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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ
ТБИЛИСИ - НЬЮ-ЙОРК

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რეზიუმე

ანტი-ვირუსული აქტივობის მქონე ციტოკინების ანალიზი ალერგოპათოლოგიის აქტიურ და ლატენტურ ფაზებში პაციენტებში ეპშტეინ-ბარის ვირუსული ინფექციის ქრონიკული პერსისტენციით

¹ს. ზუბენკო, ¹გ. პოტიომკინა, ¹ა. გავერილიუკი,
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¹დანილა გალიცკის სახ. ლეოვის ეროვნული სამედიცინო უნივერსიტეტი; ²პ. შუპიკის სახ. დიპლომის შემდგომი განათლების ეროვნული სამედიცინო აკადემია, კიევი, უკრაინა

ეპშტეინ-ბარის ვირუსი (EBV) იწვევს სხვადასხვა იმუნურ დარღვევების განვითარებას, მათ შორის ციტოკინების პროფილის ცვლილებებს, რაც ხელს უწყობს სხვადასხვა პათოლოგიური მდგომარეობის ჩამოყალიბებას, ალერგოპათოლოგიის ჩათვლით.

კვლევის მიზანს წარმოადგენდა ანტი-ვირუსული აქტივობით ციტოკინების დონის განსაზღვრა ალერგოპათოლოგიის აქტიურ და ლატენტურ ფაზებში ეპშტეინ-ბარის ვირუსული ინფექციის ქრონიკული პერსისტენციით პაციენტებში.

გამოკვლეულია 38 პაციენტი ალერგოპათოლოგიით, EBV ქრონიკული პერსისტენციის აქტიურ (პირველი ჯგუფი) და ლატენტურ (მეორე ჯგუფი) ფაზებში. ჩატ-

არდა კლინიკური და ლაბორატორიული, იმუნოლოგიური, მოლეკულურ-გენეტიკური, ინსტრუმენტული გამოკვლევები და შედეგების სტატისტიკური ანალიზი. IL-12, IL-1β, IL-33, TNF-α, IFN-γ-ის ანტივირუსული აქტივობით ციტოკინები შესწავლილია პაციენტების ორ ჯგუფში: I ჯგუფი - პაციენტები ალერგიით ქრონიკული EBV ინფექციის აქტიურ ფაზაში (PCR "+"), II ჯგუფი - პაციენტები ალერგიით ქრონიკული EBV ინფექციის ლატენტურ ფაზაში (PCR "-"). საკონტროლო ჯგუფი შედგებოდა 20 შესაბამისი სქესისა და ასაკის ჯანმრთელი პირისგან. ალერგოპათოლოგიით პაციენტებში EBV-ის ქრონიკული პერსისტენციის ფონზე გამოვლინდა ციტოკინების ქსელის კომპონენტების ოპტიმალური თანაფარდობის გამოხატული დისრეგულაცია, კერძოდ IL-1β-ის კონცენტრაციის მატება IL-12, IL-33 და IFN-γ და TNF-α-ს (აქტიურ ფაზაში) ნორმალური დონეების შემცირების ფონზე და IL-1β, IFN-γ-ს კონცენტრაციის შემცირება - IL-12, IL-33 მატების, ხოლო TNF-α ნორმალური დონის (ლატენტურ ფაზაში) ფონზე.

შესწავლილი ციტოკინების კონსოლიდირებული გაველების არარსებობა მნიშვნელოვან როლს ასრულებს პათოლოგიური პროცესის პათოგენეზში ვირუსის გრძელვადიან პერსისტენციის პირობებში, შემდგომში მისი აქტივაციით. ციტოკინების დისბალანსის მიღებული მტკიცებულებები მიუთითებს ორგანიზმის არასაკმარისს უჯრედულ-ჰუმორულ რეაქტიულობაზე ქრონიკული EBV ინფექციის დროს ალერგოპათოლოგიის ფორმირებით.

NEUROLAW: BRANCH OR SECTION OF NEW SCIENCES, A COMPLEX BRANCH OF LAW OR A WAY TO JUSTIFY CRIMINALS (REVIEW)

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Relatively recently (approximately within the last five years) legal scholars of Ukraine have begun to talk actively about the emergence of new interdisciplinary fields of knowledge which use the latest technologies in-depth study of the human. In particular neurolaw belongs to such fields. The appearance of this concept in the Ukrainian scientific community was preceded by a significant and relatively prolonged its approbation in the United States of America (that is where the very concept of "neurolaw" appeared in scientific publications in 1997 [31], but the terms related to it have been used in scientific research since the 1970s, in particular, "neuroethics", "neuroeconomics", etc.).

