Our Experience in Providing Ophthalmologic Aid to Accident Victims

R.A. Gundorova; G. G. Petriashvili
Moscow Helmholtz Eye Research Institute, Moscow, Russia

The first reports about eye injuries appeared 10 years ago. Three international symposia were held under the aegis of the Moscow Helmholtz Eye Research Institute. The Institute's staff provided ophthalmologic aid in three major accidents: 1) a tank-car explosion at a railway station in the city of Sverdlovsk in 1988; 2) an oil pipeline blast and a fire in the Russian Republic of Bashkiria in 1989; and 3) an earthquake in Armenia in 1988. A total of 7,378 accident victims were examined.

The major causes of eye injuries were from secondary wounding by projectiles, thermal impact, and shock waves. These factors determined the type of eye injury and the organization of ophthalmologic aid in both the disaster areas and at medical institutions when a great number of people were injured.

The analysis of pathological ophthalmologic changes in accident victims testifies to their polymorphism and association not only with mechanical and thermal eye injuries, but also with the combined effects on the eye of various injuring factors and great stress.

The experience gained allowed the development of a system to organize ophthalmologic aid for a vast number of accident victims with multiple injuries.

The Traumatological Department of the Moscow Helmholtz Eye Research Institute is a part of Russia's United System for "Disaster Medicine', and its staff participates in the work of the traveling medical teams of the All-Russian Disaster Medical Centre "Zashchita".

Key Words: ophthalmologic aid in accidents; polymorphism of pathological changes

Elevated Selectin Levels in Multiple Trauma Patients with Severe Head Injury

T. Kerner; D. Keh; S. Höfler; M. Gerlach; K. Krüger; S. Spielmann; H. Gerlach
Dr. Thoralf Kerner Clinic of Anaesthesiology and Intensive Care Medicine (Prof Dr. K. Falke), Virchow-Klinikum, Humboldt-University of Berlin, Berlin, Germany

Background: Multiple organ dysfunction remains a leading cause of death days or weeks after multiple injury. Immunological parameters like selectins, contribute to the development of shock, sepsis, and organ failure. Brain contusion is believed to cause inflammatory reactions in brain tissue.

Objective: To investigate the relationship between the levels of the soluble derivatives of E-, P-, and L-Selectin, L-Selectin on B-Lymphocytes, and moderate or severe head injury in multiply injured patients. Groups of patients with head injuries were differentiated according to the Injury Severity Score.

Methods: Blood samples were drawn from 51 multiply injured patients at 10 different points beginning on scene (= 0 hours) to the sixth post-traumatic day (= 144 hours). Commercially available, standardized enzyme-linked immunoassays (ELISA) were used to assay the plasma for sE-, P-, and L-Selectin. CD62L levels on leukocyte sub-populations were detected by means of monoclonal antibodies CD62L (LECAM-I), CD3 (T-cell), CD14 (monocyte) and a standard flow cytometer.

Results: Patients with severe head injury (p = 0.0001) showed a very early increase of P-Selectin in comparison to those with moderate or no head injury. There also occurred a latent increase (p = 0.0026) of sL-Selectin levels (72 hours) in patients with severe head trauma, while L-Selectin expression on CDI9+ B-Lymphocytes is significantly higher (p = 0.0001) in the very early post-traumatic phase (0–24 hours).

Conclusion: The immunological response and subsequently the cell-cell interactions seem to be influenced by the severity of head trauma.

Key Words: head injury; injury severity score; multiple organ dysfunction; multiple trauma; selectins

Should Fluids Be Limited Early in Trauma? Severe Pulmonary Edema Following Aggressive Volume Therapy During Extraction of a Trauma Victim: A Case Report

R. Stögbauer
Department of Anesthesiology and Intensive Care Medicine, Bethanien Hospital Moers, Moers, Germany

Introduction: Maximum volume loading is an accepted gold standard in early trauma therapy. In 1994, Bickell showed a significantly higher mortality in an early volume group vs. delayed fluid therapy in penetrating torso injuries. Besides aggravation of blood loss early in the treatment of trauma, massive fluid resuscitation may cause other negative side effects including pulmonary edema.

Situation at the scene: A healthy, 37 year-old man was injured while working on a swimming pontoon in a gravel pit. His right arm was pulled into a conveyor belt and became stuck. Except for a partial amputation of the right upper arm, no further injuries were visible. All attempts to release the patient from the belt failed. Thus, the emergency doctor performed an amputation of the right upper arm. During the treatment, 4,000 ml of colloids and 2,000 ml of crystalloids solutions were infused.

Admission: The patient was anesthetized, and administered controlled ventilation with an FiO_2 = 1.00. No further injuries were detected. Maximum vasoconstriction was obvious.

MAP:	75 mmHg
Heart Rate:	120–140/min.
CVP:	16 mmHg
ECG:	Atrial fibrillation
Arterial blood gases:	pH = 7.34; pO_2 = 50 mmHg; BE +1.5 mval/l; pCO_2 = 39 mmHg
Lactate:	2.3 mmol/l
Hb:	9.6 g/dl
Chest X-ray:	Diffuse pulmonary edema
Body temperature:	31° C

Clinical diagnosis: Traumatic amputation of the right