Brain death in cultural context – an outline of the issue

Śmierć mózgu w kontekście kulturowym – zarys zagadnienia

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Abstract
Half a century after the introduction of the criteria for brain death by the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death, discussions about their methodological coherence, biological adequacy or medical validity continue. On the one hand, the emergence of these criteria has solved some ethical dilemmas caused by the development of medicine and technological progress, but on the other hand, it did not change the common beliefs about the phenomenon of death. For these reasons, the importance of both opinions indicating the need to revise the underlying assumptions and calling for the restoration of the previous *status quo* is growing. In the paper, I justify that the manifestation of naive realism would be uncritical recognition that any scientific concept can only be defined in terms of a certain set of empirical operations. However, it would be equally naive to reject the belief that death is a biological fact that can be studied, described and modeled in accordance with modern scientific standards.

Keywords: definitions and criteria of death, scientific progress

Introduction

The sanctioning of a new way of defining death by means of neurological criteria in the second half of the 20th century remains an event that is still being analyzed and provides interesting implications also regarding the very functioning of science. The growing controversy regarding both the legitimacy of these criteria and the assumptions that enabled their adoption at all, make us look at this issue in a suitably broad cultural context. In the presented paper, it has been narrowed down to the circle of Western civilization and the determinants which are developing in it conceptualizing the phenomenon of death. Problems that are too one-sided, resulting from biological attempts to capture this phenomenon also arisein other cultures, as evidenced, for example, in the social debate conductedin Japan on the criterion of brain death [1]. They will not become the subject of the presented considerations, similarly to the extremely exciting anthropological, psychological and social analyzes of dying as well as practices indicating the uncertainty of this process in the understanding of representatives of various cultures [2]. Today, this broader civilization contextas well as various ways of dealing with consciousness and experiencing death, clearly show "how much death is a cultural – and not just a biological issue" [3]. Substantive considerations as well as the limited framework of this study require focusing primarily on the role of language and standards of scientific cognition in describing the phenomenon of death [4]. No less important issues regarding medical problems related to the determination of death will also only be signaled.

Chronic problem with justification for brain death criterion

Emerging in the late 1990s, questions like: "Isn't it time to turn down brain death?", They are not shocking today as much. We have noticed that, in fact, since the introduction of this criterion of death, it was accompanied by doubts about its adequacy. These weremedical and non-medical doubts, referring toscientific premises, as well as to common beliefs and ideas about death. The catalog of these theoretical and practical difficulties has grown over time and in chronological order it can be said that critics of the concept of brain death itself and its medical diagnosis initially focused on attributing conflict of interest to members of the Harvard Commission, then their criticism covered clinical tests, criteria of total brain necrosis, cases of maintaining pregnancy after the brain death, and recently the problem of irreversibility [5]. The set of detailed issues analyzed as part of the battle to maintain legal and social acceptance for the criterion of brain death is much broader. These include, among others, issues regarding: looking at deathin terms of

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an event or process; treating circulatory death and brain death as having the same status; speculation about the possibility of introducing another death criterion in the future, the so-called criterion of higher brain death; recognition that certain brain or body functions that persist after brain death is not undermined; evolution of understanding what the brain functions are as an organ integrating the whole body; or the possibility of precisely determining the moment of death [6].

Regardless of the complexity of these issues, both in the biological and philosophical dimension, they are of great importance for moral decisions, in our case, decisions deciding whether we are still dealing with someone alive or already with a corpse. Technological progress and the development of medicine have generated similar conceptual problems and ethical dilemmas in other medical practices. Therefore, today, therapies used in the treatment of infertility, genetic therapies and genetic modifications, procedures related to euthanasia and withdrawal from futile medical care as well as practices of improving medicine arouse more or less controversy [7]. There are many different opinions and assessments, even in such a seemingly simple matter as the use of *placebo* in medical experiments. Appearing doubts about the legitimacy of the criterion of brain death are therefore not unique in modern medical discourse. It is also worth emphasizing that the discussion about brain death is related not only to such medical problems as e.g. the need to establish rules defining the scope of use of devices supporting life functions, or legitimizing the donation of organs and tissues for transplantation, but also to legal regulations, judicial decisions and searches for a coherent concept of man, which determines "when a man must be declared dead" [8].

