

## **Surgical Treatment of War Injuries: Experiences with 1,220 Patients from the Split University Hospital, Split, Croatia**

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**Aim.** Presentation of 1,220 war patients and their treatment at a fourth-echelon Croatian hospital during the wars in Croatia and Bosnia and Herzegovina (BH) from 1991 to 1995. The methods of treatment of the wounded from the point of the first aid administration to the final reconstruction of the war wounds are described.

**Patients.** There were 388 patients wounded in Croatia and 832 wounded in BH. Both groups were divided into subgroups according to the number of operations (1-2 and <sup>3</sup>3), and days of hospitalization (I subgroup, <sup>1</sup>14 days; II subgroup, 15-21 days; III subgroup, 22-28 days; IV subgroup, <sup>3</sup>29 days). Regarding the number of injuries they were divided into 3 groups: the group with one injury (565; 46.3%), with 2-4 injuries (510; 41.8%), and with 4 and more injuries (145; 11.9%). Localization of the 2,297 wounds was the following: head and neck 34 (1.5%), body injuries 235 (10.2%), upper extremities 625 (27.2%), and lower extremities 1,403 (61.1%). The injuries treated by other specialists were not considered. All the wounds were treated according to the appropriate NATO war medical doctrine principles.

**Results.** With respect to time and adequacy of medical care, surgical treatment, way and time of evacuation to higher echelons of medical care, the patients from BH had more complex injuries than those wounded in Croatia; this was especially true for the lower extremities. The number of operations and hospitalization period were also higher in BH patients. The wounds of the extremities were mostly open and large. The greatest number (336, 23.8%) of complex reconstructions was performed on the lower extremities. Local flaps were applied in 548, and microvascular free flaps in 18 cases of lower extremity injuries. There were 18 associated injuries of large blood vessels of the upper extremities and 72 associated peripheral nerve injuries. The lower extremity wounds were accompanied by 43 large blood vessel injuries, and by 46 injuries of peripheral nerves. Major blood vessels, bone and joint injuries were treated urgently.

**Conclusion.** The war wounds have to be treated individually. The best results in reconstruction of peripheral nerve injuries were achieved when the reconstruction was performed 2-3 weeks after the injury. Early and adequate primary treatment, combined with early reparation and reconstruction, fracture stabilization (internal or external fixation), establishment of circulation (anastomoses and grafts), and closure of soft tissue defects (local or distant flaps) gives the best functional and esthetic results, decreases mortality, morbidity, and cost of treatment.

**Key words:** *blood vessels; nerve tissue; soft tissue; surgery, operative; war; wounds and injuries*

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