Brain Death and Islam

The Interface of Religion, Culture, History, Law, and Modern Medicine

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How one defines death may vary. It is important for clinicians to recognize those aspects of a patient's religious beliefs that may directly influence medical care and how such practices may interface with local laws governing the determination of death. Debate continues about the validity and certainty of brain death criteria within Islamic traditions. A search of PubMed, Scopus, EMBASE, Web of Science, PsycNet, Sociological Abstracts, DIALOGUE ProQuest, Lexus Nexus, Google, and applicable religious texts was conducted to address the question of whether brain death is accepted as true death among Islamic scholars and clinicians and to discuss how divergent opinions may affect clinical care. The results of the literature review inform this discussion. Brain death has been acknowledged as representing true death by many Muslim scholars and medical organizations, including the Islamic Fiqh Academies of the Organization of the Islamic Conference and the Muslim World League, the Islamic Medical Association of North America, and other faith-based medical organizations as well as legal rulings by multiple Islamic nations. However, consensus in the Muslim world is not unanimous, and a sizable minority accepts death by cardiopulmonary criteria only.

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ABBREVIATIONS: IFA = Islamic Fiqh Academy; IMANA = Islamic Medical Association of North America; MWL = Muslim World League; OIC = Organization of the Islamic Conference

The moment of death is among the most mysterious of all human transitions. Culturally, defining death may be as complex as life itself and may vary depending on whether one views it spiritually, medically, ethically, legally, or otherwise. Thus, the concept of brain death poses a great challenge to clinicians who may be required to bridge the interface of culture, religion, law, and medicine. In the United States, the declaration of death is governed by state law. Some states, namely New Jersey and New

York, have amended their laws to accommodate religious objection to brain death.^{1,2} This review discusses the evolution of methods of determining death in Western medicine and how such notions have historically interfaced with Muslim societies. This critique addresses the question of whether brain death is accepted as true death among Islamic scholars and clinicians to improve communication among patients, families, and medical providers who provide end-of-life care to seriously ill patients.

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Materials and Methods

We performed a narrative review of 713 potentially relevant sources derived from librarian searches of PubMed, Scopus, EMBASE, Web of Science, PsycNet, Sociological Abstracts, DIALOGUE ProQuest,

Lexus Nexus, and Google to extract viewpoints and historical facts. When applicable, religious texts were included. Detailed search strategies are summarized in e-Appendix 1. The results of the literature review were used to inform the discussion that follows.

Discussion

Evolving Definition of Death

The criteria for death and the manner in which they are applied may vary by clinical setting or even by physician within a clinical setting. For example, the neurologic criteria to determine brain death is based on a basic evaluation of brainstem function. This level of detailed assessment may be inappropriate for use in an acute resuscitation setting because some medications used in the process of CPR can confound the examination (ie, sedation, neuromuscular blockers used to secure an artificial airway).

Traditionally, death has been defined as the irreversible cessation of cardiac and respiratory activity, a definition commonly used in emergency medicine settings. However, the duration of cardiopulmonary cessation at which point death occurs remains unclear. This is further complicated by advancements in technology, such as mechanical ventilation, extracorporeal membrane oxygenation, and cardiac bypass where cardiopulmonary function may cease for prolonged periods but brain function is sustained. Defining the time point at which a patient's cessation of cardiopulmonary functioning is considered irreversible may vary greatly among practitioners and institutions and may be influenced by the patient's underlying state of health or associated comorbidities.³

Brain Death and Western Medicine

The concept of brain death emerged in 1959 from the studies of Mollaret and Goulon,⁴ who described patients with irreversible coma, and in the early to mid-1960s, the terms "cerebral death syndrome" and "electrocerebral silence" were used to identify such patients.⁵ In 1968, the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death issued a report that defined irreversible coma as brain death, stating that "an organ, brain or other, that no longer functions and has no possibility of functioning again is for all practical purposes dead."⁶ In this report, the diagnosis of brain death was to be made on the basis of total unawareness of externally applied stimuli, no evidence of spontaneous breathing, no brainstem reflexes, and a flat EEG.⁶ During this

same period, other countries were also passing legislation recognizing brain death.⁷

At the First World Meeting on Transplantation of Organs in 1969, representatives of the Protestant, Catholic, Jewish, and Muslim faiths discussed ethicoreligious issues inherent with acceptance of such a definition of death. The consensus was that cerebral death was a reasonable concept fully within the province of the physician to identify.⁵

In 1980, the Uniform Determination of Death Act defined brain death, and that definition was approved by the National Conference of Commissioners on Uniform State Laws.⁸ According to this act, the determination of death is as follows:

An individual who has sustained either: (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including brain stem, is dead. A determination of death must be made in accordance with accepted medical standards.⁸

Currently, the guidelines and methods used to determine the presence of brain death may vary by definition and compliance based on law, legal precedent, or individual hospital policy.⁹⁻¹¹ In an international survey of standards used to determine brain death across 80 nations, a national standard existed in only 69% of countries, with only 59% requiring apnea testing.¹² Further ancillary testing (eg, intracranial blood flow measured by cerebral angiogram by either CT scan, MRI scan, or Doppler flow studies; EEG; somatosensory-evoked potentials; or bispectral index) was required in only 40% of countries to confirm the clinical diagnosis.¹³ Surveys of US hospitals have similarly shown considerable variability, including failure to identify exclusionary conditions (eg, sedating or paralytic medications) in 12% and not requiring apnea testing in 4%.^{10,11} Despite regional and institutional practice variability, there are no published reports of recovery of neurologic function after a diagnosis of brain death using the criteria reviewed in the 1995 American Academy of Neurology practice parameter.¹⁴