In this way, medical discussions about the phenomenon of death are accompaniedon the one hand by the analysis of existential situations arising from functioningin technologically advanced societies, and on the other by the search for coherent *ex-post* conceptual solutions. There is no doubtthat the aforementioned conceptualizations from the very introduction of the brain criterion "cannot keep up" with rapid practical changes. The reason for this situation is, among others, that "in medical practice, certain signs are sufficient to make a diagnosis; in philosophical practice, none are definitive "[9]. Reflection on the course and results of the aforementioned discussion also requires methodological order and embedding it in historical realities,otherwise it is easy to make unjustified or simplifying conclusions. Therefore, many publications contain postulates regarding the distinction between the definition of death from death criteria and verification tests. Paradoxically, the biggest problems are associated with defining death. An example of ongoing discussions in this regard is provided by the work of the Swedish Commission for the Determination of Death. Its 1986 report stated that death could not be defined as "the irreversible separation of the soul from the body"; "irreversible cessation of metabolism in each individual cell of the body"; "irreversible loss of circulation capacity of oxygenated blood in the body"; but also "irreversible loss of all mental functions (including consciousness)". In this situation, the report proposes a holistic approach, accordingto which: "A person is dead when he/she has suffered a complete and irreversible loss of total ability to integrate and coordinate all body functions – physical and mental – into a functional whole" [10]. The advantage of this definition is that, by not overestimating only the physical or mental functions of the body, it emphasizes its coordination ability. The irreversible loss of this ability in all respects results in the death of the body. It also means that someof its functions may still be active, but due to the lack of the mentioned unity, their appearance should be interpreted differently than in the case of the body as an integrated whole. On the basis of that document, the Swedish Parliament adopted in 1988 the "Act concerning the declaration of the death of a man".

During similar discussions, it was realized that in the Harvard report, brain death was "defined" as an irreversible coma that means irreversible destruction of the entire brain, including the brain stem. The basis for this definition was the doctrine of dissociated nature of death, assumingthat the dying process is stretched in time, "it begins with an irreversible loss of cardiovascular or brain function, and ends with putrefaction leading to the breakdown of the material substance of the body" [11]. Approaches which began to refer to the complete and irreversible loss of physical and mental integration and coordination abilities of the body as a whole in order to define death, came later. The concept of brain death itself was adopted before its conceptual refinement, and although "the criterion for death of the entire brain remains essentially correct, the conceptual structure used to defend it is deeply philosophically unstable" [12]. Soon, due to the publication of Alan Shewmon, the coherence of the concept of death referring to the integration and coordination abilities of the body as a whole began to be questioned. The studiesdealt with the cases of patients with confirmed brain death whose bodies were able to maintain functions such as food digestion, blood clotting, immune system function, hormonal stimulation, homeostasis, and even pregnancy maintenance. In bioethical works, the data presented by Shewmon are often treated as certainty without taking into account both the assumptions of his study methodology and the criticism of neurologists. An example of other extreme approaches are studies in which brain death is presented as a legal definition of death, different from biological death [13], and the criteria associated with it are considered to be the result of social pressure, not reliable scientific research aimed at increasing knowledge [14].

In addition, the lack of recognition of uniform criteria and tests for brain death as well as concerns about the risk of misdiagnosis in cases of brain death imitation affect the ethical dilemmas associated with the use of the brain death criterion in medical practice. However, the sheer variety of tests confirming the fulfillment of the criterion of brain death as well

