3. Miyashita-Ishiurata M., El Sabeh M., Reschke L.D. Hipoxia induces proliferation via Nox-4 Mediated oxidative stress and TGF-β_3 signaling in uterine leomyoma cells. *Free Radic Res.* 2022 Feb. 56(2). P. 163–172.

4. Sarkodie EK, Zhou S, Baidoo SA, Chu W. Influences of stress hormones on microbial infections. *Microb Pathog*. 2019 Jun. 131. P. 270–276. doi: 5.1016/j.micpath.2019.04.013. Epub 2019 Apr. 11. PMID: 30981718.

DOI https://doi.org/10.30525/978-9934-26-387-3-9

INFLUENCE OF OROFACIAL DYSFUNCTION AS A CONSEQUENCE OF THE MANDIBULA FRACTURE ON THE QUALITY OF LIFE AND THE POSSIBILITY OF ITS CORRECTION BY PHYSICAL THERAPY

ВПЛИВ ОРОФАЦІАЛЬНОЇ ДИСФУНКЦІЇ ВНАСЛІДОК ПЕРЕЛОМУ НИЖНЬОЇ ЩЕЛЕПИ НА ЯКІСТЬ ЖИТТЯ ТА МОЖЛИВОСТІ ЇЇ КОРЕКЦІЇ ЗАСОБАМИ ФІЗИЧНОЇ ТЕРАПІЇ

Saienko O. V.
Postgraduate Student at the Department of Therapy, Rehabilitation and Morphology, Vasyl Stefanyk Precarpathian National University Ivano-Frankivsk, Ukraine

Саєнко О. В.
аспірант кафедри терапії, реабілітації та морфології, Прикарпатський національний університет імені Василя Стефаника м. Івано-Франківськ, Україна

Introduction. Increasing the effectiveness of complex rehabilitation of patients with injuries of the maxillofacial region is an urgent problem related not only to the state of peripheral tissues, but also to the dynamically changing state of psychophysiological functions of patients [2, p. 425–430]. Restoration of bone tissue in case of jaw fractures is a complex process due to the coordinated influence of central and local regulatory systems on the structural reconstruction of bone tissue in the area of damage [3, p. 183–189]. At the same time, despite the proven effectiveness of rehabilitation means (exercises, massage, preformed physical and natural factors) [1, p. 188–190; 4, p. 197–200] in dental practice, in particular, in maxillofacial surgery, insufficient attention is paid to the restoration of the

functional fullness of the orofacial area by these restorative methods, which determined the relevance of the presented work.

The aim is to evaluate the effectiveness of the developed rehabilitation program based on the dynamics of quality of life parameters related to the maxillofacial area in patients in the post-immobilization period after a fracture of the mandibula.

Research methods. During the study, 53 people were examined.

The control group (CG) consisted of 32 people (18 men, 14 women) aged 34.5±2.4 years without the consequences of maxillofacial trauma and severe dental status. The main group (MG) consisted of 21 people (16 men, 7 women) aged 28.4±3.1 years with the consequences of a mandibula fracture (consolidated uncomplicated fractures of the lower jaw (angle, body) without displacement / with minimal displacement of bone fragments; early postimmobilization period after conservative treatment – double-jaw splinting with wire splints with hooks and interjaw rubber traction). The developed program included therapeutic exercises for the muscles of the neck, cervical collar zone, back, shoulder girdle; exercises with the TheraBite Jaw Motion Rehabilitation System" simulator; a course of massage (intraoral and classic) of the masticatory muscles, temporo-mandibular joint (TMJ), neck, cervical zone; thermal procedures (dry heat) on the TMJ area; postisometric relaxation and proprioceptive neuro-muscular facilitation of masticatory muscles, neck muscles; kinesiological taping of TMJ area, masticatory muscles, neck; teaching the patient (taking soft food, limiting wide opening of the mouth, prolonged chewing, clenching of the jaws, conscious controlled correction of their incorrect motor stereotypes, elimination of bad habits). The rehabilitation program lasted three months; during the first intervention, it was carried out on the basis of the rehabilitation center, during the second – in a hybrid format (on the basis of the rehabilitation center, in the format of telerehabilitation, independently), during the third – in the form of telerehabilitation and independent classes with periodic eye control.