The most widespread (citation) were the researches of free scholar Sherrod Taylor in the field of human rights protection and human behavior social determinism; the studies by Taiki Takahashi, the Professor of Hokkaido University on neuro economics and decision-making physics; Ph.D. student at Stanford University David Eagleman who studies the neurology of the environment perception and the corresponding sensory responses; scientific investigation by the Professor of Clinical Psychiatry at Indiana University Tracy D Gunter on behavioral genet-

ics; works by the Associate Professor at Charleston College Thomas Nadelhoffer concerning the philosophy of mind and moral psychology; researches by Professor of Law at Brooklyn Law School and Visiting Fellow at New York University School of Law Adam Kolber, a specialist in criminal law, neuroethics and health care; a Baylor College of Medicine representative Alexandra Foulkes, MSc who works in the field of neuroethics and neuropsychopharmacology; a researcher at University of Technology Sydney Nicole A Vincent on the application of the advanced technologies in the study of gender and social responsibility. The studies of precisely these and of some other scholars (Google Scholar's base presents about twenty English-speaking researchers in the field) have become an important foundation for the origin and development of neuro-law.

Among European scholars who have tackled this problem the most prominent are Tamara Tkach, a professor at Rzeszow Polytechnic University (Republic of Poland) and Kremenchuk National University (Ukraine); Yelena Grebenshikova, Head of the Center for Scientific Information Studies on Science, Education and Technologies (Russian Federation); and Serhiy Yare-

menko, a young scientist of the National University "Odessa Law Academy" (Ukraine). Each of them interpreted the pragmatism of the neurolaw in their own way.

Let's try to consider comprehensively the phenomenon of neurolaw, evaluating it as a product comparing it with other new to Ukrainian science products as bioethics and behaviorism, as a possible separate branch of law in general or as an institution of medical law, and analyze the feasibility of its implementation and development in the national justice system, or, on the contrary, a categorical rejection of it as a "exquisite" way of avoiding the full responsibility of criminals.

The methodological basis of the study were: *phenomenological approach* to the study of the mechanism of the emergence and implementation of neurolaw; *activity approach* for studying the peculiarities and specificities of the norms of the neurolaw; *functional approach*, which made it possible to consider the patterns of functioning of the neurolaw as a component of medical law; *systematic approach* that involves the separation of neurolaw as a structural unit in the system of legal reality and its constitution. In addition, such *general scientific methods* were used, as logical (methods of analysis and synthesis, analogy, abstraction and modeling); such *special methods* as sociological, linguistic, psychological, as well as methods of natural sciences adapted to the study of health problems and the establishment of legal liability; the following *private methods*: special legal, juridical and technical, comparative legal. Moreover, the entire methodological basis was applied in compliance with the principles of comprehensiveness, historicism, complexity, conformity, systematicity, integrity, which made it possible to ensure the reliability of the results and conclusions.

How did the idea of neuroright arise?

Since all societies at all times worried about the issue of counteracting crime, it was necessary to be able to identify potential offenders in order to isolate them from others in time and prevent a crime. Different historical epochs stated various distinctive signs of a symbolic image of the offender. Initially, they were described in religious norms, but there was more about the causes of criminal behavior, among which there were karma, divine providence, temptation, obsession. Then they paid attention to the correspondence of the apparent behavior with the contemporary social morality (secrecy, unsociability, or, conversely, frank audacity). Over the time, biologic and sociological approaches were favored (for example, Ch. Beccaria considered the nature of human and imperfect laws to be among the reasons for crime [2]). Then the criminologists began to focus only on the appearance of the person (since that time the development of physiognomy and phrenology has begun). Ch. Lombroso's theory of "innate offender became a world-known theory [13]. This "matrix" had to be used by operatives, investigators, policemen, suspecting and persecuting people with low and sloping foreheads, shifted inwardly thick eyebrows, deeply set eyes, broad chins, stooping figures, etc. With the acquisition of a priority status of human-centrism, the most important characteristic of the offender was considered something that cannot be seen externally, but hidden in his mind. That is, the main criterion for the "search" of a potential offender was the psyche and its spontaneous, even instinctive behavioral manifestations (for example, at one time the S. Freud's psychoanalysis [23] or behaviorism were used), the specialists of which were engaged in the search for criminals and conducting interrogations first in the United States and then throughout the world [15]).