as the cases of syndromes that can imitate brain death, do not constitute grounds strong enough to undermine the validity of the concept of brain death itself. Misdiagnosis of brain death is possible if locked-in syndrome, hypothermia, intoxication, or Guillain-Barré syndrome are not recognized [15]. Maintaining medical procedures and protocols allows to rationally eliminate the likelihood of such an event. Also in the case of indicating states, such as the state of minimal awareness, the boundary between brain damageand brain death is maintained [16]. However, cases of syndromes that may mimic brain death support the view that all brain death tests are equally important, and brain stem tests should not be preferred [17]. Similar doubts are also strengthened by opinions stating that the legal and social acceptance of the death criterion proposed by the Harvard Commission draws specific anthropological conclusions. It is easy to conclude in this case that the presence of human tissues at any stage of the body's development without a functioning brain does not constitute a human being [18]. Not without significance for the emerging moral dilemmas are the circumstances surrounding the introduction of this criterion, which meant that it was strongly associated with transplantology in social reception. The justification for maintaining the vegetative function of the human body after brain death becomes that the tissues and organs of the deceased donor will again become part of the bodies of other people. Similar pragmatics raise concerns about the possibility of increasingly identifying humanity not only with the sphere of consciousness, but also with the danger that potential donors will not be provided with an adequate level of medical care. For these reasons, transparent legal regulations and medical procedures, which separate the statement of brain death from the decision to extract organs, and also determine the principles of donating, using and receiving organs for transplantation [19]. However, even high legal and ethical standards and recognition for medical deontology, as a guarantee of respect for patients' rights and dignity in all circumstances, will probably not be able to eliminate social concerns about utilitarian transplantation. They relate to the criteria for selecting organ recipients, commercializing parts of the human body, or the risks associatedwith organ transplantation affecting the recipient's identity [20, 21]. One way to deal with this situation is to justify that the current situation in transplantology is transient, and "substitution therapies, tissue and organ transplants are only stages in the long history of medicine" [22].

Limiting ethics and unfettered scientific progress?

The quoted remarks referring to both conceptual difficulties resulting from the change of earlier standards for determining death as well asthe moral dilemmas resulting therefrom may lead to the conclusion that by modifying medical standards related to marking the boundaries between life and death, we did not have a sufficiently developed concept of death that would justify such actions. In this case, we are talking about the concept of human death taking into account, apart from biological determinants, also cultural factors, thanks to which the event of individual death acquires its full meaning. One sign of such a paradox would be "corrective" actions in the form of *ad hoc* hypotheses, ancillary heuristics, or even new theories. The possible appearance of this type of treatment should, however, be interpreted with the help of appropriate cognitive tools. The field that has been providing them for decades has been the philosophy of science. From the point of view of this research discipline, it might be particularly misleading to assume *a priori* that scientists do not fully understand the terms they use [23]. The opposite assumption, that is to say that scientists understand the relationships between individual terms and between terms and, for example, measurement operations, does not rule out that certain types of external conceptual analysis should be considered beneficial because they serve to better understand their actions.

The dynamic development of ethical disciplines in the 20th century, including the creation of bioethics, confirms that the research efforts of scientists and their practical applications have been covered by such metareflexion of an axiological nature in this case. Regardless of the varied assessments on the real impact of decisions appearing at this level on research or clinical practice, it is difficult to overestimate their role in setting medical standards today.In the United States, bioethics began to appear in hospitals in the late 1960s and early 1970s[24]. During this period, the term bioethics appeared, through which Van Rensselaer Potter understood global reflection on the consequences of genetic strengthening and refinement of evolutionary processes ensuring dominance for the human species. On the other hand, André Hellegers' bioethics was supposed to deal with the reception of the impact of new biological and medical technologies on the society [25]. From the perspective of the early seventies, this was not a very attractive field for ethicists who remained under the influence of analytical philosophy. Supporters of so-called applied or practical philosophy were also treated with less attention than at present. However, this situation changed rapidly and today bioethics is a disciplinewith clear methodological maturity, which is distinguished by an interdisciplinary approach to the analyzed issues and independence from medical deontology and moral theology. Another feature that distinguishes bioethics is some flexibilityin the formulation of normative arrangements, resulting from the fact that as a research strategy it remains dependent on the results of biomedical, psychological or sociological sciences, which are constantly changing. This flexibility mentioned earlier does not mean that specific bioethical concepts do not have to refer to so-called central theories that are in a specific relationship to existing ethical systems or their projects. In the first case they may be, for example, personalism or utilitarianism, while in the second case ethics referring to the principles of autonomy, justice, beneficence and non-mal-

feasance [26].