Even after determination of brain death, some clinical findings may confuse observers as non-brain-mediated spontaneous movements, which can falsely suggest

retained brain function, or ventilator autocycling may suggest patient-initiated breathing.¹⁴ The minimally acceptable observation period to ensure that neurologic functions have ceased irreversibly varies greatly among centers, and there is insufficient evidence to determine the optimal time period to assess this condition.¹⁴ Furthermore, only limited data are available to determine whether these ancillary tests are sufficient to confirm irreversible cessation of brain function.¹⁴

Interfaith Perspectives on Brain Death

The laws, customs, and rituals of various religions all have an organizational component associated with them.¹⁵ It is useful to consider the Islamic perspective of death in the framework of other Abrahamic traditions.

Judaism: Halacha is the collective body of Jewish religious laws derived from the Written and Oral Torah. It includes the 613 mitzvot (commandments), subsequent Talmudic and rabbinic law, and the customs and traditions compiled in the *Shulchan Aruch*.¹⁶

There is rabbinic debate within the Talmud regarding the definition of death. One opinion is that death is the irreversible cessation of breathing, whereas others assert that death is the irreversible cessation of the heartbeat.¹⁷ Additionally, there are a number of halachic sources that are relevant to the validity (or not) of brain death. The most important of these are the Mishnah in *Oholot* 1:6, the Talmud *Tractate Yoma* 8:7 on 85a, passages in *Teshuvot HaRambam* and *Teshuvot HaRama*, and pronouncements of Rabbi Moshe Feinstein in his *Iggerot Moshe*.^{17,18} This article is not the forum for a detailed examination of these sources other than to note that they may be subject to a variety of interpretations.

A discussion of the compatibility of brain death criteria with the provisions of Jewish law was first presented in October 1970 by Rabbi Gedalia Rabinowitz and Mordecai Koenigsberg, MD.¹⁹ The authors predicated their argument upon Mishnah *Oholot* 1:6 by equating brain death with the decapitation of an animal, which the Mishnah accepts as synonymous with death. This position has been sharply opposed by many scholars and does not currently represent majority opinion.¹⁹

The Hebrew word for life, *nefesh*, is explicitly linked to breath by the Torah (Genesis 2:7).¹⁷ Moreover, the words that describe the animating spirit that defines life, *neshamah* and *ruah*, similarly relate to respiration.¹⁷ From the Jewish perspective, as long as a person breathes, the heart functions, and the blood circulates, death has not yet occurred.²⁰ This does not mean, however, that a

lingering life must be prolonged in all circumstances. In the case of an imminently dying patient (*safek goses*), the emphasis is on providing comfort and withholding and perhaps withdrawing active medical care wherever the active care process causes suffering or is disturbing the dying process.^{17,21-23} Thus, although one may not actively cause or hasten the onset of death by withholding the normal and natural means to sustain life (eg, nutrition, fluids, air), one need not necessarily administer unnatural or advanced therapies (eg, antibiotics, vasopressors, chemotherapy) that will neither cure nor relieve the suffering of the patient.²² This is supported by the writings of Rabbi Moshe Feinstein who, based on the Talmudic story (*Ketubot* 104a) of Rabbi Yehuda the Prince, stated,

If physicians have no means of healing such a patient or of reducing his suffering, but do know a treatment to keep him alive for a limited time at the current level of suffering, then they should not give him this treatment.²²

Christianity: The three largest branches of Christianity are the Roman Catholic, Protestant, and Eastern Orthodox traditions. A discussion of all Christian traditions is outside the scope of this article. This brief introduction focuses primarily on Catholic tradition.

In Christianity, death is accepted as the unavoidable end; however, it is valued as the transition to a glorified existence.²⁴ Christian denominations have tended to support the diagnosis of death by brain criteria, but debate exists about whether the mode of being viewed expressed by the US President's Council on Bioethics is sufficient given that the loss of integration view predominates in Christianity, an idea first accepted as doctrine by the Council of Vienne in 1311 to 1312.^{25,26}

The modern Christian view seems to be based on a willingness to accept that loss of all brain function is sufficient evidence that the surviving body is no longer integrated with the soul.²⁵ This view was most clearly articulated by Pope John Paul II in 2000 when he acknowledged that medical criteria cannot determine "the exact moment of a person's death" but are valid "as a scientifically secure means of identifying the biologic signs that a person has indeed died."²⁷ He further stated that "for ascertaining the fact of death, namely the complete and irreversible cessation of all brain activity if rigorously applied, does not seem to conflict with the essential elements of a sound anthropology."^{25,27}

Pope Benedict XVI subsequently expanded on this by stating:

There is no “right” kind of death. When meeting at a final common endpoint, death, the order in which heart, lung and brain cease to function do not define different deaths. There are, however, different forms of death and most people are more comfortable and obviously used to the traditional “cardio-respiratory arrest” form of death.²⁷

Additionally, he stated:

