

# BRAIN DEATH IN ISLAMIC ETHICO-LEGAL DELIBERATION: CHALLENGES FOR APPLIED ISLAMIC BIOETHICS

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## Keywords

religious ethics,  
neurological death,  
Muslim bioethics,  
cultural issues,  
neuroethics

## ABSTRACT

Since the 1980s, Islamic scholars and medical experts have used the tools of Islamic law to formulate ethico-legal opinions on brain death. These assessments have varied in their determinations and remain controversial. Some juridical councils such as the Organization of Islamic Conferences' Islamic Fiqh Academy (OIC-IFA) equate brain death with cardiopulmonary death, while others such as the Islamic Organization of Medical Sciences (IOMS) analogize brain death to an intermediate state between life and death. Still other councils have repudiated the notion entirely. Similarly, the ethico-legal assessments are not uniform in their acceptance of brain-stem or whole-brain criteria for death, and consequently their conceptualizations of, brain death.

Within the medical literature, and in the statements of Muslim medical professional societies, brain death has been viewed as sanctioned by Islamic law with experts citing the aforementioned rulings. Furthermore, health policies around organ transplantation and end-of-life care within the Muslim world have been crafted with consideration of these representative religious determinations made by transnational, legally-inclusive, and multidisciplinary councils.

The determinations of these councils also have bearing upon Muslim clinicians and patients who encounter the challenges of brain death at the bedside. For those searching for 'Islamically-sanctioned' responses that can inform their practice, both the OIC-IFA and IOMS verdicts have palpable gaps in their assessments and remain clinically ambiguous. In this paper we analyze these verdicts from the perspective of applied Islamic bioethics and raise several questions that, if answered by future juridical councils, will better meet the needs of clinicians and bioethicists.

## INTRODUCTION

As with other ethical traditions, the field of 'Islamic bioethics' has grown from a diversity of stakeholders with multiple needs and varied interests. In Islamic bioethics circles medical practitioners, health and health policy researchers, social scientists, historians, Islamic studies scholars, as well as traditional jurisconsults (*muftis*) opine on matters of Islamic law, ethics and medicine. While each group brings forth its expertise to address questions of how Islamic values interact with, and influence,

medical practice, the discourse often occurs within 'silos' with little cross-talk, and seldom directly reaches patients and physicians in a practical form.<sup>1</sup> While diverse in disciplinary foci all of these scholars share in their use of Islamic ethico-legal religious verdicts and responsa literature, *fatawa* (sing. *Fatwa*), and group deliberations, *qararat* (sing. *Qarara*) to inform their assessments. Thus clinicians use *fatawa* to understand the permissibility of

<sup>1</sup> A. I. Padela, H. Shanawani & A. Arozullah. Medical Experts & Islamic Scholars Deliberating over Brain Death: Gaps in the Applied Islamic Bioethics Discourse. *Muslim World Journal* 2011; 101(1):53–72.

medical interventions, health policy advocates use *fatawa* as the basis for constructing health policy options, and Islamic studies experts use *fatawa* as source texts from which to derive and prioritize principles for a global Islamic bioethics.

Two of the most influential bodies of Islamic bioethico-legal deliberation are the Organization of Islamic Conferences' Islamic Fiqh Academy (OIC-IFA) and the Islamic Organization of Medical Sciences (IOMS). These organizations bring together medical scientists and Islamic legal scholars, are transnational in scope, and represent a plurality amongst the Islamic schools of law and theology.<sup>2</sup> Both organizations bring together scholars of Islam and medicine for Islamic ethico-legal deliberation around bioethical challenges faced in the Muslim and non-Muslim world.<sup>3</sup> As a result of this inclusivity, the verdicts issued by these organizations carry significant weight in medical and legal circles, as these organizations are recognized as the forefront of Muslim efforts to address ethico-legal challenges brought forth by modern technological advances.<sup>4</sup>

In this paper we review the religious verdicts and opinions around brain death offered by major Islamic councils. We then proceed to analyze the OIC-IFA and IOMS verdicts from the perspective of applied Islamic bioethics. Our discussion highlights several gaps in specificity that limit the clinical applicability of these verdicts.

