

## Review Article:

# Brain Death, Challenges Between Reality and the New Concept of Death May Not Be Synonymous With the True Meaning and Need Redefining



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## ABSTRACT

**Background and Objectives:** Brain death is a new term that has forced medical professionals, religions, law practitioners, and even ordinary people in society to challenge the obscure mystery of death.

The purpose of this article is to develop a different perspective and design a new strategy to manage brain-dead patients based on the principles of justice, autonomy, beneficence, and non-maleficence in medical ethics.

**Methods:** This research is a review study that has been conducted by collecting information through various sources, including books, articles from libraries, and electronic resources by search engines Google Scholar, PubMed, Direct Science, Ovid, SID, and Iranmedex.

**Results:** Death is a general concept, and brain death is part of this general concept and not equivalent to definite death. The moral and legal laws of the living person can be generalized to the entire life cycle of brain death. The concept of brain death is a new topic and deserves to be revised and updated and may need to be redefined.

**Conclusion:** Brain death is not equivalent to physiological and definite death, and a person with the label of brain death can be at most considered a patient with an irreversible condition. Regarding medical ethics, the futility of allocating more resources to brain-dead patients, terminating their lives, using their organs for transplantation, and saving another human life and the like are a moral dilemma. These issues need further investigation, and, if necessary, the decision-making process should be changed according to the current situation.

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## Introduction

The identity of a human being begins with the ensoulment [1, 2]. From this time, the person acquires a personality and moral status, even if the person's freedom is destroyed, damaged, or limited [3]. Issues related to the final stages of life, especially death, challenge some societies semantically and sometimes lead to conflicts of interest. The interpretation of death in the Qur'an [4] is equivalent to definite death in the opinion of all commentators and scholars [5]. It means the complete departure of the soul from all body organs [6]. On the other hand, based on medical knowledge, death is an irreversible biological event involving the permanent cessation of all vital functions of the body [7]. This definition is consistent with its definition in literary and legal sources.

Brain death is a term that has challenged the last important part of human life for more than half a century (since 1959).

A group of physicians defines brain death as an irreversible coma [8], and its diagnostic criteria were developed by Harvard in 1968 as follows [9]:

- 1- Definite etiology in causing brain death,
- 2- Lack of respiratory effort based on apnea test,
- 3- Loss of all brainstem reflexes and lack of motor responses,
- 4 - Rejection of reversible conditions,
- 5- Deep coma without any response, and
- 6- Proof of clinical diagnosis regarding no cerebral blood flow by scanning and angiography of cerebral arteries [7].

Parallel with the development of brain death criteria by Harvard University in 1968, the world's second heart transplant from a brain-dead patient (due to drowning) in Japan during the same year [10] intensified the identification of brain death and definite death in later years.

### Proponents of equating brain death with definite death

In 1986, during the third international conference of Muslim lawyers, the concept of brain death and its diagnostic criteria were accepted [11]. In 1987, the Japan

Medical Association declared brain death the standard criterion for human death [12]. Some experts dare to say that brain death is equivalent to unstable life [13], a condition in which there is no possibility of returning to life and death is imminent [14]. It is something like a headless human being [15] who is considered dead and impossible to survive [16, 17]. According to some believers in the soul, the soul occupies the body through the higher cells of the brain, and any brain damage causes a gap in the connection between the soul and the body. As a result, the intellectual life is destroyed [13].

The human central nervous system is the most important indicator of a human being, so from an epistemological point of view, brain death is a good guarantee for death [18]. Therefore, the view of brain death can be accepted [17]. Although in some countries, a person with brain death is considered alive, in others, brain death is ultimately and legally defined as definite death [13]. In this regard, it is essential to educate the public about misconceptions about brain death through the mass media and to make people aware that brain death is definite death [19]. Consequently, one of the moral consequences of equating brain death with definite death is to affirm the stopping of blood circulation and ventilator-dependent respiration [3]. In this regard, countries such as Saudi Arabia, Singapore, India, and the Philippines consider brain death equivalent to certain death, but the law on organ transplants in Iran is silent.

