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Research Article

THE EFFECTIVENESS OF THE NEW SCHEME OF COMPLEX TREATMENT OF FRACTURES OF THE LOWER JAW

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ABSTRACT

The stable growth and prevalence of mandibular fractures in the structure of injuries of the maxillofacial region against the background of an active process of urbanization determines the urgency of improving diagnostic methods, as well as the development of the most effective comprehensive treatment regimens. In this study, the effect of the drug Traumel® S as part of drug therapy on the processes of consolidation of fragments and healing of fractures of the lower jaw was studied. Along with clinical research methods, the effectiveness of the drug was studied by assessing changes in bone density in the fracture zone using radiography and echosteometry.

KEYWORDS

Fracture of the mandible, drug therapy, echosteometry, immobilization, homeopathic medicine.

INTRODUCTION

The growth of injuries due to the increased urbanization of the population is an urgent problem of modern medicine. The proportion of fractures of the bones of the maxillofacial region is steadily increasing and averages 6-8% of the total number of injuries. In turn, fractures of the mandible prevail in the structure of injuries of the maxillofacial region. According to various authors, the frequency of fractures of the lower

jaw currently ranges from 70 to 85% of the total number of injuries to the bones of the facial skeleton [1, 5, 12, 14].

According to the data of A.I. Khasanov et al. (2020) in the structure of maxillofacial injuries, fractures of the lower jaw account for 67-92%, according to Ibragimov Sh.R. et al. (2020) this indicator varies widely and

amounts to 12.2-70.2%, and in the structure of inpatient maxillofacial departments of hospitals, the average indicator is 28-36% [2, 6, 9]. Despite the continuous improvement of the complex treatment of mandibular fractures, the frequency of inflammatory complications remains high and reaches an average of 37%. Most doctors limit themselves to prescribing analgesic and nonsteroidal anti-inflammatory drugs. There are also often cases of self-treatment when patients take various medications (mainly antibiotics, calcium-containing drugs, etc.) without taking into account the indications and individual dosage of the drug [7, 8, 10, 11, 16].

It is necessary to take into account the active development of the pharmaceutical industry, especially the direction of so-called homeopathic medicines, in respect of which there are disputes about their effectiveness. There are a number of studies that confirm the presence to some extent of the therapeutic effect of these funds [3, 4, 13, 14, 15].

In connection with the above, the issues of further improvement of methods of treatment of facial skull injuries, in particular fractures of the mandible, are relevant, due to their significant frequency and difficulties in choosing the optimal tactics of patient management. At the same time, an integrated approach to the approach of management tactics of these groups of patients is important, based on a special specific clinical situation.

The purpose of this study was to assess the effect of the homeopathic drug Traumel® S on the healing process of fractures of the lower jaw.

Materials and methods. The observations were based on a study of 68 patients with mandibular fractures who sought help in the department of maxillofacial surgery of the Tashkent State Dental Institute Clinic.

Among them, 47 (69.1%) men and 21 (30.9%) women aged 18 to 65 years. Mostly patients aged 30-39 years prevailed – 34 (50%) people.

Of all patients, 29 (42.6%) were hospitalized on the first day, 34 (50%) within 2-3 days, and 5 (7.4%) patients at a later date. According to the nature of the fracture, unilateral – 43 (63.2%) prevailed, followed by bilateral – 18 (26.5%) and multiple – 7 (10.3%).

If the patient's condition allowed, complaints were determined, anamnesis of life, epidemiological, allergological anamnesis was studied, if necessary, this information was also obtained from relatives or from persons accompanying the patient; an assessment of the general condition was carried out; when identifying pathology of internal organs, patients were examined by specialized specialists.

Depending on the type of complex of therapeutic measures carried out, patients were divided into 3 groups by random sampling (Table 1):

1st group – 20 patients, whose complex treatment included the reposition of fragments, immobilization, osteosynthesis, if necessary, and traditional drug therapy (with a solution of furacillin in a dilution of 1:5000). Drug therapy included, according to indications, taking antibiotics, probiotics, sulfonamide preparations, analgesics, desensitizing drugs.

2nd group – 18 patients, whose complex treatment included the reposition of fragments, immobilization, osteosynthesis, if necessary, and traditional drug therapy and taking the active calcium preparation A.A.G. (Active Asia Gold, Uzbekistan) 1 tablespoon 3 times a day, the course of treatment – 1 month.

3rd group – 30 patients, whose complex treatment included the reposition of fragments, immobilization, traditional drug therapy, as well as the administration

of the drug Traumel® S (Biologische Heilmittel Heel, Germany) in the form of injections (2.2 ml) 1 time a day for 5 days. Depending on the place of administration of the drug, this group was divided into two subgroups:

3a – 15 patients, into the mucous membrane in the projection of the fracture line; 3b – 15 patients, intramuscularly.