The emergence and dynamic development of bioethics remains a testament to the great accommodative possibilities of ethics as a philosophical discipline. New dilemmas turn out to be more complex than those previously dealt with. They require reflection considering more specialized data and approachesfrom culturally different perspectives. So even if bioethics does not immediately offer ready recipes for emerging problems, it is able to develop appropriate standards in a short or long time. It happens, however, that some of the statements are formulated under the "spur of the moment" and with a significant impact of cognitive results obtained as part of studies typical for specific sciences. This methodological specificity of bioethical discoursein relation to the problem raised in the subject is indicated, among others, by the following reflection of prof. Andrzej Szczeklik:

> For us doctors, turning off the respirator is an acknowledgment of a failure. Each of us is hoping inside that maybe a little longer, even a few days, maybe the body will move. But it can't go on forever. That is why there is a need for objective criteria that will settle doubts and avoid the unsolvable situation in which the quantum physicists found themselves with the Schrödinger cat – simultaneously both alive and dead [27].

The above quote reflects the drama of modern medicine, which, togetherwith successes resulting from their own development and technological progress in general, faces new moral dilemmas at the same time. Their resolution often cannot be postponed or cannot be solved without taking into account empirical data. The use of a reference to the case of Schrödinger cat *casus* has a symbolic meaning. As in the case of this thought experiment, only by opening the box in which the cat is found, it is possible to determine whether it is dead or alive, so in the case of death, it is also only a measurement constituting an intervention that disturbs the state of the system to some extent, which is the body, that allows you to determine its biological condition. The data of this measurement must be placed within the framework of a specific theory in order to be interpreted. From the common sense perspective, it seems obviousthat there are two completely different states of body living and not-living that are separated by the moment of death. Dying, even if it remains as an event stretchedin time, is not seen in this approach as a continuum, because the determined moment of death seems to dichotomically separate living from not-living. In the scientific perspective, death by its very nature is perceived as an event extendedin time and occurs when the dying process of the body enters an irreversible phase. From a medical point of view, the type of death and the circumstances surrounding it are also decisive when choosing a cardiopulmonary or respiratory criterion for the event of death.From the non-medical observer's point of view, who additionally uses death descriptions that place this event in broader cultural contexts, there may still be conclusions indicating that medical procedures related to the determination of brain death or cessation of heart function refer to other concepts of death. Not without significance are the suggestions that consent to the use of the criterion of brain death is tantamount to acceptance of the position referred to as ontological reductionism, in which a man is presented as nothing more than a "bunch of neurons" [28]. Both of these issues may raise justified objections and psychological resistance to accepting brain death criteria. They also indicate how important for understanding medical facts, apart from the application of the canons of scientific rationality, are references to cognitive contexts related to opinions and beliefs of specific communities at a given stage of their historical development.

Variation in concept and death criteria is a norm

Regardless of the biological nature, human death has always been an event with a community dimension, interpreted through the prism of changing cultural patterns. Religious beliefs played a special role in creating these interpretations for millennia. Statements of Popes Pius XIIand John Paul II regarding the application of the criterion of brain death and transplantology confirm the importance of the opinion of religious authorities for the shaping of the modern paradigm of death, and the statement of the participants of the conference "Signs of Death" organized by the Pontifical Academy of Sciences in 2006 brings a summary of previous teaching of The Catholic Church in this regard. Its authors emphasize that the difference between brain death and brain dysfunctions such as coma, vegetative state and minimal consciousness is essential. Hence, "if the criteria for brain death are not met, the boundary between life and death is not exceeded, no matter how severeand irreversible brain damage would be" [29]. Today, social media also become a place of lively religious discussion on "organ donation in the context of brain death" [30], and research in the field of sociology and cultural anthropology indicates the changing nature of anxiety related to death awareness and dying.