### Opponents of equating brain death with certain death

According to legal and linguistic sources, death occurs in only one stage by the cessation of all vital activities. Therefore living parts of the body that continue to function - voluntarily or involuntarily - cannot be considered dead [5]. According to Shiite jurisprudence and custom, patients with symptoms of brain death have not died [20-21]. According to the views of the Ayatollahs Khamenei, Nouri Hamedani, Safi Golpayegani, and Sištani, brain death is not equal to definite death, and brain-dead patients are still alive [18]. It is recommended that brain death not be referred to as death, and the announcement of death should be delayed until the heart stops working to resolve doubts about life [22]. Therefore, according to the principle of presumed existence or continuation of a previous state, brain-dead people should be assumed alive [23].

Scientific evidence clearly shows that in many cases of brain death, patients are biologically alive [24]. The criteria for brain death are entirely different from absolute

death [25], and these criteria cannot prove the death of the whole human brain in particular and the cells of the body in general [26].

In addition, the medical literature emphasizes that the criteria for diagnosing brain death do not apply to infants under 7 days of age [27].

Although most physicians are aware of the importance of brain death more than others, the medical aspects of brain death are not the whole issue [28].

In addition, societies do not readily accept the criteria for defining brain death set by the medical system [25].

However, this system must prove absolute death by its standards.

Due to the relation between brain-dead patients and the nature of human life in any society [28], different religions and cultures cannot easily accept that a person with vital signs is dead [29].

For this reason, the term brain death does not meet the expectations of religions, cultures, and societies about the concept of death, and insisting on it leads to the emotional stress of the patient's family [30].

In Japan, despite the laws of organ transplantation from brain-dead patients, it is not well accepted socially due to cultural and social beliefs [31-32]. For this reason, groups of parliamentarians have presented a plan to stop this law [12].

In the United States, due to the disapproval of some religious beliefs to brain death and its opposition to certain death, the authorities are seeking the passage of the cardiopulmonary death act for patients with brain death. [33] In Iran, people with brain death are usually considered alive [13]. Legally, laws that accept brain death as equivalent to certain death are practically ignored by individual views [34]. Legally, laws that take brain death as equivalent to definite death practically ignore personal views [34] and the freedom of brain-dead patients [25].

The decision to donate organs from brain-dead patients who cannot make decisions has conflicting aspects for the right holder, based on the principles of medical ethics, autonomy, beneficence, non-maleficence, and justice [23].

In this case, a surrogate decision-maker is mentioned who is most familiar with the patient's values, beliefs, and desires and his or her objective role model, someone

who can be a legal guardian or a relative, friend, or even a physician or nurse [34].

Given the potential for error in decision-making, alternative decision-makers, including support staff, family members, and others influencing future medical care in planning advanced care for patients with disabilities, especially brain death, should consider all possibilities.

## Methods

This research is a review article that collects information through all available study sources, including books and resources in the Museum of Medical History of Tehran University of Medical Sciences (TUMS), Central Library of Tehran University of Medical Sciences (TUMS), and electronic resources with Google Scholar search engines, PubMed, Science Direct, Ovid, SID, Iranmedex, etc. In this study, more than 2250 articles with the keywords "brain death" and "organ transplantation" were extracted. Then by adding the keyword of "medical ethics", the search was reduced to about 584 articles. Also, more than 200 reference books in medicine, medical ethics, jurisprudence, law, and sociology were reviewed.

The criterion for selecting articles in the first step was the closeness of the thematic title. The second criterion was the relevance of the content. The third criterion was the brainstorming of the concept of brain death and definite death with the power of criticizing these phenomena without bias and conservatism.

## Results

Death has a holistic meaning, a moral definition, and a medical appearance.

Death is an endogenous term and goes beyond necrosis or destruction of an organ like the central nervous system. Death does not correspond to irreversible tissue damage, such as the central nervous system (brain death).

Brain death does not seem to be equivalent to definite death because, despite the destruction of the central nervous system, other parts of the body continue to function, even if the duration of this period is short.