Table 1. Allocation of patients by group and type of mandibular fracture

Type of fracture	1st group	2nd group	3a group	3b group	TOTAL
Unilateral	12	11	10	10	43
Bilateral	6	6	3	3	18
Multiple	2	1	2	2	7
TOTAL	20	18	15	15	68

The control group included 20 people without injuries of the maxillofacial region, somatically healthy without pathology of the central and peripheral nervous system.

Clinical methods included a standard list of studies: survey, visual examination of the throat and oral cavity, palpation, determination of the mobility of fragments, the amount of infiltration and edema, the condition of teeth in the fracture line, assessment of the inflammatory response of the mucous membrane at the fracture site, assessment of pain and the severity of collateral edema, etc. Additionally, orthopantomography (Fona XPan DG Plus), if necessary, obtaining sighting images using a visiograph (PROX), echosteometry ("EOM-02") were included to determine the dynamics of changes in bone density in the fracture zone. EOD of the teeth of the upper and lower jaw with preserved pulp in the area innervated by the damaged nerve and on the healthy side were carried out using the EOD – Pulptest-Pro IVN-

1 apparatus (Russia). Statistical data analysis was carried out using the StatSoft Statistica 6.0 program.

RESULTS AND DISCUSSION

Analysis of clinical data showed that in patients of the first and second groups, the timing of relief of the pain symptom did not differ statistically and amounted to 5.48 ± 1.52 and 5.34 ± 1.88 days, respectively ($p > 0.05$). And in patients of groups 3a and 3b, whose treatment complex included Traumel® S injections, the pain symptom was stopped much faster: in group 3a after 2.88 ± 0.52 , 3b – 3.14 ± 0.53 days than in patients of groups 1 and 2 ($p < 0.05$) (Fig. 1).

The timing of the disappearance of traumatic collateral edema was also significantly less in group 3a and 3b. If in these patients the edema disappeared after 4.25 ± 0.81 and 4.87 ± 1.25 days, respectively, then in patients of group 1 after 10.42 ± 2.54 , group 2 after 10.22 ± 2.08 days ($p < 0.05$). Body temperature in patients of the first and second groups remained elevated for a longer time: 3.55 ± 1.47 and 3.08 ± 1.97 days, respectively, than in

groups 3a and 3b: 1.36 ± 0.57 and 1.58 ± 1.05 days ($p < 0.05$). It should be noted that the fastest normalization of indicators was observed in patients of

group 3a, to whom Traumel® S injections were injected into the mucous membrane in the projection of the fracture line (Fig. 2).