## BRAIN DEATH IN THE MUSLIM MIND

Brain death represents one area of tension between traditional values and modern medicine as traditionally clear categories of life and death have been rendered 'fuzzy' by machinery. Brain death challenges the epistemological, metaphysical, ethico-legal and theological understandings and principles of the inherited Islamic intellectual tradition, and has several pragmatic implications for practicing Muslims. For example multiple Islamic responsibilities ensue upon the determination of death, such as the funeral prayer, distribution of inheritance, and a required waiting period prior to remarriage by the widow. Similarly multiple bioethical questions arise for Muslim patients and medical providers: What are the responsibilities of the physician to those diag-

nosed as brain dead vis-a-vis continuation of life support? Can organs be harvested from those deemed brain dead? These and others related questions germane to Muslim medical practice are informed by the ethico-legal determinations according to Islamic law.

No one religious body speaks for Sunni Islam and thus there are multiple ethico-legal opinions regarding brain death. Some juridical bodies consider whole-brain criteria sufficient to consider an individual dead, others accept the brain-stem criteria for withdrawal of life support, and still others repudiate the notion of brain death altogether.<sup>5</sup> This plurality is considered a positive feature of Islamic ethico-legal deliberation allowing the tradition to adapt to circumstance and context on both the individual and societal levels.

Although a plurality of ethico-legal opinions exist, within medical circles brain death has largely been portrayed as acceptable from the religious point of view. Articles in medical journals and statements from Muslim medical professional societies sanction brain death finding support from the OIC-IFA and IOMS statements.<sup>6</sup> Written specifically for clinicians these statements and papers inform clinical practice.

## Muslim juridical councils' opinions on brain death

Although the Shiite Muslim community represented by Ayatollah Khomeini allowed organ transplantation from brain dead patients in Iran as early as 1964, the Sunni Muslims addressed these issues much later.<sup>7</sup> In 1981, the Religious Rulings Committee in Kuwait indirectly considered brain death impermissible by ruling that an

<sup>2</sup> L. Al-Nasser. 2009. The Islamic Fiqh Academy. *Asharq Alawsat* Saudi Research and Publishing company available online at: <http://www.aawsat.com/english/news.asp?id=17140&section=6> [Accessed 21 Jun 2010]; E. Moosa. Languages of Change in Islamic Law: Redefining Death in Modernity. *Islamic Studies* 1999; 38: 305–342.

<sup>3</sup> Al-Nasser, *op. cit.* note 1.

<sup>4</sup> M.M.I. Ghaly. Human Cloning Through the Eyes Of Muslim Scholars: The New Phenomenon Of The Islamic International Religious Institutions. *Zygon: Journal of Religion and Science* 2010; 45 (1):7–35.

<sup>5</sup> A.F.M. Ebrahim. 2006. End of Life Issues: Making Use of Extraordinary Means to Sustain Life. In *Geriatrics and End of Life Issues: Biomedical, Ethical and Islamic Horizons*. H.E. Fadel et al., eds. Jordan Society for Islamic Medical Sciences Federation of Islamic Medical Associations: 49–77; J. Grundmann. Shari'ah, Brain Death and Organ Transplantation: The Context and Effect of Two Islamic Legal Decisions in the Near and Middle East. *American Journal of Islamic Social Sciences* 2005; 22: 1–25; O.S. Haque. Brain Death and its Entanglements: A Redefinition of Personhood for Islamic Ethics. *Journal of Religious Ethics* 2008; 36: 13–36; D. Atighetchi. 2007. *Islamic bioethics: problems and perspectives*. New York: Springer: 174–177; Moosa, *op. cit.* note 1, A.A. Sachedina. 2009. *Islamic biomedical ethics: principles and application*. Oxford & New York: Oxford University Press: 145–166.

<sup>6</sup> Islamic Medical Association of North America. 2005. Medical Ethics: The IMANA Perspective. Lombard, IL: IMANA; A.M. Hassaballah. Definition of Death, Organ Donation and Interruption of Treatment in Islam. *Nephrology Dialysis Transplantation* 1996; 11: 964–965; M.Y. Rady, et al. Islam and End-of-life Practices in Organ Donation for Transplantation: New Questions and Serious Sociocultural Consequences. *HEC Forum* 2009; 21: 175–205; M. Al-Mousawi et al. Views of Muslim Scholars on Organ Donation and Brain Death. *Transplantation Proceedings* 1997; 29: 3217.

<sup>7</sup> Haque, *op. cit.* note 3, p. 20.