The human soul dominates the whole body, and its dominance does not end only with the cells of the central nervous system. Irreversible damage to the central

nervous system cannot deprive human dignity of human life.

The term brain death is a large gap in end-of-life issues and needs to be revised and redefined if necessary.

## Discussion

After brain death, cardiac and lung function ceases within a week despite supportive devices, and with the same reasoning, brainstem failure, which is responsible for vital signs and resulting in heart death, causes definite death [35].

Based on opponents' view of brain death, death is based on heart function. As long as the heart beats in a person, he or she is considered a living person, and a person is dead when his heart does not beat.

They claim that the brain, like other organs, can be damaged. Something like kidney failure, limb necrosis, and permanent damage to other body parts is no reason to refer to these events as death.

Damage to the central nervous system, especially the brain, is one of them. So no harm or destruction is equivalent to definite death, even if it happens to the brain. Given that, we are not morally allowed to take a right to life from brain-dead patients, even if they can live for a limited time.

The citation of the proponents is based on the lack of active, intelligent life and the capability and efficiency of the patient with brain death as a human being. They believe that the brain has lost its effective function, and its connection has been cut off. There is no connection between individuals and their environment. In the short term, there is no opportunity to make up for these damages, so this condition is equivalent to death.

According to the author, life is a right. We are not morally allowed to deny or restrict the fundamental rights of a human being under any circumstances and for any reason, even if it is a brain failure.

The greatest mission of health, especially medicine, is to preserve human life. Every effort must be made to protect life and restore vital functions, even if they are expensive and incompatible with resource allocation.

This issue may be challenging to grasp at the moment, but it does not conflict with a purpose called life. We should not ignore patients' right to live and declare them

dead by hypothetical criteria. Limitation of scientific expertise, equipment, and resource allocation is our problem and not related to the person with brain death. We do not have the right to donate the organs of brain-dead patients to other patients at the cost of their deaths and save the lives of others on the pretext of lack of physical capacity, medical expertise, and limited resources.

Proponents of brain death believe that minimum plant life is equivalent to definite death. The consequences of this decision are logical and debatable.

One of the consequences of accepting brain death as definite death is organ removal for donation and transplantation.

The results of organ removal from a brain-dead person as a donor and its transplantation to a recipient patient are subject to audit and judgment. Definite death, in addition to the medical dimension, has jurisprudential, legal, and social dimensions. Brain death requires various justifications, which also affect its severity.

The first defensible claim is the limited allocation of resources to care for brain-dead patients. The second is organ removal and transplanting it to other patients to continue a new life.

These two points should always be our goal in judging the lives of all patients, even those with brain death.

For this reason, the following issues have been discussed:

1. Life is a fundamental and positive right of all human beings. No one is allowed to end another life by claiming restrictions on the allocation of health resources or any other restrictions.

2. Although organ transplantation and ensuring the survival of the recipient is a good thing, it is never a valid cause for induced death; in other words, passive euthanasia is imposed on the brain-dead patient.

A positive approach to the cultures, religions, and customs of societies to make decisions in the challenging areas of health while examining and evaluating the concept of brain death is precisely ethical. Maintaining life based on content validity and respect for people's beliefs is a moral issue. The important point is that real life and death do not happen at the same time [36].

Respecting the autonomy of those who believe in the soul is, therefore, completely moral, and forcing them to accept brain death as definite death is truly immoral. Based on the moral beliefs in health, taking brain death as a definite death seems inadequate to most societies and therefore contradicts their moral beliefs. The principle of respect for autonomy presupposes respect for the patients' freedom and will to be treated based on their values and beliefs.

For this reason, by claiming that brain death is equivalent to definite death, due to the limited resources and priorities of organ donation to provide for another human life, the soul-believer is forced to obey, which is entirely contrary to the principles of autonomy and non-maleficence. Humanity depends on existence, dignity, and survival based on the soul.

Belief in the existence of the soul in the body, even human-plant life, and the reliability of humanity is the key to understanding this phenomenon. The fact is that dignity and humanity remain after death, so after definite death, human beings also have dignity.