There is no doubt, however, that with the emergence of the criterion of brain death, it may seem that science has taken the absolute lead in the interpretation of the phenomenon of death [31]. The emergence of bioethics almost at the same time, however, meant that medical ethics analyzes that created the medical paradigm got enriched, and over time dominated by research works specific to the philosophical paradigm. While in the first of the paradigms, the starting point was medical practice, from which ethical norms were derived, in the second of them, they began with research aimed at developing ethical theories on the basis of which ethical norms were used to analyze medical mor-

al dilemmas. [32]. In the 1980s, the legal paradigm gained importance in translating the most complex medical cases. In fact, it was only after the court's ruling that medical actions were taken to "solve" dilemmas relatedto arrangements for running the boundary between life and death. This situation has further confirmed that the science findings in this area are strongly correlated with ethical, religious, sociological, political and cultural themes. We are also still encountering new problems with defining death and establishing and testing death criteria, both traditionaland cerebral. New dilemmas in this area are caused, for example, by the practice of extracting organs for transplantation from hospitalized donors after disconnecting them from life support equipment (so-called donors with non-beating heart) [33].

An important lesson on the development of knowledge flows from all this conceptual confusion around the criteria of death. Its condition is also the agreement that descriptions made from the perspective of various cognitive fields of scientificand non-scientific status as well as from the perspective of different cultures and people living in close or distant time intervals, may identify the same events slightly differently. In the case of the discussed issue, we should directly accustom ourselves to the statement that "the concept of death has evolved medically, legallyand culturally" [34]. Acknowledging that this process has already ended would also undermine the contemporary interpretation of scientific progress and the development of knowledge. Therefore, one should take into account the possibility of the emergence of further death criteria referring to observation standards placed in hitherto unknown reference systems. This statement cannot lead to the conclusion that in such a model of science development, no criterion of death has met and will not meet the condition of absolute "irreversibility." We will avoid a similar thought trap when we do not mix the "empirical definition of death" used in medicinewith the "formalistic definition of it" [35].

References to the history of science, revealing discrepancies between theoretical knowledge, its practical applications and colloquial notions of death may also be helpful. Already in the 17th century BC, Egypt had knowledge of the ability to treat skull wounds, andthe Luxor papyrus mentioned that such injuries could have affected shuffle or facial nerve paralysis. These observations, however, did not change the perceptions of Egyptians, Mesopotamians, Hebrews, and also Greeks, who recognized the heart as the central organ responsible for cognitive skillsand feelings [36]. They have survived in European culture for centuries, consolidating the widespread belief that heart activity is the basic sign of life. Similar beliefs have begun to be undermined only by cases of lethargy and the fear of being buried alive in Europe since the 18th century. Such a possibility was secured by means of bells hung on the tombs linked with the corpse, or additional tests were used to check the fact of death, such as biting the big toe of the deceased [37]. The strength of similar phobias is evidenced, for example, by a detail from the biography of Hans Christian Andersen, who was so afraid of being buried alive, that "on the bedside table he used to place a card: »I only look dead«" [38]. The development of medicine has not completely eliminated the possibility of medical malpractice, also related to determination of death. However, it definitely changed the fears associatedwith such cases. Today, we are not afraid of being buried alive as much as having own life sustained in an artificial way. The introduction of the criterion of brain death also made it possible to resolve stalemates in which, for example, corpse ventilation could last indefinitely [39]. However, social frustrations are still ongoing, especially when we realize that only medical experts are able to state death, the signs of which once seemed unambiguous and understandable to everyone [40].

