

# COMPARISON BETWEEN SURGICAL AND NON-SURGICAL METHODS FOR THE TREATMENT OF MANDIBULAR FRACTURES

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## INTRODUCTION

The mandible is the most common fractured bone of the facial skeleton. Due to its structure the mandible has an impact strength four times higher than the maxillary bone. However, because of its position and prominence, the mandible is more frequently exposed to trauma. Objectives of treatment include anatomic reduction of fracture segments, restoration of initial pretrauma occlusion, and avoidance of complications. The two treatment options to consider are closed or open reduction.

## METHOD

This retrospective research was performed in all 65 subjects (mean age  $32.08 \pm 15.024$  years) who were hospitalized for mandible fractures within Timisoara's Department of Maxillofacial Surgery in 2013. In order to compare the hospitalization days and cost we have split the subjects in two groups. The first group included the patients that underwent surgical treatment and the second group the patients with orthopedic treatment. Statistical analysis was performed with SPSS 20 and OpenEpi. Means, standard deviation and proportions are presented. Student's t test was used to compare mean values between groups and proportions as appropriate. A P-value  $<0.05$  was considered statistically significant

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## RESULT

Regarding the type of treatment that was conducted, 56.9% (n=37) of the subjects underwent surgical treatment, 40% (n=26) orthopedic treatment, 1.5% (n=1) no treatment was necessary and in case of 1.5 (n=1) the treatment proposed was refused by the patient. The number of hospitalization days varied from 1 to 20 days (mean  $5.54 \pm 3.523$ ). Statistically the most common number of hospitalization days was 3 (16.9%, n=11). The mean of hospitalization days was  $7.51 \pm 3.185$  in case of surgical treatment and  $3 \pm 1.897$  in case of orthopedic treatment. The mean of total cost regarding the subjects that underwent surgical treatment was  $2396.51649 \pm 1026.084154$ . For the subjects that underwent orthopedic treatment the mean of total cost  $899.20127 \pm 557.257163$ .

## CONCLUSIONS

The current research shows that in case of mandible fracture the costs associated with the surgical treatment are higher than those associated with the orthopedic treatment. The total cost of the hospitalization is in direct relation with the number of days the patient was admitted. In case of surgical treatment, beside the hospitalization costs, we need to take in consideration the costs with general anaesthesia and with osteosynthesis plates and screws. This kind of cost was not included in this study. Another fact to consider is the possibility of rehospitalisation of the surgically treated patients for removal of the plates and screws after the bone consolidation is completed. All these further increase the costs of the surgical treatment.

### Student's t test mean values comparison

Statistics				
	Surgical treatment	Orthopedic treatment	p	Significance
Hospitalization days	$7.51 \pm 3.185$ (n=37)	$3.00 \pm 1.897$ (n=26)	$< 0.001$	ES
Hospitalization cost	$1877.05 \pm 827.961$ (n=37)	$819.00 \pm 517.981$ (n=26)	$< 0.001$	ES
Food cost	$34.678 \pm 15.5231$ (n=37)	$14.158 \pm 8.9225$ (n=26)	$< 0.001$	ES
Medication cost	$402.78595 \pm 219.514783$ (n=37)	$51.20212 \pm 37.180333$ (n=25)	$< 0.001$	ES
Sanitary materials cost	$54.1330 \pm 26.46061$ (n=37)	$14.7284 \pm 14.97377$ (n=25)	$< 0.001$	ES
Laboratory tests cost	$76.0926 \pm 71.42575$ (n=27)	$50.1575 \pm 27.07663$ (n=4)	0.04962	S
Total cost	$2396.51649 \pm 1026.084154$ (n=37)	$899.20127 \pm 557.257163$ (n=26)	$< 0.001$	ES