The traditionally accepted sequence has been that after heart–lung arrest, loss of consciousness first, and then BD [brain death] occurs. In the early 1950s, the advent of mechanical ventilators allowed for the artificial prolongation of cardiac and lung function and reversed the conventionally accepted chain of events to one initiated with death of the brain followed by heart and lung arrest....Society has not had sufficient time to accept and change to a paradigm in which death does not follow the pattern of heart-beat arrest. Thus, brain death can only be blamed as being a relatively young artificial construct based on a counterintuitive concept. This does not imply that brain death is not a biological truth.²⁷

Sources of Law in Islam

The idea that brain death represents true death in Islam remains a subject of great debate. Just as secular legal systems comprise multiple sources of law that at times appear at odds with one another, the same is true for faith-based judicial systems. For example, in the United States, law is derived on federal and state levels (in order of primacy) from the constitution, statutes, regulations, and common law or case law. To understand why discordant opinions or laws may also occur within legal systems rooted in Islamic tradition, one must first understand the origins of Islamic law and potential sources of new law (Table 1).

The science of law (*fiqh*) and the collection of legal rules (*aḥkām*), can be reduced to four formal sources (*uṣūl*) of Islamic (moral) law (*sharīʿah*) that inform the Islamic perspective on end-of-life issues. These sources include textual sources (*nuṣūṣ*), including (1) the Holy Qurʾan and (2) the Sunnah, which comprise the inspired sayings and deeds (ie, traditions) of the Prophet

Muhammed as recorded in a genre of literature known as *ḥadīth*.^{28,29} Other sources include (3) *ijmāʿ*, or consensus of religious scholars (*ulamā*), and (4) *qiyās*, or precedent-based analogy.^{28–34} The primacy of place within the hierarchy of all these sources is given to the Qurʾan, followed by the Sunnah, which elucidates (the Qurʾan’s) unclarity.³³ Although second in the order of importance, the Sunnah has provided the greatest bulk of material from which law was derived during the formative period.³²

On issues where the primary legal sources are ambiguous, rulings may arise from human reasoning and intellect (*ijtihād*) as exercised by a qualified religious scholar (*muftī*).^{28,33,34} The role of *ijtihād* in modern society has itself become a source of controversy within the Sunni sect, whereas it is used more commonly within Shīʿa sects. *Ijtiḥād* applies only to gray areas of law and holds no role where primary textual sources (the Qurʾan and the Sunnah) or scholarly consensus (*ijmāʿ*) are unambiguous. The *muftī* opinion (*fatwā*) is considered to contain elements of uncertainty and, therefore, deemed only probable (*thannī*).^{29,33} *Muftī* rulings are generally worded and generally applicable (eg, to one who does so and so is applicable such and such, or one who says so and so is obliged to do such and such).³⁵ As such, the *fatwā* is general in terms and not obligatory.³⁵

Brain Death and Islam

The Holy Qurʾan emphasizes the universality of death (Qurʾan 3:156, 3:185, 29:57, and 39:42), and from its teachings, one would gather that the moment of death (*al mawt*) would be at the time the soul (*al ruh*; sometimes used interchangeably with *al naḥs* meaning self) is separated from the soulless body (*al Mawāt*). However, there is neither a precise definition of death nor a precise description of how to recognize the departure of *al ruh* from *al Mawāt* in either the Qurʾan or the Sunnah.^{36–38} These specific issues were discussed 25 years

TABLE 1 Sources of Islamic Moral Law (*Sharīʿah*) Listed in Order of Primacy

Legal Source	Definition
Qurʾan	The sacred text of Islam, divided into 114 chapters (<i>sūrah</i> ; plural, <i>sūwar</i>): revered as the word of God, dictated to Prophet Muhammad through the archangel Gabriel, and accepted as the foundation of Islamic law, religion, culture, and politics
Sunnah	The inspired sayings and deeds (ie, traditions) of the Prophet Muhammed as recorded in a genre of literature known as <i>ḥadīth</i>
Ijmāʿ	Consensus of religious scholars (<i>ulamā</i>)
Qiyās	Precedent-based analogy

ago at a seminar where the participants concluded that the Qu'ran does not define death.³⁹

Similar to Western medicine, when discussing the Islamic view of the physician's role in determining death, the principle of no harm functions like the principle of nonmaleficence.²¹ The spirit of the ethical principle of nonmaleficence is manifest through the axiom "no harm shall be inflicted or reciprocated in Islam (*la darar wa la dirar fi'l-islam*).²¹ Moreover, a report from the International Organization of Islamic Medicine stated,

In his/her defense of life, however, the Doctor is well advised to realize his limit and not transgress it. If it is scientifically certain that life cannot be restored, then it is futile to diligently keep the patient in a vegetative state by heroic means or to preserve the patient by deep freezing or other artificial methods. It is the process of life that the doctor aims to maintain and not the process of dying. In any case, the doctor shall not take a positive measure to terminate the patient's life.⁴⁰

Against the backdrop of soaring accidental deaths and organ donation needs, the law academies (Islamic Fiqh Academy [IFA]) of the Organization of the Islamic Conference (OIC) in 1986 and the Muslim World League (MWL) in 1987 each commented on the problems associated with legitimizing the brain death criterion by issuing decisions (*qararat*).⁷ The IFA-OIC reached a decision during its third annual session (October 11-16, 1986) in Amman, Jordan, where resolution number 5 declared that

A person [is] considered legally dead, and all the principles of the Shari'ah can be applied when one of the following signs is established:

1. Complete stoppage of the heart and breathing, and the doctors decide that it is irreversible.
2. Complete stoppage of all vital functions of the brain, and the doctors decide that it is irreversible, and the brain has started to degenerate.