With the development of science and technology there are

new theories of distinguishing the features of the perpetrator and finding out the causes of criminal behavior (genetic, chromosomal, etc.), although the emphasis is simultaneously on the dominance of criminal needs and motivation, emotional-volitional deformation and negative social interests. On this basis, "neuropsychology" and "neurology" were distinguished advantageously. After all, the results of research in these areas have shown the most clearly the dependence of human behavior on the state of his nervous system, because it (this nervous system) forces a person to respond accordingly to signals. The environment sends us a set of certain signals informing and warning about something, requiring something in return, and so on. In general, the signal is a visual or auditory conditional symbol for the transmission of any message, instruction, command, etc.; warning, notification (which is mostly undesirable) about what is happening or may happen. The right, being fully built by means of language signals (mostly written, textual), involves a process of its perception, which is slightly different from the generally accepted physiological scheme of human perception of various signals, due to the properties of his nervous system, more precisely, to certain signaling systems.

Until recently, scientists distinguished between the two systems responsible for the signal activity of human large cerebral hemispheres. The first signaling system is the physiological basis of feelings, perceptions, and images. The reality is signaled almost exclusively by stimuli that directly enter the special cells of the visual, auditory and other receptors of the organism, and their reflections in the large hemispheres [10, c. 327].

The language function of the higher nervous activity of a man singled out another principle in the activity of large cerebral hemispheres. The word in human life has also become a peculiar signal. Each word as the name of object, property or action can replace the corresponding first signal, that is, it signals the first signals (the clear meaning of a word that names a particular subject, phenomenon or event may also affect a person, as well as the visual perception of this subject, phenomenon or event). This belongs to the functions of the second signaling system as a set of conditioned reflexes, the signals of which are not direct stimuli, but their verbal signs. The concept of the second signaling system was introduced by I. Pavlov for indicating the system of human orientation in response to verbal signals, on the basis of which the formation of temporary nerve bonds is possible [10, c. 254]. Moreover, the second signaling system is able to change the first one, because the reactions of the first signaling system depends to a large extent on the social environment. Thanks to this a man can control his unconditional reflexes, instincts, that is, the first signaling system. Therefore, a special feature of the cortex of the human brain are consciousness (thinking, memory), the second signaling system (language), high organization of life in general.

At the same time, the second signaling system arises on the basis of the first one and cannot exist without it. In interaction with the first signaling system, it is the physiological basis for the higher, abstract thinking of a man and his consciousness, a means of cognizing himself. The physiological foundation of a number of other psychological processes (perception, memory, imagination, skills formation, etc.) is also the interaction of the first and second signaling systems. The participation of the second signaling system in these psychological processes makes them conscious.

With the appearance of the second signaling system, a new principle of nervous activity appears – abstraction and generalization of a large number of signals entering the brain. This

principle determines the boundless orientation of a man in the surrounding world, in particular in the legal reality. The second signaling system is the higher regulator of various forms of human behavior in the environment. However, it correctly reflects the objective world only if its consistent interaction with the first signaling system is constantly maintained. The development and improvement of the second signaling system is continuous in the process of learning and education.

In recent times people are increasingly talking about the so-called third signaling system. The only point at issue is what scientists themselves mean by this notion. S. Dzhaqdysh considers the third signal system to be a delicate mechanism of internal regulation, which is laid down in us and opens completely in the distant future [6]. The time when psychology earns money on feelings of fear and guilt is already past, the researcher believes. Psychology is no longer able to teach people to understand their motivation and build their lives. This knowledge is used to teach people to co-exist, to harmonize their internal needs with outside circumstances. In other words, for the mentioned researcher, the third signaling system is the ability of a person to control his or her internal potential, which is commonly referred to as extrasensory abilities.

S. Slyvka writes about the application of supernatural abilities of a person in the field of legal relations, formulating the idea of supernatural law, aspects of which are immense for the mind. The study of supernatural law is caused by the very behavior of a person, his or her connection with Nature, the submission of higher Obligation [19, c. 4-7].

Another approach to the division of human signaling systems was proposed by I. Kahanets, who believes that the first signaling system are instincts, conditional and unconditional reflexes (its upper limit is primitive thinking, sagacity of higher animals which are acting by the method of attempts and errors); the second signaling system is mind, language and abstract thinking; manifestations of the third signaling system is conscience, compassion, mercy, taking into account the interests of other people, not committing evil to others and nature [9]. I. Kahanets distinguishes (especially as regards the sphere of legal relations) humans and anthropomorphic predators as different biological species, sharing the view of anthropologists concerning the name of the last (anthropomorphic predators) to be called the "second-signal hominids", who lack the third signaling system.

