



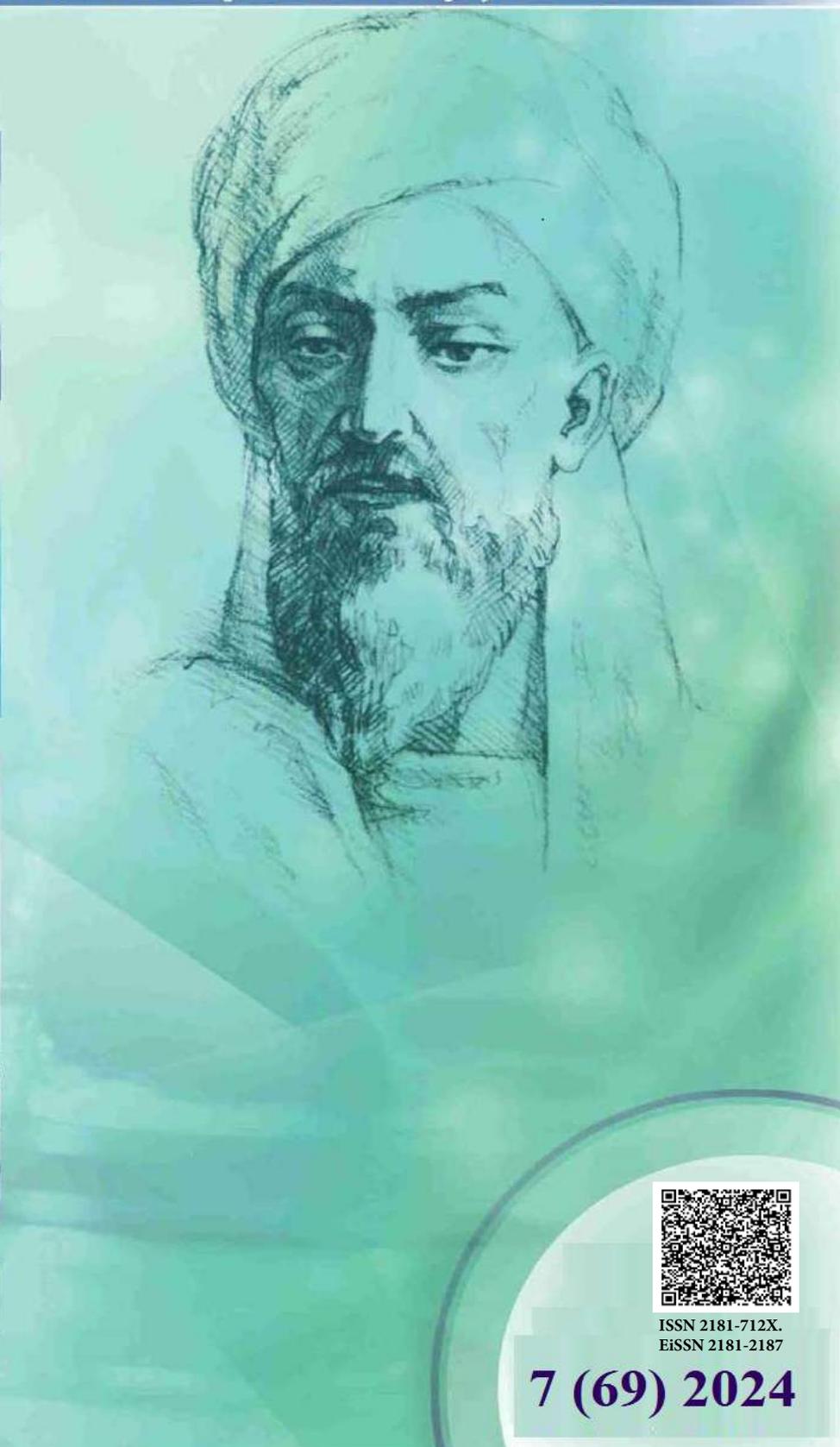
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**ТИББИЁТДА ЯНГИ КУН
НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE**

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PREDICTION OF NEUROLOGICAL OUTCOME IN PATIENTS WITH POST-RESUSCITATION ILLNESS

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✓ *Resume*

Post-resuscitation disease is an extremely complex complex of progressive changes developing in all systems, organs and tissues, the outcomes of which are characterized by high mortality and the development of severe neurological deficit. All over the world, predicting the neurological outcome of this pathology is an urgent problem, as it allows one to determine patient management tactics and optimize the scope of medical care, as well as prepare the patient's family members for the expected treatment results.

Keywords: post-resuscitation illness, prediction of neurological outcome, electroencephalography, neurospecific enolase.

ПРОГНОЗИРОВАНИЕ НЕВРОЛОГИЧЕСКОГО ИСХОДА У ПАЦИЕНТОВ С ПОСТРАНИМАЦИОННЫМ ЗАБОЛЕВАНИЕМ

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✓ *Резюме*

Постреанимационная болезнь представляет собой чрезвычайно сложный комплекс прогрессирующих изменений, развивающихся во всех системах, органах и тканях, исходы которых характеризуются высокой летальностью и развитием тяжелого неврологического дефицита. Во всем мире прогнозирование неврологического исхода данной патологии является актуальной проблемой, поскольку позволяет определить тактику ведения пациентов и оптимизировать объем медицинской помощи, а также подготовить членов семьи пациента к ожидаемым результатам лечения.

Ключевые слова: постреанимационная болезнь, прогнозирование неврологического исхода, электроэнцефалография, neurospecific enolase.

