

14. The Innovations Technologies in Rehabilitation of the Antiterrorist Operation Victims

Keywords: Craniocerebral trauma, intracranial hypertension, pain, neuroadaptive low-frequent impulse , LEIT.

The humanitarian catastrophe provoked in Ukraine by neighbouring state, forces the best representatives of our country to take part in military operations. The saddest, that thus also perishes civilians. Women, children, old men suffer. Young able-bodied people should risk the life, health for the sake of the world and well-being of our planet, because Ukraine it only the beginning of aggression of the hostile state. In antiterrorist operation conditions it is necessary to apply a maximum efforts not only for life preservation which is priority at the state level, but also it is necessary to create conditions for a speedy recovery, possibility to return on service to the trained, skilled fighters. At newest technologies use possibility to keep not only working capacity, but also quality of wounded men life hereafter can be created.

Craniocerebral injury – one of the most frequent kinds of traumas, which meet in 30-50% cases of all traumatic damages [14.1, 14.2, 14.3]. Craniocerebral injury is a principal cause of death and physical inability of people under 45 years old and it gains the lead in neurosurgical pathologies structure [14.1]. In a wartime the craniocerebral injury principal causes are various bullet and explosive wounds

The aim of the work is to define possibility and expediency of neuroadaptive low-frequent impulse application at rehabilitation of patients with craniocerebral injury and polytrauma in hospital conditions.

Researches and treatments of wounded men were spent in military hospital conditions (Dnepropetrovsk region).

The research object were wounded persons (n=30) from 19 till 39 years old (middle age was 29.53 ± 1.06). As a control group have been investigated 20 persons identical on age (middle age was 29.1 ± 1.1) and sex, examined by electroencephalography in Dnepropetrovsk. Selection criteria have been defined on the basis of modern classification (Fig. 1).

By closed craniocerebral injury clinical forms brain concussion and a bruise of easy and moderate severity level were investigated. Presence of painful syndrome, weight in a head, neurologic manifestations were obligatory criteria of patient's selection. 36.7% of wounded men had combined traumas (except craniocerebral injury, they had traumas of two or more organs and body parts).

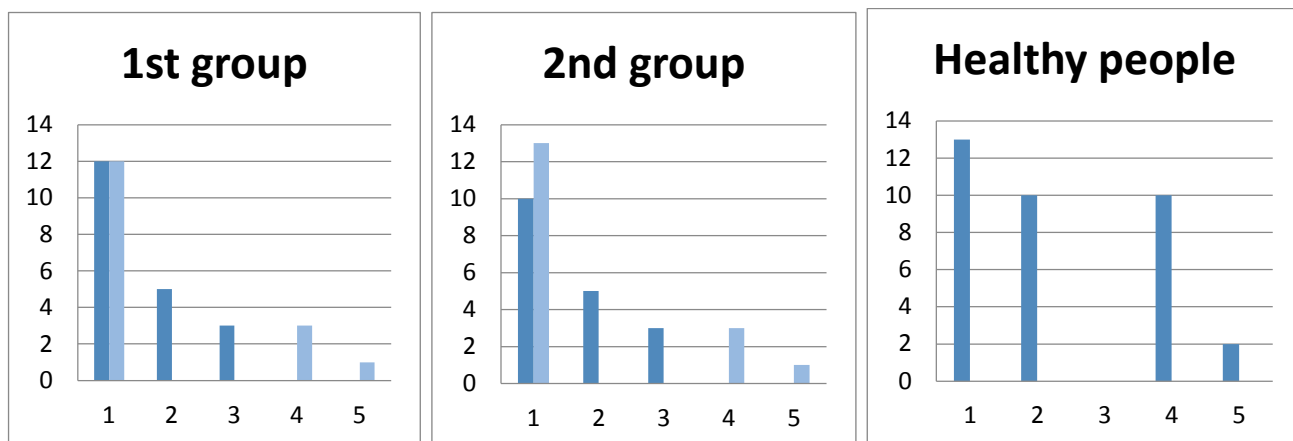


Figure 1. Results of electroencephalography research (additional echo signals): 1 – are registering, 2 – are registering in a great number, 3 – are registering in a large amount, 4 – are registering not a lot, 5 – are registering moderate

The origin and circumstances of craniocerebral injury occurrence were analyzed. In hospital conditions the tool diagnostics confirming craniocerebral injury was spent. The big attention was given to studying of intracranial hypertension signs.

Pain character at craniocerebral injury and its estimation (on a mark scale) before and after treatment were investigated [14.4]. At control chart drawing up the craniocerebral injury physiotherapeutic treatment expediency of is proved. ***

The basis of device LEIT application is that it has passed tests in many clinics in territory of Ukraine (Kharkov, Kiev, Nikolaev, Kherson, Berdyansk). It is certificated in Ukraine and is domestic working out. Scientific researches on neuroadaptive therapy application are spent on the basis of Zaporozhye medical academy of post-graduate education (the 9th municipal hospital) [14.6, 14.7]. The basic techniques of physiotherapy application at trauma have been developed. Except craniocerebral injury classical therapy (analgesics, tranquilizers, anticonvulsive and diuretic preparations) in the basic group LEIT-therapy was applied (three paths, six points, on reflex arches, on zones, in the field of wounded body parts). The procedure lasted from 20 till 30 minutes at 77 Hz frequency [14.5, 14.6].