In the context of legal reality, this refers to law-abiding citizens and offenders. This position is entirely justified, because instincts, mind and language are inherent in every person (as a biological category), and conscience, compassion, mercy are characteristics that are mostly absent in those who deliberately overstep the boundary of law. Obviously, these two categories of right-holders in different ways "hear" the signals of law, and maybe offenders "do not hear" them in general, some factors "deafen" these signals. And if you detect these mufflers and neutralize their effect, we could talk about the probability of implementing the idea of an absolute constitutional state as a community of well-being. This gives grounds for treating the *neurolaw* in two ways: on the one hand, as rules of behavior, which themselves are able to influence the psychics (as confirmed by neuropsychology), and on the other - as legal provisions that in qualifying the unlawful behavior of a person take into account a variety of neurological (including mechanically predetermined) factors.

What should be understood under the notion of "neurolaw"

First of all, it should be noted that this is an interdisciplinary field of knowledge formed on the basis of the application

of research results in medicine (in particular, neurology) in jurisprudence. This became possible since human behavior (especially when it comes to deviations from the norm, which in our context leads to an offense) can sometimes be explained only by the data of anatomy, biochemistry and physiology of the nervous system. It means, therefore, that specialists in these areas can be useful in demonstrating the causes and grounds of one or another human action, while emphasizing its biological nature and commenting at the same time on the social significance (public benefit or harm) of the consequences of such actions. We refer it to the so-called visual neurology, which can show the results of changes in the cells of the nervous system, ion channels, neuromuscular connections, neurotransmitters and receptors, in the brain cortex, sensory (acoustical, optical, olfactory, taste, touch, motor) analyzers, hypothalamus, limbic system, and so on [1]. These complicated legal terms are not used here to confuse, but to demonstrate a) the complexity of certain legal situations caused by the underlying processes occurring in the central and peripheral nervous system, in particular, the human brain; b) the dependence of the legal decision on the seemingly completely opposite spheres of learning a person (the subject of legal science are external manifestations of human vital activity as a social subject, while neurology explores the internal processes in the human body).

But in this case one can "slip" to the mechanistic interpretation of the human body. This position was advocated by radical behaviorism, which treated thinking as a change in the totality of certain muscle tissues. In such a case, the psychics is understood as a biologically useful life adaptation of the organism to the environment. Accordingly, behavior is perceived as a flexible mechanism of adaptive reactions. The main task of behaviorism, as formulated by D. Watson, was the accumulation of observations of human behavior with such a calculation that in each given case, with this stimulus, the behaviorist could say in advance what the reaction would be, or - if this reaction is given - by which situation is this reaction caused [15, c. 7].

Commenting on the denoted basic principle of the science of behavior expressed in such a specific form, we can sum up: if the behaviorist (in the field of jurisprudence, it may be an investigator, a judge, a patrol policeman, etc.) knew all the facts, then after observing the individual (suspect or criminal) who performs certain actions, he would point to the fact that caused a particular action - the phenomenon of foresight; or when a society requires a certain (legitimate) behavior from the individual, the behaviorist would be able to organize a particular situation as a stimulus, after which the necessary action (for example, confession, giving testimony) would be executed - an administration phenomenon.

Over time, representatives of the "archibehaviorism" and supporters of the so-called descriptive behaviorism (from the English "descriptive" - meaning "visual") revised their concept in favor of speech as one of the main regulators of behavior. In particular, B. Skinner, who is considered one of the theorists of the classical and at the same time the most prominent representative of neobehaviorism, initiated a programmed education in schools, laying the basis for the management function of external speech [12, p. 417]. In our opinion, the most appropriate, is the characterization of neobehaviorism by E. Froem: "Skinner's psychology is the science of manipulative behavior; its purpose is to find mechanisms of "stimulation", which help to provide the necessary "customer" behavior" [24, p. 117].

This is to a certain extent used by representatives of psychosemiotics (semiotics - the science of signs) through the emphasis

on the role of the psychological factor in the formation and perception of signs, which involves the intensification of human mental activity and the activation of perception processes and processing of information, makes appropriate the use of various symbols and symbols to streamline their own activities in the context of social relations (see, for example, 3; 16; 25; 26). That is, knowing how these or other sign stimuli can affect certain elements of the nervous system, you can pick up a “complex” of such factors to get the desired response. Then one can make a misleading assumption that, for example, during an interrogation, the investigator will use visual, sound or verbal signs as “serum of truth” to obtain the necessary information, and if taken larger scale, then the legislator will come to the aid of a general “pollination” of the brain of citizens by social or political symbols and signs that cause a sense of happiness and bliss.