PROGNOZIROVANIE NEVROLOGICHESKOGO ISHODA U PATSIENTOV S POSTRANIMATSIONNYM ZABOLEVANIEM

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✓ **Rezyume**

Reanimatsiyadan keyingi kasallik - bu barcha tizimlar, organlar va to'qimalarda rivojlanayotgan progressiv o'zgarishlarning o'ta murakkab majmuasi bo'lib, uning natijalari yuqori o'lim va og'ir nevrologik etishmovchilikning rivojlanishi bilan tavsiflanadi. Butun dunyoda ushbu patologiyaning nevrologik natijasini bashorat qilish dolzarb muammo hisoblanadi, chunki u bemorni boshqarish taktikasini aniqlash va tibbiy yordam ko'lamini optimallashtirish, shuningdek, bemorning oila a'zolarini kutilgan davolanish natijalariga tayyorlash imkonini beradi.

Kalit so'zlar: reanimatsiyadan keyingi kasallik, nevrologik natijalarni bashorat qilish, elektroensefalografiya, neyrospezifika enolaza.

Relevance

Post-resuscitation illness (PRI) is a state of the body after clinical death, characterized by high mortality and the development of severe neurological deficits in the majority of surviving patients.

Purpose of the study: To study the prediction of neurological outcome in patients with post-resuscitation disease to determine patient management tactics and optimize the volume of medical care.

Materials and methods

The International Liaison Committee on Resuscitation (ILCOR) published the results of its first international study on out-of-hospital cardiac arrest in the journal Resuscitation in April 2023. The ILCOR report presented data from nine national and seven regional registries, according to which the estimated annual incidence of out-of-hospital circulatory arrest (OHCA) admissions was close to 30.0–97.1 people. per 100 thousand population. Survival to hospital discharge or 30-day survival was 3.1–20.4% across all registries. Favorable neurological outcome at discharge from the hospital or 30 days after OHCA ranged, according to various data, from 2.8 to 18.2% [1].

Results and discussion

The pathophysiology of PRI includes hypoxic-ischemic brain injury, myocardial dysfunction after circulatory arrest (CA), the systemic response to ischemia/reperfusion, and the pathology that provoked the AR [3]. According to foreign literature, cardiovascular failure is the main cause of death of patients in the first 72 hours of the disease, while the cause of most later deaths is the withdrawal of life-sustaining therapy due to severe hypoxic-ischemic damage brain and predicting an unfavorable outcome of the disease [2].

The relevance of predicting the neurological outcome in PRI is due to the growing interest in this nosology and the high cost of material, technical and human resources. In foreign practice, the practice of stopping intensive care is widespread in cases where treatment is unpromising and brings more suffering to the patient and his family members than the underlying disease [4].

Neurological outcome after CR is most often assessed using the five-point CPC (Cerebral Performance Categories Scale) scale (Table 1).

Table 1. Categorical scale for assessing the restoration of cerebral activity [4]

CPC 1	Good neurological outcome: patient is conscious, awake, able to return to work, may have minor neurological or psychiatric deficits
CPC 2	Moderate neurological deficit: the patient is conscious, the existing cerebral function is sufficient for self-care. Returning to normal work activities is difficult
CPC 3	Severe neurological deficit: the patient is conscious and incapable of self-care. There is severe dementia or gross motor deficit
CPC 4	Coma or vegetative state: any coma without definite signs of brain death. Lack of productive contact, alternating sleep-wake cycles
CPC 5	Brain death: apnea, areflexia, lack of activity on EEG

Two systems have also been developed for early to determine the likelihood of an unfavorable neurological outcome in patients with PRI who were treated with targeted hypothermia (THM). According to the first system, the following parameters are associated with an unfavorable outcome: older age; OK, which arose at home; initial rhythm that does not require defibrillation; long period of lack of blood flow and hypoperfusion; injection of adrenaline; bilateral absence of pupillary and corneal reflexes; lack of motor response to pain; low pH level; PaCO₂ less than 33.7 mm Hg. Art. upon admission [2].

The second system for early stratification of neurological outcome after OHCA using targeted hypothermia is C-GRaPH, which takes into account known pre-arrest coronary artery disease; initial glucose level ≥ 11.1 mmol/l (Glucose ≥ 200 mg/dl); initial rhythm that does not require defibrillation (Rhythmofarrest not VT/VF); age over 45 years (Age > 45) and arterial blood pH ≤ 7.0 (pH (arterial) ≤ 7). The presence of one of the parameters is assessed as 1 point, thus, a C-GRa pH score of 4 points and above has a specificity of 97% for an unfavorable prognosis [3].

The presence of early (less than 48 hours after successful resuscitation) myoclonic postanoxic status, defined as continuous and generalized myoclonus that persists for more than 30 minutes in a patient in a coma after OC, is almost always associated with an unfavorable neurological outcome [2]. A. S. Reynolds et al. In a retrospective study of 604 adult patients who survived AC, the incidence of cortical and subcortical myoclonus, as well as its impact on outcome, was assessed. The authors concluded that this condition is detected in every sixth patient with PRI, while a good neurological outcome was observed in only 12–16% of patients with cortical and subcortical myoclonus, respectively [3]. Myoclonus is considered a less reliable predictor of unfavorable neurological outcome than the corneal reflex and pupillary response to light, therefore it is recommended to consider it in the framework of predicting neurological outcome only in conjunction with other indicators [4].

Conclusion

Currently, there is no single prognostic criterion for adverse neurological outcome that has 100% sensitivity and specificity. Predicting the outcome of PRI should be based on a multimodal approach with the involvement of doctors of related specialties and the use of laboratory and instrumental diagnostic methods.

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