Implicit acceptance of euthanasia is extra pressure on the end of people's lives. These pressures can lead to the yielding to its consequences and the emergence of various emotional and social justifications for accepting this issue.

Although, in the case of brain death, the gift of life is valuable, we must consider the death penalty at every level of the brain-dead patient's life. This issue should

have a clear reading. The removal of organs from a brain-dead patient for organ transplantation appears to be involuntary active euthanasia.

According to the author, this conscious or unconscious deviation may be considered a kind of euthanasia. This mentality is induced that the value of some people's lives is less than others'.

Doctors are not allowed to let patients die and must work to save their lives, even if most do not have any chance to survive.

Physicians or the medical team should not attempt euthanasia to end a patient's life. Even access to the patient's family consent cannot justify measures to expedite the patient's death.

Brain death was a lie from the beginning. It has always been a lie. Brain death is not actual death. Organ transplantation is the main reason for creating and proving the new term brain death. The term entered the medical profession after the first heart transplant in 1968. It has since been defined and redefined and has now been replaced by another term called cardiac death [37] (Dr. Paul A. Bern).

If there is no hope that the brain-dead patient will benefit from the treatment (ineffective treatment), there are no moral or legal restrictions on continuing the complementary treatment. At the same time, it is very important that the person with brain death, at least according to assumption, has a biological life. So at all vital lev-

**Table 1.** Comparison some of the most important brain death characteristics with certain death

Feature	Brain Death	Certain Death
Ability to benefit from medical facilities	+	-
Heart rate, blood circulation and respiration	+	-
The range of normal body temperature	+	-
Blood pressure in the normal range	+	-
The ability of others to benefit from his active organs	+	-
Liver, kidneys, intestines and skin Activity	+	-
Prevention Capabilities	+	-
Waiting the next death step	+	-
Devote to all men	-	+
Allow cut medical services without the consent of relatives or authorities	-	+
Complete transformation and reveal the color, odor and appearance and internal body	-	+
The ability to accept up corpses , death certificate and burial without delay	-	+
The ability to accept Topics such as the deceased, annihilation and destruction.	-	+

els, human dignity must be taken into account. If we do not give them additional treatment, we will not have the moral right to stop treatment.

Given the differences between definite death and brain death, it seems necessary to judge the challenges of each one (Table 1).

The term brain death seems to be a mental margin for human life. Organ removal for transplantation and organ donation is an objective intervention, and compensating it with a brain-dead patient who cannot make decisions, is contrary to the principle of non-maleficence and violates the inherent right to life. Determining real life or death in cases of brain death is essential before organ donation. Despite the benefits of organ transplants for recipient patients, most likely, killing an incapacitated person without conscious consent to donate his or her vital organs for any reason is very serious [38]. Allowing alternative decision-makers to intervene, remove, and donate organs for any reason that causes the death of brain-dead patients must be discussed ethically and legally.

The term brain death is certainly in the domain of the principles of human life and results in the neglect and disregard for the most fundamental right of human life. For the reasons mentioned above, brain death is not equivalent to definite death. According to the believers in the soul, a human being is not only in the central nerve cells. According to the Qur'an, Qur'anic scholars, theologians, and jurists, a human being has only one soul, which dominates all the organs of the body, and definite death means the complete severance of soul and body.

## Conclusion

Death is a process, and brain death is part of that process. A patient with brain death is not equal to definite death. Removing an organ of a brain-dead patient and donating it to a recipient organ under any excuse is contrary to the principles of medical ethics of autonomy, beneficence, non-maleficence, and justice.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed of the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them.

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## Authors' contributions

Conceptualization and Supervision: Davoud Nezamoleslami; Methodology: Alireza Olyaeemanesh; Investigation, Writing – original draft, and Writing – review & editing: All authors; Data collection: Ali Akbar Hagjveysi and Reihaneh Kiamanesh; Data analysis: Ahmad Jonidi, Seyiedhossein Hajimirzaie, Fatanehsadat bathaei

## Conflict of interest

The author declared no conflict of interest.

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