In this context, the neurolaw, obviously, should be put into dichotomy with bioethics (within the limits of legally justified intervention, for example, in the human brain). And there is a clearer definition of such normative-legal direction, as “biolaw” or “biojurisprudence”. Polish researcher R. Tokarchik believes that with the development of the latest technologies, traditional ethics is transformed into bioethics, the traditional law - into biolaw, traditional jurisprudence - in biology jurisprudence. These transformations also relate to human rights, which would need to provide a new form of life rights – biolaw [31]. Such biolaw situations may include hypnosis, brain scans, mechanical stimulation of sensory organs, and so on. At the same time, any medical intervention, forensic psychiatric examination or scientific research, the subject of interest of which is man, human body or living matter, should be conducted under clear legislative control, which will ensure observance of the conditions of human biological integrity (and hence the inviolability of bioethical principles) during pre-trial and judicial procedures and processes.

Despite the recognition of the undisputed neurology of the modern world, American scholars S. Seattle and S.O. Lilienfeld stressed: “Taking into account the promise of neuroimaging to “decipher the brain”, it is easy to understand why it so attracts everyone who wants to upgrade the veil that hides the mental life of other people: politicians who hope to learn how to manipulate the thoughts of voters; marketers who “listen” to the brain to understand what consumers want to buy; representatives of the law who are looking for a faultless detector of lies; researchers of the nature of dependence who try to measure the driving force of temptation; psychologists and psychiatrists looking for causes of mental illness; as well as lawyers acting in the courts, trying to explain that their clients had no malicious intent or even voluntary will” [18]. As we can see, the achievements of nano-science are used by many human life spheres, and therefore one can assume that the neurolaw, which should regulate social relations in all these spheres, should consider all their nuances and specifics.

Thus, the neurolaw should contain norms that would determine the acceptable forms of subliminal influence (the newest methods of manipulating the psyche), the use of special effects drugs (for improving memory, reducing aggression, etc.), neuroimaging of the brain (a way to “see” emotions through the image of structure, functions or pharmacology of the nervous system), intervention in the brain, and also regulate inverse-proportional processes such as mechanisms of psychological protection (blocking) for the elimination of the consequences of a psychological trauma, overcoming overcoming the feeling of anxiety, minimizing negative emotions, relaxing emotional stress or preventing all this and maintaining mental balance.

Neurolaw as a sub-branch of medical law or a complex branch of law

Famous American neuroscientist R. Sapolskyi in his work “Biology of Good and Evil”, supporting the idea of isolating dangerous persons from the society, writes that “the system of criminal justice needs to be changed and these changes should take into account as much scientific knowledge as possible and be the least pseudoscientific. ... The question is if neurobiology, for the most part, is able to discover a criminal intent? So, we are close to the disclosure of criminal thoughts, looking for those who are going to commit a crime. We will have to determine the contents of the cranial box in legal terms as a “private territory”. .. This should be a liberal program for the development of the legal system.” [17, p. 515-516].

In view of the rapid development of neuroscience, there is probably no person who would consider the behavior entirely as a product of consciousness and deny that biology also limits our actions. Most people actually understand the probable coexistence of free will and the biological laws of behavior. Consequently, the fact that the neurolaw has grounds for existence, seems to be without a doubt, but with some reservations. The question is whether it can be entered into the national system of law.

The first thing that comes to mind is its non-appeals correlation with the field of medicine. Since public relations related to the organization, provision of medical care and / or medical services are governed by medical law, it is entirely appropriate to consider the neuro law in the context of this, not codified, but sufficiently separate, special field of law. Apparently, in this structure of the neurolaw there is a “niche” of medical interference (which includes, among other things, the use of diagnostic methods with a definite influence on the human body - Article 42 of the Law of Ukraine “Fundamentals of the Ukrainian legislation on health care” [8]). However, it should be noted at once that the problematic issues of medical interference (such as consent, border extension, the validity of risks, aesthetic purpose and new methods) do not involve the request of law enforcement agencies or lawyers’ appeals, which may be the legal basis for such interference in human body are not assigned.