Under these circumstances it is justified to disconnect life supporting systems even though some organs continue to function automatically (e.g. the heart) under the effect of the supporting devices.^{7,41-44}

However, the IFA-MWL made some distinctions and decisions that are not found in the OIC's decision.⁷ Notably, the IFA-MWL stated that brain death criterion can only be applied if three physicians agree that brain death has occurred and is irreversible. Furthermore, any legal consequences linked to the determination of death can come into effect only after circulation and respiration have finally stopped.⁷ In other words,

cardiac death and brain death are explicitly not equated.⁷

A historical timeline of other notable Islamic judicial decisions and recommendations regarding brain death is shown in Table 2. As has been the case in other faith-based traditions of bioethics, a parallel effort to consider bioethical questions grew from medical scholarship. In 2003, the Islamic Medical Association of North America (IMANA) ethics committee developed a primer titled *Medical Ethics: The IMANA Perspective* that reiterates the generally accepted criteria for the diagnosis of death and clarifies the ambiguity from the prior IFA statement regarding who determines death by embracing the key role of the physician.⁴⁴ Additionally, the issue of diagnostic uncertainty is alluded to in more detail with added language on the level of physician training needed to make a diagnosis of brain death.⁴⁴

Although the IFA-OIC resolution and IMANA perspective are widely cited within the medical community as an acceptance of brain death within Islamic law and the Muslim community, conceptual and clinical ambiguities remain.⁴⁴ At the Third International Conference of Islamic Jurists, medical specialists were unanimous in their support for brain stem criteria signifying death. However, the final verdict of the IFA-OIC described the cessation of vital brain functions, and this wording left several unanswered questions⁴⁴:

1. What are the vital functions of the brain, and who makes the determination?
2. What brain death criteria are to be used, whole brain or brain stem?
3. Who determines the irreversibility of these vital brain functions, and what level of certainty (*yaqīn*) is required?
4. Is brain degeneration a necessary part of the definition? If so, how is this to be determined?

Regarding the first of these issues, the debate rests on whether whole-brain, brain stem, or higher brain functions are most appropriate for conceptualizing and diagnosing brain death. The answer to this may vary based on the philosophical tradition of the discussant. A comprehensive discussion of these philosophical creeds (*aqidah*) is beyond the scope of this article. Briefly, Muslims from the *mu'tazilite* (rationalist) tradition may define personhood and, thus, vital functions of the brain differently than those from other Sunni *aqidah* (*ash'ari*, *māturīdī*, and *murji'ah*). These should not to be confused

TABLE 2] Historical Timeline of Notable Islamic Judicial Decisions on Brain Death

Year	Legal/Judicial Body	Endorsed Brain Death	Classification	Purpose	Criteria Used
1964	Iran: Ayatollah Khomeini	Yes	LD	OD	NS
1981	Kuwait: Religious Ruling Committee	No	...	...	...
1982	Saudi Arabia: Senior Religious Scholars Commission	Yes	LD	WLS, OD	NS
1982	Lybia: Law No. 4/1982	Yes	LD	OD	NS
1983	Lebanon: Decree Law No. 109	Yes	LD	OD	NS
1984	Lebanon: Decree Law No. 1442				
1985	IOMS	Yes	UL	WLS	BS
1986	IFA-OIC	Yes	LD	NS	NS
1987	IFA-MWL	Yes	UL	WLS	WB
1993	United Arab Emirates	Yes	NS	NS	NS
1993	Egypt	No			
1994	Oman: Ministerial Decision No. 8	Yes	LD	OD	BS
1994	South Africa: Majlis al-Shura al-Islami	Yes	LD	NS	NS
1995	South Africa: Majlis al-Ulama	No	...	...	...
1995	United Kingdom: Muslim Law Council	Yes	LD	OD	BS
1996	Indonesia: Council of Ulama	Yes	NS	NS	BS
1998	Morocco: Law No. 16-98	Yes	LD	OD	NS
1999/2000	Iran: Act H/24804-T/9929	Yes	LD	OD	BS
2000	Turkey: Act No. 21674	Yes	LD	OD, WLS	BS
2003	IMANA	Yes	LS	NS	NS
2003	Syria: Law No. 30/2003	Yes	LD	OD	NS
2010	Qatar: Doha Donation Accord and Law No. 21	Yes	LD	OD	BS
2010	Egypt: Right to health campaign and initiative for personal rights	No	...	...	...