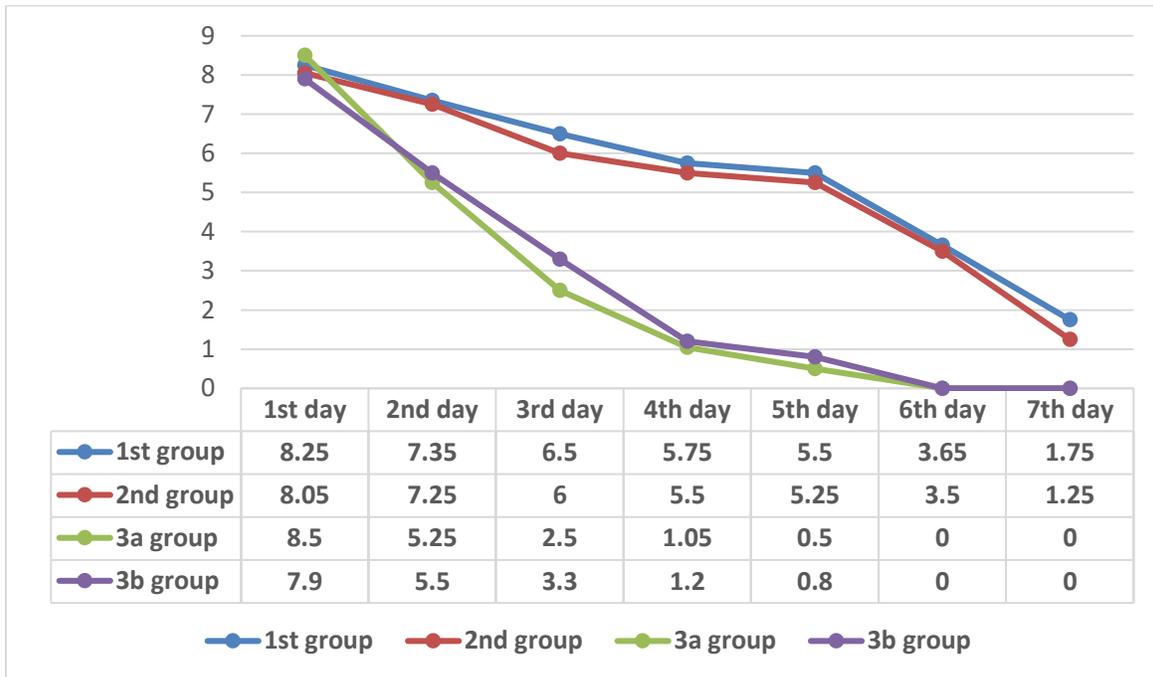


Fig. 1. Dynamics of pain syndrome on a digital scale

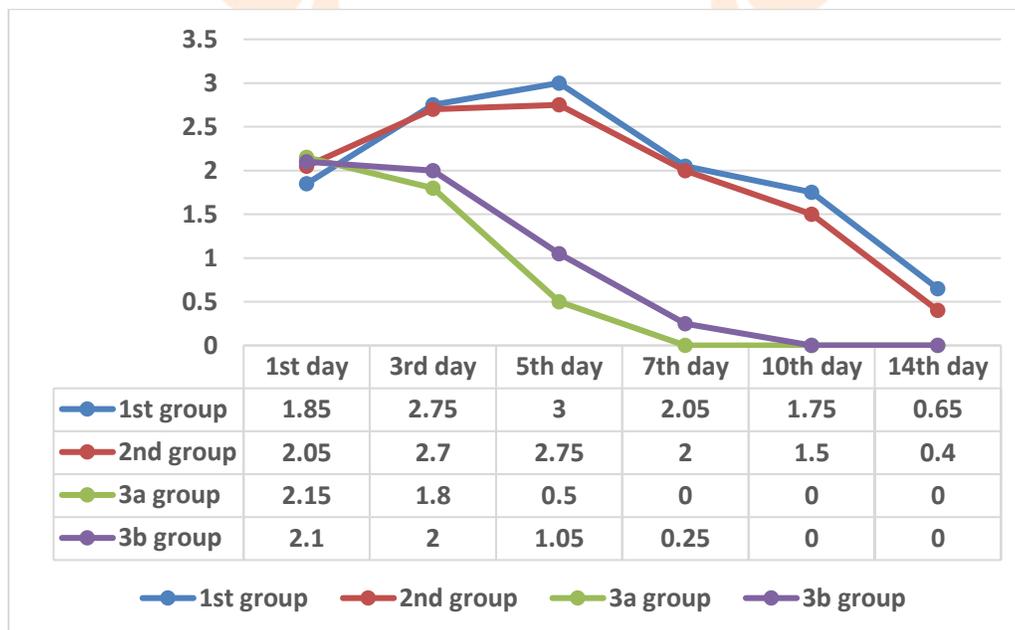


Fig. 2. Dynamics of the intensity of collateral edema

Hyperemia, edema, bleeding of the gums of varying severity was observed in patients of groups 1 and 2 throughout the period of immobilization of the jaws, whereas in patients of groups 3a and 3b, inflammatory processes were stopped already on 3-4 days from the start of the course of treatment, local foci of inflammation were determined only in places of injury to the gingival papillae by elements of splinting structures.

Complications of inflammatory HPV developed in the traditional case in 3 (15%) patients of the 1st group (suppuration of the bone wound and abscess of the submandibular region were observed) and in 2 (11.1%) – in the 2nd group (traumatic osteomyelitis). No non-inflammatory complications were observed in groups 3a and 3b. The duration of treatment in the CHLC department in patients of group 1 was 20.42 ± 0.55 days,

Group 2 – 17.81 ± 2.88 , 3a – 14.2 ± 1.07 , 3b – 17.23 ± 1.92 days.

With densitometry of the fracture slit, the optical density index was on average 91.8 ± 8.58 . The optical density index of intact bone tissue was on average 135.2 ± 14.5 . According to the formula, the average optical density index on the day of admission was equal to: $I = 0.67 \pm 0.2$. A month after the injury, the optical density in the fracture area was on average equal to 110.8 ± 8.56 in patients of the first group, 120.5 ± 6.21 – in the second group, 128.9 ± 9.34 – in group 3a and 121.3 ± 7.88 – in 3b groups. This parameter of intact bone tissue was on average equal to 135.8 ± 15.22 . The formula was used to determine the average values of the optical density index (I) a month after the injury (Table 2).