Being focused on checking the state and establishing certain abnormalities in the nervous system, the neurolaw would might regulate the corresponding qualitatively homogeneous group of social relations connected with conducting medical examination. Instead, in the current legislation, forensic medical and forensic psychiatric examination, which considerably reduces the range of subjects who may request such a type of medical examination is declared. Moreover, if medical law to divide by analogy with other branches of law into a general and a special part, then obviously the neuro law should be attributed to the second part because it does not apply to all medical law institutes, but is conditioned by such a specific area of medical services, as a legal and medical qualification.

Taking into consideration that fact, there is a reason to consider the neurolaw as an institute of medical law that regulates social relations in the field of medical interference (examination and / or diagnosis of the nervous system or its individual elements) for the purpose of conducting medical examinations and providing legal and medical qualifications. The neurolaw belongs to the new biomedical, legal and social phenomena in the structure of the so-called healthcare law, which, in turn, combines the right of public health, medical and pharmaceutical law (as the concept was supported by the International Congress on Health Protection Law of the CIS and Eastern Europe in November 2012) [11].

Appropriately relevant to Ukraine is the codification of medical law, with a clear definition of the rights and obligations of all participants in the provision of medical services, assistance or interference. Here it is necessary to eliminate the probable artificial opposition of the interests of patients, medical workers and other subjects of legal relations (official representatives, lawyers, investigators, judges, etc.). It is also necessary to provide for their legal education, advocacy of rights, increase of legal culture, observance of moral and ethical standards, absolute independence of experts, etc.

On the other hand, the neurolaw, providing the proper approbation and proper systematization, can even claim the status of a complex branch of law, which is characterized by a combination of heterogeneous institutes of profile (fundamental) and special branches. This requires a series of measures, one of which involves public recognition. It is about the unconditional agreement of the citizens of the state of the results of neurological research as a solid evidence base not only for prosecution, but also mitigation of punishment or even exemption from liability.

Neurolaw as a way to justify criminals

For the time being in the Ukrainian society as a whole there is no consensus among the scientists and practitioners of certain spheres of life of the state (lawyers and doctors) whether to recognize certain nuances of the nervous system as the main determinant of human behavior, especially if it concerns criminals.

In the developed countries neuropsychological tests or magnetic resonance imaging have, in many cases, actually become the basis for the counsel defense and provided the grounds to lift the blame from the accused or even substantially reduce the term of imprisonment. Such evidence can include the research of head injuries, structural and functional impairments revealed by brain scanning (lawyers have proved that this affects the level of impulsiveness and aggression of their clients and their ability to evaluate and produce their actions in general). Thus, for example, court sentences have been changed to lighter ones because of proving the increased aggression in women during menses; the presence of a tumor in the almond-shaped body of the brain, which is responsible for the feeling of fear and pleasure, and in such conditions leads to uncontrolled aggression; too high (in men) or too low (in women) serotonin level in blood, which is responsible for the aggressive behavior, etc. (see 4; 249). "Undoubtedly, scientists learn a lot from the images of the brain. ... However, brain images, like any other body parts, do not always make the relationship of cause and effect obvious. So, just like the lung nodules, any abnormalities in the brain picture do not necessarily mean that something is wrong. Scientists from the University of Merilen compared the neuro00law with phrenology and biological criminology of Chezare Lombroso and psychosurgery. Each of those theories or similar practices begins with the conviction that brutality originates in the brain. But acts of cruelty, as well as bad health, are not rooted in the body. They pass through it, and the traces they leave are often fuzzy and barely noticeable." [4, p. 225].

The structure and construction of the human brain with criminal inclinations have been of a long interest to neurophysiologists. So, in the opinion of the German neurologist G. Rota, knowing about the wrongs of the brain, it is possible to identify the offender with a probability of 66%. The scientist notices that he could detect the so-called "zone of evil", located in the central part of the frontal hemisphere and responsible for the propensity to violence or the desire to commit a crime. On X-rays this zone manifests itself as a dark spot, moreover, it completely turns off the work of the plot responsible for compassion. Ac-

cording to the researcher, when scanning the brain of hardened criminals, the pathology in the central zone of the frontal lobe of the brain was almost always observed [14]. Of course, one cannot say with absolute certainty that due to the presence of one or another deviation in the nervous system, a man is guilty or innocent in committing a crime. The main disadvantage of neuro-law is the excessive emphasis on the biological nature of a man, and, therefore, the accumulation of behavioral manifestations of the criminal, his motive or purpose only to the activity of the brain, while ignoring social, economic and other factors. At the same time, the advantage of the neurolaw activation lays in the expediency to conduct criminal procedures, in particular, preparing an interrogation (with data on the condition and functionality of the interrogator's brain, knowing the levels of serotonin or dopamine in the blood, the investigator can create an appropriate direction of behavior by establishing a psychological contact with a person or, on the contrary, causing an attack of aggression that often provokes spontaneous confession). The prosecution can also use the magnetic resonance imaging data to clarify the understanding of a particular situation, for example, due to the presence of significant brain damages. So, the probable application of the achievements of neuroscience in law, as well as the introduction and selection of the neurolaw as an institution or a special field of law, has considerable chances. It is only desirable that the application of neuro-legal norms in crimes detection and the qualification of criminal acts was clearly regulated and did not allow criminals to avoid responsibility.