BS = brain stem; IFA = Islamic Fiqh Academy; IMANA = Islamic Medical Association of North America; IOMS = Islamic Organization of Medical Sciences; LD = legal death; MWL = Muslim World League; NS = not specified; OD = organ donation; OIC = Organization of the Islamic Conference; UL = unstable life; WB = whole brain; WLS = withdrawal of life support. (Adapted from References 30 and 45-57.)

with the Sunni schools of jurisprudence (*madhāhib*) or the many traditions within Shi'a, Sufi, or other minority Islamic groups.^{31,32}

The determination of the irreversibility of these vital brain functions is complicated by the lack of clarity surrounding the term. Medically, it is limited by modern science and technology. The addition of brain degeneration in the IFA-OIC ruling is peculiar and leaves much room for debate. The term per se is not defined, therefore, rendering further testing irrelevant because verification cannot be done for an undefined condition. Ancillary testing is performed in a minority of countries and is of questionable utility due to inherent limitations in sensitivity and specificity.¹²

Further complexity in the determination of brain death emerged from the Islamic Organization of Medical Sci-

ences conferences on brain death that laid the foundation for such deliberation by equating individuals declared brain dead by brain stem criteria to those with unstable life, *al-hayāt ghayr al-mustaqirr* (dying but not dead).⁵⁸

Dissenting Opinion

There is a certain artificiality in differentiating between the two possibilities of death (cardiopulmonary and brain death) determination. On the one hand, brain death takes place a short time after the cessation of circulation and respiration, and, on the other hand, circulation and respiration can only be maintained artificially after the brain dies.⁷ However, the determination of death remains important not only for burial rights of the deceased and conformity with *shari'ah* but also for critically important reasons, including inheritance, matrimonial law, and criminal law.⁷

Despite the IFA-OIC, IFA-MWL, IMANA, and other decisions (*qararat*) recognizing brain death criteria, these decisions are no more than nonbinding resolutions or recommendations.⁷ Although *qararat* may represent majority opinions, concerns have limited widespread acceptance of this concept.^{36,59,60} Moreover, contemporary Muslim scholars have conflicting notions regarding the irreversibility of patients maintained on resuscitation devices. Some claim that absolute death cannot become manifest without cardiac death.^{44,59}

Even within medical circles, the notion that brain death represents complete death has been met with resistance.^{59,61} In a survey of 115 house staff at a university-based medical center in Morocco, 24% of physicians did not know the definition of brain death, and 35% reported not believing in the concept.^{62,63} In a retrospective study of 42 patients who were brain dead in Jeddah, Saudi Arabia, the expectant terminal extubation occurred in only five (12%). Two patients remained full code due to family opposition, and the remainder had orders to not attempt resuscitation with life-sustaining therapies.^{64,65}

Others have rejected the diagnosis over potential conflicts of interest with issues of organ donation.⁶⁶⁻⁶⁸ For example, Egypt experienced an intense ethical reaction against deceased donor transplantation and the notion of brain death following the procurement of organs from executed prisoners under controversial conditions.⁶⁶ Similar outrage regarding organ donation and its linkage to declaration (or not) of death has fueled debate following the allegedly government-sponsored forced organ removal from Muslim political demonstrators in China.⁶⁸

Navigating Bedside Dilemmas

In Islam, life saving is a duty, and the unjustifiable taking of life is considered a grave sin.^{28,69} Therefore, the determination of valid religious practice and resolution of bioethical issues surrounding end-of-life care is left to qualified scholars of religious law who are called to provide ruling on whether a proposed action is obligatory (*wajib* or *fardh*), recommended (*mustahabb*), permitted (*mubah*), discouraged (*mukruh*), or prohibited (*haram*).^{28,70} We have summarized the available evidence as it pertains to important ethical dilemmas in clinical practice.

Is there guidance for navigating potential conflict or discordant opinions between medical staff and a surrogate in the event that the surrogate does not accept

the diagnosis of brain death as true death? Communication should be the keystone for any conflict resolution between a patient, family member, or surrogate and the medical staff. To that end, a pastoral care, ethics service, or hospice consultant may be helpful in facilitating communication between parties.⁷¹⁻⁷³ In particular, representation from an appropriate Islamic spiritual leader, including either an Imam or a Muslim chaplain, may be beneficial to facilitating discourse.^{71,72,74} If a resolution or agreement cannot be achieved, then it may be reasonable for the team to proceed according to local laws, hospital policy, and locally accepted medical standard of care while maintaining respect and addressing concerns of the patient surrogate or family. Transitioning the goals of care from cure to comfort would be reasonable, and this may include deescalation, or at least avoiding escalation, of organ and perfusion-sustaining technology to allow the patient to die a natural death, for the Qu'ran states that "God gives life, and He makes to die" (Qur'an 3:156) and "God takes the souls at the time of their death" (Qur'an 39:42). Hence, in Islam, a person dies only when it is written.

Is there guidance for muslim physicians who do not accept brain death as true death based on religious grounds yet practice in a medical environment that does? Islamic law permits withdrawal of futile and disproportionate treatment on the basis of the consent of the immediate family members who act on the professional advice of the physician in charge of the case.⁷⁵ However, as a physician, it may be difficult to comport oneself when one's own personal beliefs and professional duties are at odds. According to a *hadith* of Prophet Muhammed reported on the authority of Abu Sa'eed al-Khudree, the Sunnah states,

Whosoever of you sees an evil, let him change it with his hand; and if he is not able to do so, then [let him change it] with his tongue; and if he is not able to do so, then with his heart—and that is the weakest of faith. [Sahih Muslim]

Thus, for a Muslim physician who does not accept brain death as true death yet is faced with making the diagnosis, there are a number of ways to acceptably and professionally fulfill the meaning of this *hadith*. We believe that one should either (1) function in accordance with the standard medical care with conscientious objection or (2) recuse oneself from the case and turn over care to another qualified provider, if necessary. Either of these cases would fulfill the third portion of the *hadith*. If one believes strongly that the local rules or regulations are not appropriate or are unjust, then one may engage in debate to affect policy change because this would fulfill

the second, and possibly first, portion of this *ḥadīth*. This latter course of action is obviously most appropriate for the public forum and not at an individual patient's bedside.

