** presumes the qualified medical care (optimally in 4-6 hours after the injury) involving removal of superficial foreign bodies and administration of antibiotics epi- or parabolbarly.

- **Level 3** prescribes the specialized medical care according to the protocols of treating the patients with the ocular trauma approved by the Ministry of Health of Ukraine, Fiber-reconstructive surgery.

- **Level 4** implies the rehabilitation of the patients.

The Municipal Institution "Dnipropetrovsk Regional Clinical Ophthalmologic Hospital" is the only hospital in the region and one of the few in Ukraine to provide the highly specialized ophthalmological care for the patients with the combat ocular trauma.

The clinicians of the Dnipropetrovsk Regional Clinical Ophthalmologic Hospital treated 318 patients, performed 279 surgical interventions in 203 patients.

The etiological causes of the ocular trauma include: the consequences of mine-explosive injuries - 63%.; the contused injuries (contusions) - 20%; the burns - 9%; the gunshot wounds - 8%.

According to the anatomical localization of the injury (due to the guidelines of «ISOT»), we distinguished the following types of the ocular trauma: the mechanical trauma of the eyeball - 57.9%; the eyelid trauma - 24.5%; the associated injuries of eye and appendages - 6.4 %; the orbit injury -

**7th International Conference «Recent trend in
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5.9%, the burns - 5.3%. Three-quarters of the mechanical injuries of the eyeball are the penetrating traumas, 60% of them are the injuries with the presence of intraocular foreign bodies. Due to the severity of the injury the heavy and average traumas dominated (95% summarily). The study found that 34% of patients had traumatic injuries of both eyes. In the majority of cases (79% of victims) we dealt with the associated injuries of eye and other organs and systems. Among the penetrating and blunt traumas of the eyeball the most frequent cases are the combined injuries of the basic structures of the anterior and posterior segments such as cornea, iris, lens, retina, resulting in significant and diverse clinical and functional abnormalities in the injured eye immediately after the injury and in the long term. According to our data, in 80% of cases two structures of the eyeball were traumatized, in 46% of cases three and more structures of the eyeball were injured.

The analysis reveals the following structure of the surgical care for the patients with ocular traumas in MI "DRCOH" during the period in question: 32.2% of interventions are the cases of the primary surgical treatment of the penetrating wounds; 28,1% of operations are the combined interventions in combination with the vitreoretinal surgery, 9.5% of interventions are the cases of the primary surgical treatment of the non-penetrating wounds, 8.0% of operations are the cases of the cataract phacoemulsification with the implantation of intraocular lens; 7.2% of interventions are the cases of the eyelid surgery; 5.0% of operations are the cases of the evisceration; 1.4% of interventions are the removals of foreign bodies of the orbit, 8.2% of operations are the other interventions.

Conclusions.

1. The use of modern shells during emergencies, mass unrest and armed conflicts has resulted in increasing the number of combat ocular traumas and changing the character of such injuries.

2. The mine-blast trauma in 94% of cases leads to the massive eye injury, requiring complex Faber-reconstructive surgery.

3. The analysis of treating the patients with ocular traumas proves that two thirds of the victims needed for the highly specialized surgical care using advanced techniques of surgical interventions (vitreoretinal surgery, combined operations, primary surgical treatment with the removal of intraocular foreign bodies).

4. Taking into consideration the fact that the majority of the victims are the people of working age, one should recognize the extreme importance of the fastest possible restoration of the eye anatomical structure and visual function that necessitates the urgent transportation of the victims to the specialized medical institutions of the third-level having the necessary equipment.

**7th International Conference «Recent trend in
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References:

- [1] Maichuk Y.F., Yartsev E.I. Taufon as a Regulator of Reparative and Regenerative Processes in the Cornea // Proceedings of the 9th International Congress of Eye Research.-1990.- P. 194.
- [2] Gafurova L. G. The Organization of the Ophthalmological Care in the Cases of the Combined Ocular Traumas during Emergencies // A Thesis Submitted for the Scientific Degree of the Medical Doctor. - M., 2000.- 250 p.
- [3] Danilichev V. F., Balin V. N., Haidar B. V. and Others. Combat Combined Head Traumas // Combat Ocular Traumas. Proceedings of the Conference Dedicated to the Centennial of Prof. B. L. Polyak. – SPb., 1999. – P. 20 – 23.
- [4] Yeriukhin I. A., Khrupky V. I., Samohvalov I. M. Clinics, Diagnostics and Treatment of Combined Gunshot Wounds // Proceedings of the All-Army Scientific Conference: The Experience of the Soviet Medicine in Afghanistan. -M., 1992.- P. 24-25.
- [5] Ullem M. Ocular Trauma. / Rev-Prat. -1995. Feb. - Vol.45, №4. - P. 431-435.
- [6] Green M.A., Lieberman G., Milroy C.M., Parsons M.A. Ocular and Cerebral Trauma in Non-Accidental Injury in Infancy: Underlying Mechanisms and Implications for Pediatric Practice. // Br. J.Ophthalmol.,1996. - Apr. - Vol.80, №4.-P.282-287.
- [7] Battle-Field Surgery/Ed. By Y. K. Gumanenko. – The Second Edition. - 2008. - 768 p.
- [8] Boyko E. V., Churashov S. V. The Peculiarities of Fiber-Reconstructive Surgery of the Heavy Combined Open Ocular Trauma // Proceedings of the 9th Russian Congress of Ophthalmologists.– M., 2010.– P. 390.
- [9] Venguer G. Y. The Reconstructive Iris Surgery in the Cases of Ocular: Autoabstract of the Thesi Submitted for the Scientific Degree of the Medical Doctor.– Odessa, 1984.– 33 p.
- [10] Gundorova R. A. The Priority Area Of the Problem of Ocular Traumatism // Gerald of Ophthalmology.– 2004.– № 1.– P. 12-14.
- [11] Pozdeyeva N. A. Vitreoretinal Surgery in the Patients with Post-Traumatic Aniridia // Ophthalmosurgery.– 2012.– № 3.– P. 42-46.
- [12] Travkin A. G. The Reconstructive Microsurgery of the Anterior Eye Segment //Proceedings of the 7th Euro-Asian Ophthalmological Conference.– Yekaterinburg, 2006.– P. 24.