The condition of the patients was determined by the dynamics of the 14-item Oral Health Impact Profile – OHIP-14 (OHIP-14) [5, p. 3–11].

Research results. Posttraumatic changes due to mandibular fractures were manifested in the deterioration of physical, mental and social aspects of quality of life, which was determined by the OHIP-14 questionnaire (Table 1). In all its domains, the patients demonstrated a result that indicates a significant negative impact of dental dysfunction on health and life in general – out of a maximum of 56 points, the patients scored 50.14±0.15 points.

Table 1

Dynamics of quality of life according to OHIP-14 in patients with a mandibula fracture in the post-immobilization period under the influence of rehabilitation measures

Score	CG (n=32)	MG (n=21)	
		Before rehabilitation	After rehabilitation
1. Functional limitation	0,55±0,05	7,15±0,12*	2,84±0,08*°
2. Physical pain	0,22±0,04	6,82±0,16*	1,51±0,07*°
3.Psychological discomfort	0,38±0,06	7,22±0,21*	1,36±0,11*°
4. Physical disability	0,16±0,05	7,69±0,18*	2,51±0,15*°
5. Psychological disability	0,30±0,08	6,94±0,15*	1,20±0,16*°
6. Social disability	0,11±0,06	6,52±0,11*	1,48±0,16*°
7. Handicap	0,11±0,06	7,80±0,13*	2,12±0,20*°
Total	1,83±0,09	50,14±0,15*	13,02±0,12*°

Notes: * – $p<0.05$ – statistically significant difference between the corresponding parameters of CG and MG; ° – $p<0.05$ – statistically significant difference between the corresponding parameters during the initial and repeated examinations

Improvement in the functioning of the mandibula and TMJ against the background of rehabilitation intervention, reduction in pain intensity, improvement in the amplitude of movements (which is reflected in the OHIP-14 questions), reduction in the severity of orofacial dysfunctions led to an improvement in the quality of life, assessed by OHIP-14, by 74%.

Conclusions. In patients in the post-immobilization period after a mandibula fracture, a pronounced negative impact of dental dysfunction on the quality of life (OHIP-14) is determined, which is evidence of a violation of the normal functioning of the maxillofacial area. The comprehensive rehabilitation program demonstrated a statistically significantly better effect ($p<0.05$) on the studied indicators of quality of life compared to the initial data, which demonstrates its effectiveness and confirms the need for the use of specialized rehabilitation in patients with the consequences of injuries of the mandibula.

Bibliography:

1. Аравіцька М. Г., Шеремета Л. М., Данильченко С. І., Довгань О. В. Ефективність засобів фізичної терапії у корекції функціонального статусу скронево-нижньощелепного суглоба при артрозі. *Український журнал медицини, біології та спорту.* 2021, Том 6, № 6(34). С. 188–193. DOI: 10.26693/jmbs06.06.188

2. Adik K., Lamb P., Moran M., Childs D., Francis A., Vinyard C. J. Trends in mandibular fractures in the USA: A 20-year retrospective analysis. *Dent Traumatol.* 2023. № 39(5). P. 425–436. doi:10.1111/edt.12857

3. Cabalag M. S., Wasiak J., Andrew N. E., Tang J., Kirby J. C., Morgan D. J. Epidemiology and management of maxillofacial fractures in an Australian trauma centre. *J Plast Reconstr Aesthet Surg*. 2014. № 67(2). P. 183–189. doi:10.1016/j.bjps.2013.10.022

4. Petronis Z., Spaicyte N., Sakalys D., Januzis G. Functional Rehabilitation after Mandibular Fracture – A Systematic Review. *Ann Maxillofac Surg.* 2022. № 12(2). P. 197–202. doi:10.4103/ams.ams_99_22

5. Slade G. D., Spencer A. J. Development and evaluation of the Oral Health Impact Profile. *Community Dent Health*. 1994. № 11(1). P. 3–11.