What do Islamic traditions say about prolonging the suffering of loved ones? Muslim theologians differentiate between suffering imposed by God and suffering imposed by human beings; the former has redemptive value but the latter does not and should be avoided.^{22,76} Moreover, relief of suffering, if it does not conflict with preservation of life, is a duty of Muslim patients and physicians.⁷⁶⁻⁷⁸ The spirit of the ethical principle of non-maleficence is manifest through the axiom, "No harm shall be inflicted or reciprocated in Islam (*la darar wa la dirar fi'l-islam*)."²¹ Moreover, this is supported by a report from the International Organization of Islamic Medicine that states,

In his/her defense of life, however, the Doctor is well advised to realize his limit and not transgress it. If it is scientifically certain that life cannot be restored, then it is futile to diligently keep the patient in a vegetative state by heroic means or to preserve the patient by deep freezing or other artificial methods. It is the process of life that the doctor aims to maintain and not the process of dying. In any case, the doctor shall not take a positive measure to terminate the patient's life.⁴⁰

Limitations

The search was performed using English language terms. Although articles of multiple languages were included, it is likely that the inability to perform Arabic and Farsi language searches potentially limited our identification of additional relevant sources.

Conclusions

How one defines death may vary among cultured traditions. It is important for clinicians to recognize those aspects of a patient's religious beliefs that may not only directly influence medical care or the decisions of health-care surrogates but also how such practices may interface with local laws governing the determination of death. Debate continues about the validity and certainty of brain death criteria within Islamic circles. Although brain death is accepted as true death by a majority of Muslim scholars and medical organizations, as evidenced by decisions from the IFA-OIC, IFA-MWL, IMANA, and other faith-based medical organizations, and the legal rulings by multiple nations, the consensus in the Muslim world is not unanimous, and there is a sizable minority that still accepts death by cardiopulmonary criteria only.

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Additional information: The e-Appendix can be found in the Supplemental Materials section of the online article.

References

1. Berner D, Gaeta S. Religion based non-acceptance of brain death, an end-of-life ethical dilemma [abstract]. *Crit Care Med*. 2012; 40(suppl):304.
2. Fins JJ. Across the divide: religious objections to brain death. *J Relig Health*. 1995;34(1):33-39.
3. Goldberger ZD, Chan PS, Berg RA, et al; American Heart Association Get With The Guidelines—Resuscitation (formerly National Registry of Cardiopulmonary Resuscitation) Investigators. Duration of resuscitation efforts and survival after in-hospital cardiac arrest: an observational study. *Lancet*. 2012;380(9852):1473-1481.
4. Mollaret P, Goulon M. The depassed coma (preliminary memoir) [in French]. *Rev Neurol (Paris)*. 1959;101:3-15.
5. Silverman D. Cerebral death—the history of the syndrome and its identification. *Ann Intern Med*. 1971;74(6):1003-1005.
6. Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death. A definition of irreversible coma. *JAMA*. 1968;205(6):337-340.
7. Grundmann J. Shari'ah, brain death, and organ transplantation: the context and effect of two Islamic legal decisions in the Near and Middle East. *Am J Islamic Soc Sci*. 2005;22(4):1-25.
8. National Conference of Commissioners on Uniform State Laws. *Uniform Determination of Death Act*. Chicago, IL: National Conference of Commissioners on Uniform State Laws; 1981.
9. Earnest MP, Beresford HR, McIntyre HB. Testing for apnea in suspected brain death: methods used by 129 clinicians. *Neurology*. 1986;36(4):542-544.
10. Greer DM, Varelas PN, Haque S, Wijicks EF. Variability of brain death determination guidelines in leading US neurologic institutions. *Neurology*. 2008;70(4):284-289.
11. Powner DJ, Hernandez M, Rives TE. Variability among hospital policies for determining brain death in adults. *Crit Care Med*. 2004; 32(6):1284-1288.
12. Wijicks EF. Brain death worldwide: accepted fact but no global consensus in diagnostic criteria. *Neurology*. 2002;58(1):20-25.
13. Wijicks EF. The case against confirmatory tests for determining brain death in adults. *Neurology*. 2010;75(1):77-83.
14. Wijicks EF, Varelas PN, Gronseth GS, Greer DM; American Academy of Neurology. Evidence-based guideline update: determining brain death in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2010;74(23):1911-1918.
15. Woll ML, Hinshaw DB, Pawlik TM. Spirituality and religion in the care of surgical oncology patients with life-threatening or advanced illnesses. *Ann Surg Oncol*. 2008;15(11):3048-3057.
16. Bleich JD. Of cerebral, respiratory and cardiac death. In: Lamm N, ed. *Contemporary Halakhic Problems*. Vol 4. Hoboken, NJ: KTAV Publishing House, Inc; 1995:316-350.