Table 2. Optical density indicators at the fracture site one month after the injury, M±m

Parameters	Groups			
	1	2	3a	3b
Optical density	$110,8 \pm 8,56$	$120,5 \pm 6,21$	$128,9 \pm 9,34$	$121,3 \pm 7,88$
Optical density index (I)	$0,82 \pm 0,2$	$0,89 \pm 0,1$	$0,95 \pm 0,2$	$0,92 \pm 0,1$

According to the data obtained, the highest rates of densitometry were achieved in patients of group 3a. Similar values were recorded in patients of groups 2 and 3b, while the lowest bone density was observed in patients who received traditional drug therapy.

Monitoring of the dynamics of changes in bone density at the fracture site was carried out using echosteometry. According to the data obtained, the

speed of ultrasound passage through the area of the lower jaw with a fracture was maximized in all observed groups. The most rapid recovery of indicators occurred in patients of the 2nd and 3rd groups, whose echosteometry values were as close as possible to the density of the intact bone tissue of the lower jaw 4 weeks after the injury.

The EOD values obtained a month after the start of treatment indicated a positive effect of injections of the drug Traumel® S on the restoration of sensory

function of nerve fibers damaged during fracture (Fig. 3)

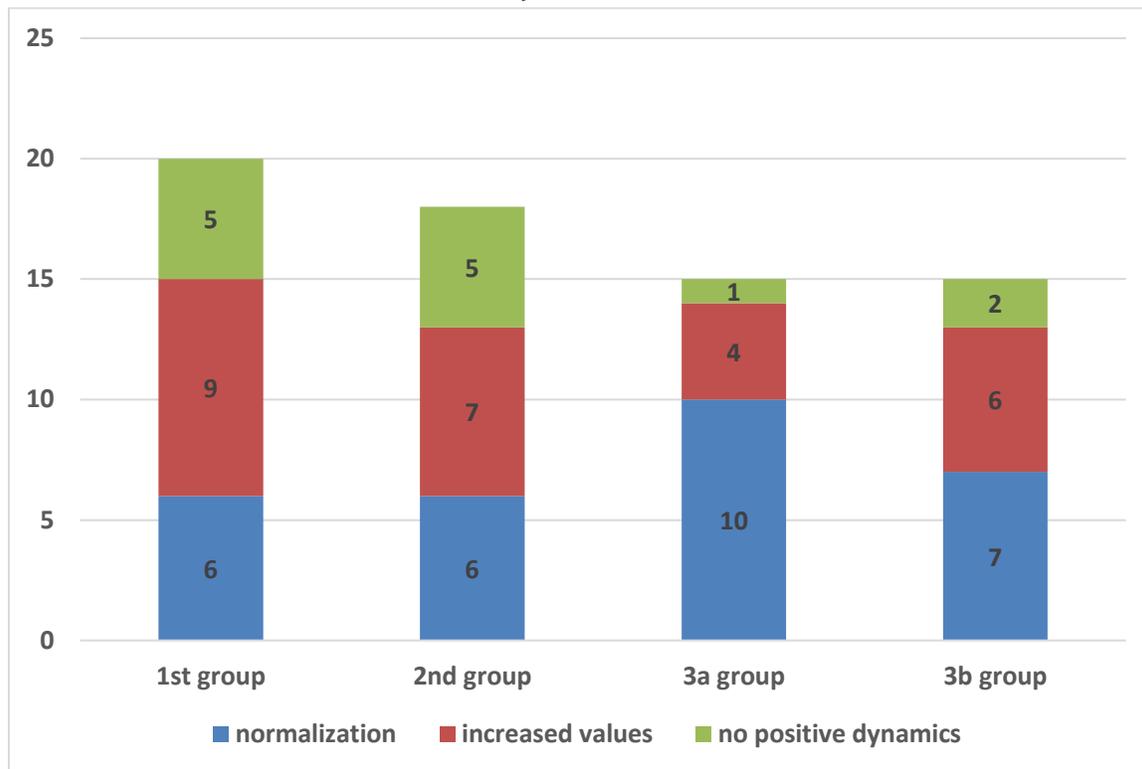


Fig. 3. Change in EOD indicators one month after the start of treatment

CONCLUSION

Thus, the inclusion of the homeopathic drug Traumel® S in the complex treatment contributes to a faster improvement in the general condition of patients with mandibular fractures, acceleration of the consolidation of fragments and restoration of bone density to normal parameters, prevention of inflammatory complications. The inclusion of the active calcium preparation A.A.G. also had a positive effect on the dynamics of changes in densitometry indicators. The data obtained indicate a more pronounced positive effect of Traumel® S injections into the mucous membrane in the projection of a fracture compared with intramuscular administration of this drug.

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