20-year historical review of maxillofacial injuries treated at the Military Hospital

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Through this 20-year statistical analysis, we try to explain the changes in data during our results, taking into consideration the local characteristics in the pattern of casualties, etiology and treatment modalities [1, 2]. The findings of this study, compared with other studies, support the view that the causes and incidence of maxillofacial injuries vary from one study to another according to local specialties.

Introduction

Our aim was a long-term statistical analysis, taking into consideration that facial injuries remain a serious clinical problem both in the military and the civilian life, because of the frequency of injuries and specificity of this anatomical region.

In reviewing the literature several difficulties exist in comparing similar studies, due to variations in both data collection and classification of injuries.

The Maxillofacial Department of the Central Military Hospital was founded in 1949. Since our hospital underlays the Ministry of Defence, all the necessary specialities are available and our main task was and remained to deal with casualties.

Methods

We started to collect the data of maxillofacial injuries 20 years ago. We divided this period into two 10-year periods. Therefore we used the same data collection during the second 10 year period, in order to compare the current data with the previous 10 year’s results [3, 4].

We analyzed only the data of the inpatients. Outpatients, and those, who were treated at other departments (intensive care unit, neurosurgical, orthopedic, otolaryngological department) were not involved in the study.
Results

The second 10-year retrospective study evaluated 1001 patients, treated for maxillofacial injuries from 1995 to 2004 at our department. In the previous period from 1985 to 1994 the number of injured patients was only 502.

So the number of injuries doubled during the second 10 year period.

![Female-male ratio](image)

*Figure 1. The ratio of female/male injured patients*

The female-male ratio shows also a significant rise in the second 10 years. In the first 10-year period we treated only 32 female casualties. In the second period their number was 201. Before 1994 the military hospital treated mainly military patients, their relatives and retired military staff.

From that time our department entered the maxillofacial emergency duty system and provide care for civilian patients too. This can be the reason for the increase of female patients.

The change of the ratio of civilian-military patients shows interestingly similar feature. In the second 10-year period the number of military injured was significantly less, than in the first 10 years. The reason for this is partly because of the increase of civilian patients. However there is another reason: after joining NATO, the reduction and rationalization in the military. As a result, the number of military personnel decreased significantly. There are no conscripts, instead of them fewer but better trained contracted soldiers. Providing treatment for the civilians in the military hospital, resulted greater number of patients. Consequently the distribution of patients changed. There are more civilians, more women, more elderly patients.
Figure 2. The ratio of civilian/military injured patients

Figure 3. The age distribution in the two 10-year period
The age distribution shows this tendency.
In the first 10-year period the peak age was between 18-to 25 years. They were mostly conscripts.

In the second 10 years the age distribution is more equable, like in the civilian population. Still, the under-25 age group leads, but the over-50 age group has also a significant role in maxillofacial injuries.

Considering the aetiology of MF injuries there is an obvious change.

![Figure 4. The changes in etiology of maxillofacial injuries](image-url)
In the first 10 years violence has a leading role in maxillofacial injuries, followed by traffic accidents.

In the second 10 year period the ratio of violence increased at the traffic accident’s cost. This may be a reflection to drink-drive legislation, the effectiveness of compulsory seatbelt wearing, improved car design and safety equipment [5, 6, 7, 8, 9].

The ratio of other causes of injuries [sport-, household-, work accidents, bite, gunshot and blast injuries as others] remained almost at the same level. Though the number of falls shows also a slight increase.

Examining the time between injury and treatment, in the second 10 years maxillofacial injured patients got definitive treatment earlier, than in the first 10 years. In the first period the casualties got definitive treatment on average on the 6th day, in the second period on the 4th day. This change means better treatment. Patients reach definitive treatment providing place earlier, in spite of the fact, that there are less maxillofacial departments in Hungary, consequently many casualties get treatment at traumatological or otolaryngological departments. This can also be the reason for the slight increase in complications.

The localisation of maxillofacial injuries shows a significant change during the two examined period. Though the number of mandible fractures increased, their ratio decreased in the second 10 year period. In case of maxillary fractures both their number and ratio increased in the second period.

The ratio of soft tissue injuries and orbital (blow out) fractures hasn’t changed significantly. On the other hand there were more complicated, combined fractures in the second period.

Examining only the second 10 years, the distribution of injuries shows a significant increase in zygomatic fractures. The maxillary fractures are also increasing, and there is no change in the ratio of orbital fractures.

The fractures of the mandible is the highest, though it’s ratio is decreasing during the years.

We also examined the seriousness of injuries: the changes of isolated and compound fractures and polytrauma cases.

During the years the number of isolated fractures is slightly decreasing, while the number of compound fractures is more frequent. The number of polytrauma cases is also increasing.

The cause of the increase of complicated injuries can be, that many patients with simple fractures are treated as outpatients, so their data are not involved in this study.
We also observed the therapeutic changes. Previously we applied conservative therapy in case of simple maxillofacial fractures. Nowadays we perform operative treatment not only in case of complicated, but in case of isolated fractures too.

The tendency in use of general or local anaesthesia is similar to the treatment alterations.

In most of the cases (in 65%) we operate the patients under general anaesthesia, and only in 35% of the cases use local anaesthesia.

According to the literature alcohol plays an important role in MF injuries, especially in assault cases.
In our study only 6.4% of the injured proved to be under the influence of alcohol. No doubt, that alcohol plays a greater role in MF injuries, but according to Hungarian law, no blood alcohol/drug test is required routinely, only in criminal procedures (in case of grievous bodily harm or other violations).

We examined the use of antibiotics in case of MF injuries.

According to our data, we applied antibiotics in 58% of the cases; mostly in cases of open and compound fractures.

Figure 6. The therapeutic changes
Our first choice was amoxicillin-clavulanic acid. In case of penicillin allergy we mostly used clindamycin.

We also examined the complications. During the second 10-year period the ratio of complications was between 4–16%. The average rate of complications is 11%.

The most frequent complications were inflammations: periostitis, in some cases osteomyelitis.

We got this relatively high complication rate, because most of the patients who had some complication did not follow the medical instructions. Other type of complications that needed correction were malocclusion and aesthetic disturbances.

**Conclusion**

This retrospective analysis was performed to determine the local patterns of maxillofacial injuries, including patient age, sex distribution, military/civilian ratio, aetiology and localisation of injury, treatment modalities, complications, and the role of alcohol and antibiotics at the Central Military Hospital.

Long-term collection of epidemiologic data regarding maxillofacial injuries is important for the evaluation of existing preventative measures and useful in the development of new methods of injury prevention and organization of health provision.

This analysis helps to develop new methods of injury prevention and evaluate the quality of patient care, developing optimal treatment regimens and making decision, regarding appropriate resource and manpower allocations.

**References**