17. Nevins DS. Dead or alive? Halakhah and brain death. *Conserv Jud.* 2005;57(2):3-29.
18. Breitowitz YA. The brain death controversy in Jewish law. *Jew Act.* 1992;5752:61-80.
19. Bleich JD. Neurological criteria of death and time of death statutes. In: Rosner F, Bleich JD, eds. *Jewish Bioethics*. Hoboken, NJ: KTAV Publishing House, Inc; 2000:325-338.
20. Inwald D, Jakobovits I, Petros A. Brain stem death: managing care when accepted medical guidelines and religious beliefs are in conflict. Consideration and compromise are possible. *BMJ.* 2000; 320(7244):1266-1267.
21. Buckley WJ, Sulmasy DP, MacKler A, Sachedina A. Ethics of palliative sedation and medical disasters: four traditions advance public consensus on three issues. *Ethics Med.* 2012;28(1):35-63.
22. Schultz M, Baddarni K, Bar-Sela G. Reflections on palliative care from the Jewish and Islamic tradition. *Evid Based Complement Alternat Med.* 2012;2012:693092.
23. Kunin J. Brain death: revisiting the rabbinic opinions in light of current medical knowledge. *Tradition.* 2004;38(4):48-62.
24. Bejjani-Gebara J, Tashjian H, Huijier HA. End-of-life care for Muslims and Christians in Lebanon. *Eur J Palliat Care.* 2008;15(1): 38-43.
25. Tonti-Filippini N. Religious and secular death: a parting of the ways. *Bioethics.* 2012;26(8):410-421.
26. The President's Council on Bioethics. *Controversies in the Determination of Death: a White Paper by The President's Council on Bioethics*. Washington, DC: The President's Council on Bioethics; 2008
27. Estol CJ. To live and let die: a brain death symposium at the Pontifical Academy of Science. *Int J Stroke.* 2007;2(3):227-229.
28. Babgi A. Legal issues in end-of-life care: perspectives from Saudi Arabia and United States. *Am J Hosp Palliat Care.* 2009;26(2): 119-127.
29. Weiss B. Interpretation in Islamic Law: the theory of Ijtihad. *Am J Comp Law.* 1978;26(2):199-212.
30. Arbour R, AlGhamdi HM, Peters L. Islam, brain death, and transplantation: culture, faith, and jurisprudence. *AACN Adv Crit Care.* 2012;23(4):381-394.
31. Arozullah AM, Kholwadia MA. Wilāyah (authority and governance) and its implications for Islamic bioethics: a Sunni Māturīdī perspective. *Theor Med Bioeth.* 2013;34(2):95-104.
32. Hallaq WB. *A History of Islamic Legal Theories: An Introduction to Sunni Usul al-Fiqh*. Cambridge, England: Cambridge University Press; 1997.
33. Khallaf AaW. *Ilm Usul al-Fiqh [Science of the Roots of Islamic Jurisprudence]*. 12th ed. Kuwait: Dar al Qalam; 1978:7-53.
34. Padela AI, Basser TA. Brain death: the challenges of translating medical science into Islamic bioethical discourse. *Med Law.* 2012; 31(3):433-450.
35. Vogel FE. *Islamic Law and Legal System: Studies of Saudi Arabia*. Leiden, Netherlands: Brill; 2000:407.
36. al-Mousawi M, Hamed T, al-Matouk H. Views of Muslim scholars on organ donation and brain death. *Transplant Proc.* 1997;29(8): 3217.
37. Ebrahim AF. Islamic jurisprudence and the end of human life. *Med Law.* 1998;17(2):189-196.
38. Khan FA. The definition of death in Islam: can brain death be used as a criteria of death in Islam? *JIMA.* 1986;18(1):18-21.
39. Madhkūr KI, 'Awaḍī A, Munazzamah al-Islāmiyah lil- 'Ulūm al-Ṭibbiyah (Kuwait), et al. Human life, its inception and end as viewed by Islam: the full minutes of the Seminar on Human Life: Its Inception and End as Viewed by Islam, held on January 15, 1985 A.D. (Rabi Al-Akhar 14, 1405 H). In: Al-Mazkur K, ed. *Seminar on Human Life: Its Inception and End as Viewed by Islam*. Kuwait: Islamic Organization for Medical Sciences: Kuwait Foundation for Advancement of Sciences; 1985.
40. International Organization of Islamic Medicine; Islamic Medical Association of South Africa. *Islamic Code of Medical Ethics: Kuwait Document*. Johannesburg, South Africa: Islamic Medical Association of South Africa; 1981:67.
41. Fiqh Academy Book of Decrees. Third Conference of Islamic Jurists. Amman, Jordan, 1986; Decree No. 5.
42. Hassaballah AM. Minisymposium. Definition of death, organ donation and interruption of treatment of Islam. *Nephrol Dial Transplant.* 1996;11(6):964-965.
43. Moosa E. Brain death and organ transplantation—an Islamic opinion. *S Afr Med J.* 1993;83(6):385-386.
44. Padela AI, Shanawani H, Arozullah A. Medical experts & Islamic scholars deliberating over brain death: gaps in the applied Islamic bioethics discourse. *Muslim World.* 2011;101(1):53-72.
45. The Muslim Law (Shariah) Council and organ transplants. *Accid Emerg Nurs.* 1996;4(2):73-75.
46. Iranian parliament approves bill legalizing organ donation from brain dead patients. *Transplant News*. Highbeam Research website. <http://www.highbeam.com/doc/1G1-62942721.html>. Published 2000. Accessed on March 11, 2014.
47. Ahmad K. First step towards organ transplantation in Iran. *Lancet.* 1999;354(9192):1802.
48. Albar M. Organ transplantation: a Sunni Islamic perspective. *Saudi J Kidney Dis Transpl.* 2012;23(4):817-822.
49. Atighetchi D. *Islamic Bioethics: Problems and Perspectives*. Dordrecht, The Netherlands: Springer; 2007.
50. Boustany FN. *Organ Transplantation. Ethics and Law in Biomedicine and Genetics: an Overview of National Regulations in the Arab States*. Cairo, Egypt: United Nations Educational, Scientific and Cultural Organization; 2011:40-49.
51. Haque OS. Brain death and its entanglements: A redefinition of personhood for Islamic ethics. *J Relig Ethics.* 2008;36(1):13-36.
52. Larijani B, Zahedi F, Taheri E. Ethical and legal aspects of organ transplantation in Iran. *Transplant Proc.* 2004;36(5):1241-1244.
53. Larijani BZ, Zahedi F, Malek-Afzali H. Medical ethics in the Islamic Republic of Iran. *East Mediterr Health J.* 2005;11(5-6):1061-1072.
54. UK's Muslim Law Council approves organ transplants. *J Med Ethics.* 1996;22(2):99.
55. Padela AI. Islamic bioethics: between sacred law, lived experiences, and state authority. *Theor Med Bioeth.* 2013;34(2):65-80.
56. Qazi F, Ewell JC, Munawar A, Asrar U, Khan N. The degree of certainty in brain death: probability in clinical and Islamic legal discourse. *Theor Med Bioeth.* 2013;34(2):117-131.
57. Salaçin S, Gülmen MK, Alper B, et al. Social attitudes towards the latest legislation on brain death. In: Mangin P, Ludes B, eds. *Acta Medicinæ Legalis*. Vol. XLIV 1994. Berlin, Germany: Springer; 1995:133-135.
58. Krawietz B. Brain death and Islamic traditions: shifting borders of life. In: Brockopp JE, ed. *Islamic Ethics of Life: Abortion, War, and Euthanasia*. Columbia, SC: University of South Carolina Press; 2003:195-213.
59. Bedir A, Aksoy S. Brain death revisited: it is not 'complete death' according to Islamic sources. *J Med Ethics.* 2011;37(5):290-294.
60. Hamdy S. Not quite dead: why Egyptian doctors refuse the diagnosis of death by neurological criteria. *Theor Med Bioeth.* 2013; 34(2):147-160.
61. Rady MY, Verheijde JL, Ali MS. The practice of medicine and the utilitarian redefinition of the beginning and end of human life. *Saudi Med J.* 2010;31(6):718-720.
62. Bassit NH, Habiblah M, Fadili W, Laouad I. University hospital doctors: what are their beliefs about organ donation? *Transplant Proc.* 2013;45(10):3466-3468.
63. El Houda BN, Mustapha H, Wafaa F, et al. Organ donation: opinion of doctors. *Nephrol Dial Transplant.* 2012;27(suppl 2):ii535.
64. Khalid I, Hamad WJ, Khalid TJ, Kadri M, Qushmaq I. End-of-life care in Muslim brain-dead patients: a 10-year experience. *Am J Hosp Palliat Care.* 2013;30(5):413-418.
65. Khalid I, Sehli D, Shanawani H, et al. Brain death in a Muslim population: a ten year experience in a tertiary care hospital in Saudi Arabia [abstract]. *J Neurotrauma.* 2011;28(6):A20.
66. Al Sayyari AA. The history of renal transplantation in the Arab world: a view from Saudi Arabia. *Am J Kidney Dis.* 2008;51(6):1033-1046.