Conclusions. Scientific and public debates on the introduction of neuro-legal issues will probably last for a long time. One can be sure that the use of the results of the latest neurophysiological studies in jurisprudence as an evidence base cannot be completely avoided. At present, the neurolaw as a theoretical construct and a practical phenomenon is only at the stage of study and requires a detailed and careful investigation, so that its introduction into the system of law does not become a threat of non-compliance with the fundamental legal principles of equality and justice. Then the admiration for the so-called neurocriminology or neuro-legislature will not be considered a tribute to the fashion or "a syndrome of brain capture" (the concept of S. Morse). After all, the biology of human behavior in all its manifestations is a multiple-factor phenomenon, that is inappropriate and even sometimes dangerous not take into account. Consequently, neurobiology and other neurosciences should not interfere so much in jurisprudence in order to take people's confidence in their legal protection from dangerous individuals, as one cannot think of a person as the sum of biological or physiological processes.

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SUMMARY

NEUROLAW: BRANCH OR SECTION OF NEW SCIENCES, A COMPLEX BRANCH OF LAW OR A WAY TO JUSTIFY CRIMINALS (REVIEW)

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The purpose of the article is to consider comprehensively the phenomenon of the neurolaw, assessing it as a product of bioethics and behaviorism, a likely separate branch of law or the institution of medical law, as well as to analyze the feasibility of its introduction in the national justice system or refusal from it as a way of avoiding the responsibility of criminals.

In general, the neurolaw is an interdisciplinary, intersectoral sphere of knowledge, formed on the basis of applying the results of researches in the field of medicine (in particular, neurology) in jurisprudence. This became possible, since human behavior (especially in the case of deviations from the norm) can sometimes be explained only with the help of anatomy, biochemistry and physiology of the nervous system. The authors consider that neurolaw is an institution of medical law, which regulates social relations in the field of medical intervention (examination and/or diagnosis of the nervous system or its individual components) for carrying out medical examinations and providing legal and medical qualifications. The neurolaw belongs to the new biomedical, legal and social phenomena in the structure of the so-called healthcare law, which, in its turn, combines the law of public health, medical and pharmaceutical law. Currently, the neurolaw as a theoretical construct and practical phenomenon is only at the stage of study and requires a detailed and thorough research so that its introduction into the legal system does not threaten non-compliance with the fundamental legal principles of equality and justice.

Keywords: biojurisprudence, medical law, neuropsychology, neurolaw.

РЕЗЮМЕ

НЕЙРОПРАВО: ОТВЕТВЛЕНИЕ ИЛИ РАЗДЕЛ НОВЫХ НАУК, КОМПЛЕКСНАЯ ОТРАСЛЬ ПРАВА ИЛИ СПОСОБ ОПРАВДАНИЯ ПРЕСТУПНИКОВ (ОБЗОР)

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Цель исследования – анализ феномена нейроправа, оценка как продукта биоэтики и бихевиоризма, отдельной отрасли права или института медицинского права; рассмотреть целесообразность его введения в национальную систему правосудия или отказ от него как способа ухода от ответственности преступников.

Нейроправо – это междисциплинарная, межотраслевая сфера знаний, сформированная на основе применения результатов исследований в области медицины (в частности, неврологии) в юриспруденции. Такое стало возможным,

поскольку поведение человека (особенно когда это касается отклонений от нормы) иногда можно объяснить только с помощью данных анатомии, биохимии и физиологии нервной системы. Авторы считают нейроправо институтом медицинского права, регулирующего общественные отношения в сфере медицинского вмешательства (осмотр и/или диагностика нервной системы или отдельных ее элементов) с целью проведения медицинской экспертизы и предоставления юридически-медицинской квалификации. Нейроправо принадлежит к новым биомедицинским, юридическим и социальным феноменам в структуре так называемого здравоохранительного права, что, в свою очередь, объединяет право общественного здоровья, медицинское и фармацевтическое право. На сегодняшний день нейроправо, как теоретический конструкт и практическое явление, находится на стадии изучения и требует детального и тщательного исследования, чтобы его внедрение в систему права не стало угрозой несоблюдения основных правовых принципов равенства и справедливости.