In hospital efficiency of treatment was estimated on the basis of clinical data dynamics. Intensity of a pain was estimated on a mark scale: 1 point – the minimum, 2 points – the moderate, 3 points – expressed.

Result of research is positive results in comparison with control group (Tab. 1, fig. 2).

Table 1. Numerological pain scale at patients with craniocerebral injury

1 st group			2 nd group	
1 st day of hospitalization	During the hour after procedure	In a three days	1 st day of hospitalization	In a three days
2.8 ± 0.12	1.3 ± 0.09	1.5 ± 0.09	2.7 ± 0.08	2.2 ± 0.05

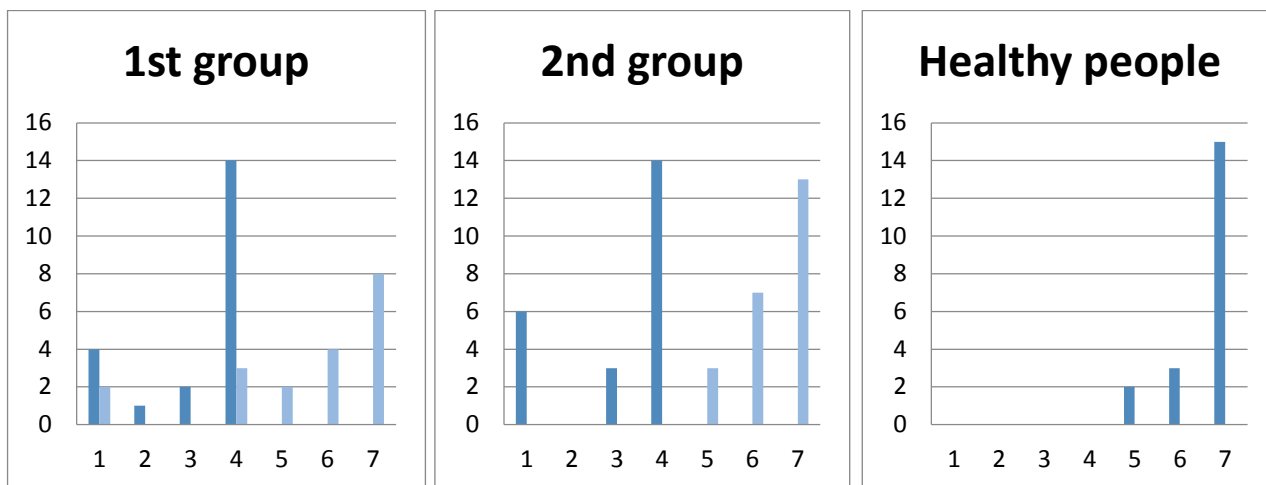


Figure 2. The signs of intracranial hypertension: 1 – clinically apparent, 2 – easy clinically apparent, 3 – sharp clinically apparent, 4 – moderate clinically apparent, 5 – upper bound of norm, 6 – light, 7 – don't detected

At treatment in hospital conditions with neuroadaptive signal application decongestion and painful syndrome removal, function restoration at various etiology traumas were observed.

Neuroadaptive therapy application allows to reduce treatment term and to improve its quality, allows to reduce pharmacological loading in rehabilitation period.

Device application possibility for the purpose of human body adaptation to the new conditions is defined. Essential analgetic effect is retraced at LEIT therapy use.

Neuroadaptive therapy can be used at loss of consciousness, at faint, at shock, at asthenia symptoms.

LEIT promotes restoration of vegetative nervous system regulatory ability, promotes blood flow improvement in terminal vascular channel. This allows use this technique at edemas, bruises, hemorrhages in soft tissues of various geneses. LEIT application promotes elimination of myofascial syndrome (a spasm of skeletal muscles).

On the basis of the spent work recommendations about LEIT application, introduction certificates were made.

The offered method is expedient for using in clinical practice of medical-improving establishments. The program of sanatorium treatment and rehabilitation of military men victims in antiterrorist operation is made.

The given technique allows remove acquired conditioned reflex connections. In such way conditioned reflexes as result of pathological process are eliminated, and the organism becomes opened for various traditional methods of influence. As the result treatment efficiency essentially raises. From our point of view the leading part in headache genesis (at craniocerebral injury) is an intracranial hypertension. Thanks to influence of a low-frequency electric impulse in certain areas, conditions for adequate lymph

drainage are created. During the procedure subjectively patients first of all notice, that weight in a head disappears, the headache essentially decreases, and in some cases it disappears in general. It is marked also positive dynamics at research of general neurologic symptomatology.