67. Golmakani MM, Niknam MH, Hedayat KM. Transplantation ethics from the Islamic point of view. *Med Sci Monit.* 2005;11(4): RA105-RA109.
68. Gutmann E. Bitter harvest: China's 'organ donation' nightmare. *World Affairs.* 2012;175:49-56.
69. Benomran FA. Medical responsibility in the Libyan law. *Med Law Int.* 1994;1(3):289-300.
70. Padela AI. Islamic medical ethics: a primer. *Bioethics.* 2007;21(3): 169-178.
71. Abu-Ras W. Muslim chaplain's role as perceived by directors and chaplains of New York City hospitals and health care settings. *J Muslim Ment Health.* 2011;6(1):21-43.
72. Abu-Ras W, Laird L. How Muslim and non-Muslim chaplains serve Muslim patients? Does the interfaith chaplaincy model have room for Muslims' experiences? *J Relig Health.* 2011;50(1):46-61.
73. Brierley J, Linthicum J, Petros A. Should religious beliefs be allowed to stonewall a secular approach to withdrawing and withholding treatment in children? *J Med Ethics.* 2013;39(9):573-577.
74. Lahaj M. End of life care and the chaplain's role on the medical team. *JIMA.* 2011;43(3):173-178.
75. Sachedina A. End-of-life: the Islamic view. *Lancet.* 2005;366(9487): 774-779.
76. Alibhai SMH, Gordon M. Muslim and Jewish perspectives on inappropriate treatment at the end of life. *Arch Intern Med.* 2004; 164(8):916-917.
77. Badawi G. Muslim attitudes towards end-of-life decisions. *JIMA.* 2011;43(3):134-139.
78. Swetz KM, Jama AA, Quirindongo-Cedeno O, Hatchett L. Meeting the needs of Somali patients at the end of life. *Minn Med.* 2011; 94(12):43-46.