რეზიუმე

ნეიროსამართალი: ახალ მეცნიერებათა განშტოება, თუ დანაყოფი, სამართლის კომპლექსური დარგი, თუ დამნაშავეთა გამართლების მეთოდი? (მიმოხილვა)

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¹ლეოვის შინაგან საქმეთა სახელმწიფო უნივერსიტეტი; ²მარიუპოლის სახელმწიფო უნივერსიტეტი, უკრაინა

სტატიის მიზანს წარმოადგენდა ნეიროსამართლის ფენომენის კომპლექსური განხილვა, მისი, როგორც

ბიოეთიკის და ბიოპევიორიზმის პროდუქტის, სამართლის შესაძლო ცალკეული დარგის ან სამედიცინო სამართლის ინსტიტუტის შეფასება, აგრეთვე, მართლმსაჯულების ეროვნულ სისტემაში მისი შეყვანის მართებულობის ან მისი - როგორც დამნაშავეთა პასუხისმგებლობიდან თავის არიდების ხერხის - უარყოფის საკითხის გაანალიზება.

ნეიროსამართალი წარმოადგენს დისციპლინათ-შორისი, დარგთაშორისი ცოდნის სფეროს, რომელიც ჩამოყალიბდა მედიცინის სფეროში (კერძოდ, ნეუროლოგიაში) ჩატარებული კვლევების შედეგების იურისპრუდენციაში გამოყენების საფუძველზე. ეს შესაძლებელი გახდა, ვინაიდან ადამიანის ქცევა (განსაკუთრებით, როცა საკითხი ნორმიდან გადახრას ეხება) ზოგჯერ შეიძლება მხოლოდ ნერვული სისტემის ანატომიის, ბიოქიმიისა და ფიზიოლოგიის მონაცემებით აიხსნას. ავტორები ნეიროსამართალს სამედიცინო სამართლის ინსტიტუტად განიხილავენ, რომელიც არეგულირებს საზოგადოებრივ ურთიერთობებს სამედიცინო ჩარევის დროს სამედიცინო ექსპერტიზის ჩატარების და სამედიცინო-იურიდიული კვალიფიკაციის დადგენისას. ნეიროსამართალი ჯანდაცვის სამართლის ახალ ბიოსამედიცინო, იურიდიულ და სოციალურ ფენომენს განეკუთვნება, რაც, თავის მხრივ, საზოგადოებრივი ჯანმრთელობის უფლებას, სამედიცინო და ფარმაცევტულ სამართალს აერთიანებს.

ამჟამად, ნეიროსამართალი, როგორც თეორიული კონსტრუქტი და პრაქტიკული მოვლენა, მხოლოდ კვლევის სტადიაზეა და დეტალურ, საგულდაგულო შესწავლას საჭიროებს, რომ სამართლის სისტემაში მისმა დანერგვამ არ წარმოშვას თანასწორობისა და სამართლიანობის ძირითადი სამართლებრივი პრინციპების დაუცველობის საფრთხე.

REALIZATION OF THE HUMAN RIGHT TO PALLIATIVE CARE IN UKRAINE: PROBLEMS AND LEGAL ISSUES (REVIEW)

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One of the important health care problems in many countries of the world, and in Ukraine in particular, is the constant increase of the number of incurable patients, people with severe, incurable diseases such as cancer, HIV infection/AIDS, tuberculosis, diabetes. Ukraine leads in terms of the pace of the HIV/AIDS epidemic: 2nd in Europe and 5th in the World, ranking 22nd among 123 countries of the World in terms of the number of people living with HIV. With 218 thousand people registered with HIV, 64 thousand people have access to treatment. Our country also occupies a leading place in Europe in the rate of spread of tuberculosis. In 2015, Ukraine officially numbered

457,000 people with tuberculosis, but according to expert estimates, this figure was about 1 million people [14]. In contemporary conditions, annually in Ukraine more than 500 thousand people need palliative care, according to experts of the Ukrainian League for the Development of Palliative and Hospice Care - these are cancer patients, the elderly, people with HIV/AIDS, diabetes, tuberculosis and other terminal diseases [39, p.99]. Palliative care is an important component of the health care and social protection of Ukraine citizens and ensures the realization of the human right to a worthy end to life and the maximum reduction of pain and suffering [15]. The extremely low level