Ending

The assumption that life and death can be considered as a continuum, not dichotomously remains directly related to the observational framework set by scientific epistemology. In this approach, life and death become relative concepts, which means that "no single definition based on single observation under certain conditions can be distinguished as the only perception of death" [41]. Technological progress and development of medicine have led to the situation where among the organs that are essential for the functioning of the whole body, we are not able to replace only the brain or any of its functions [42]. That is why, today, the cessation of heartbeat and breathing as symptoms of death are no longer sufficient. In this context, which indicates the conditions for the introduction of the brain death criterion, it should be noted that despite scientific cognitive results, scientific discourse has a number of limitations. The specific relationship between knowledge, i.e. what has already been studied, and the sphere beyond the cognitive possibilities of science today or in general, remains as one of them. The manifestation of naive realism would be uncritical recognition of the operationalism and adoption that every scientific concept can only be defined in terms of a certain set of empirical operations. Such an approach would mean narrowing the cognitive perspective only to data obtained in scientific models and questioning other cognitive perspectives. Reflecting on the scope of existence, it is impossible to avoid the following questions: "Who is a human being?", "Who is a person?", "What are life and death?" Equally naive, however, would be to recognize different ways of conceptualizing death, legal regulations changing in this respect, as well as practices accompanying death and dying [43], as arguments that undermine the belief that the event of death remains an "objective, unchangeable, biological fact that can be studied, describedand modeled "[44].

Taking advantage of the opportunities that arise through the interdisciplinary study of complex phenomena, let us finally re-

call two different theories of meaning. These are concepts of the language of Ludwig Wittgenstein associated with his flagship works, the *Logical Philosophical Treatise* and the *Philosophical Investigations*. The theory presented in the *Treatise* assumes that language can be used as a means (tool) of privileged access to the structure of the world. It is nota colloquial language, but a formalized version that makes it possible to distinguish atomic sentences that have a unique property – the ability to reflect isomorphic facts. In this so-called pictorial theory of meaning, asin the case of the map showing the physical nature and terrain,reality reflects in language. The notion of death in such pictographic categories refers to an event with an unambiguous spatiotemporal designation, possible to grasp in the physical dimensionas well as to ascertain by means of accompanying cultural markers.In the *Investigations*, Wittgenstein deviates from such an optimistic theory in which language played the role of the "key" to the mystery of the world. In the new interpretation, it is reduced to one of the forms of public activity related to specific actions. Individual expressions do not mean anything by themselves, we do not read them on the basis of private access to hidden content that map the reality, but they mean as part of language games, or ways of using language by a specific community. The meanings are outside of us, they emergefrom the constantly evolving terminological system that the community creates, which we remain the part of. Instead of a world map, we only get the awarenessthat language "colors" the cognition of the reality, which is why it causes difficulties related to its proper description. Hence, analyzes of common language applications may prove useful in stripping us of illusory beliefs. In this approach, the concept of death loses its terminological sharpness, and additionally it turns out that complementary methods, descriptions or attempts to get used to it not so much can be used to determine the occurrence of this event. There are also conclusions emerging that science does not *de facto* say what death is, although it indicates the empirical criteria for death. However, this is how science works, its standards enabling achieving rational interpretations of the world explicitly assume "various opinions, recognition of the basic nature of alternative criteria, adoption of a different hierarchy of importance of research methods and techniques" [45].

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Streszczenie

Pół wieku po wprowadzeniu kryteriów śmierci mózgu przez Nadzwyczajną Komisję Harwardzką Szkoły Medycznej do Zbadania Definicji Śmierci Mózgowej nie ustają dyskusje na temat ich metodologicznej spójności, biologicznej adekwatności czy zasadności medycznej. Z jednej strony pojawienie się tych kryteriów rozwiązało niektóre dylematy etyczne wywołane przez rozwój medycyny i postęp technologiczny, z drugiej jednak strony nie zmieniło potocznych wyobrażeń na temat zjawiska śmierci. Z tych względów rośnie znaczenie zarówno opinii wskazujących na potrzebę zrewidowania założeń, leżących u ich podstaw, jak i wzywających do przywrócenia poprzedniego *status quo*. W artykule uzasadniam, że przejawem naiwnego realizmu byłoby bezkrytyczne uznanie, że każde pojęcie naukowe może być zdefiniowane jedynie w terminach pewnego zbioru operacji empirycznych. Równie naiwne byłoby jednak odrzucenie przekonania, że śmierć to fakt biologiczny, który może być badany, opisywany i modelowany zgodnie ze współczesnymi standardami naukowymi.

Słowa kluczowe: definicje i kryteria śmierci, postęp naukowy