Table 1. Islamic Juridical Councils on Brain Death

Year	Juridical Body	Endorsed Brain Death as	For What Purpose?	Which Type of Brain Death?
		• Legal Death (LD) • Unstable Life (UL)	• Withdrawal of Life Support (WLS) • Organ Donor (OD)	• Whole-Brain (WB) • Brain-Stem (BS)
1964	Ayatollah Khomeini for Irani Government	Yes	OD	
1981	Religious Rulings Committee of Kuwait	Brain death is NOT legal death		
1982	Senior Religious Scholars Commission in Saudi Arabia	Yes, LD	WLS, OD	
1985	IOMS	Yes, UL	WLS	BS
1987	Council of Islamic Jurisprudence of Muslim World League	Yes, UL	WLS	WB
1988	OIC-IFA	Yes, LD		WB (?)
1994	Majlis al-Shura al-Islami, South Africa	Yes, LD		
1994	Majlis al-Ulama, South Africa	BD person is alive		
1995	United Kingdom Muslim Law Council	Yes, LD	OD	BS
1996	Indonesian Council of Ulama	Yes but unclear		BS

individual remained alive as long as circulation and respiration continued, even if mechanically assisted.<sup>8</sup> Yet next door in Saudi Arabia, the Senior Religious Scholars Commission allowed brain dead individuals to be organ donors thereby indirectly equating brain dead persons with cadavers.<sup>9</sup> Similarly Jordan accepted brain death in 1985.<sup>10</sup> During a 1985 meeting of the Islamic Organization for Medical Sciences (IOMS) Islamic scholars and medical scientists equated brain stem death with *al hayat ghair al mustaqirr*, unstable life within Islamic law, and allowed for removal of life support but not formal declaration of death in such a state.<sup>11</sup> The Islamic Fiqh Academy of the Organization of Islamic Conference (OIC-IFA) also accepted this premise in 1987 although it qualified brain death as whole brain death.<sup>12</sup> Further clarifying their position in 1988 they ruled that Islamic law permitted two *legal* standards for the declaration of death: 1) when all vital functions of brain cease irreversibly and the brain has started to degenerate as witnessed by specialist physicians 2) when the heart and respiration stop completely and irreversibly as witnessed by physicians.<sup>13</sup> This verdict explicitly equated the two states and allowed for all legal rights and duties subsequent to death, e.g distribution of will, to ensue.

Islamic juridical councils in South Africa had conflicting opinions in 1994. The Majlis al-Shura al-Islami in Cape Town gave total jurisdiction of determining the occurrence of death to the physician community and accepted brain death as legal death. Yet the Majlis

al-Ulama in Port Elizabeth ruled organ procurement from brain dead individuals to be manslaughter, thereby implicitly considering brain dead individuals as fully alive.<sup>14</sup> In 1995 the United Kingdom's Muslim Law Council held brain stem death to be sufficient to be considered an organ donor.<sup>15</sup> Most recently, in an ambiguous ruling the Indonesian Council of Ulama stated that death occurred when the brain stem ceased to function and irreversible breakdown of heart and lungs began.<sup>16</sup>

Considering these varied rulings, an Islamic consensus on brain death is lacking. Some equate brain death with cardiopulmonary collapse, both being death proper in Islamic law. Others hold brain death to be an in-between state between life and death, where life support need not be continued and organs may be procured, while some have rejected the concept in toto. Further confusing the issue is the lack of consensus and clarity on which neurologic criteria; whole-brain versus brain-stem, is accepted or rejected. See Table 1.

## Muslim medical professional societies and medical journals on brain death

Within medical practice there exists a strong culture of professional ethics, generally defined by licensing boards, advocacy organizations like the American Medical Association (AMA), and state and local regulations. Medical professionals often turn to their professional societies and to experts' writings in the medical literature when faced with ethical challenges in the clinical realm. At a practical level these sources inform physician practice and provide a 'standard' of care that outlines professional liability.

<sup>14</sup> Ebrahim, *op. cit.* note 3; K.H. Quadri. Ethics of Organ Transplantation: an islamic Perspective. *Saudi J Kidney Dis Transpl* 2004; 15: 429–432.

<sup>15</sup> Atighetchi, *op. cit.* note 3. pp. 176–177.

<sup>16</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Sachedina, *op. cit.* note 3, p. 162.

<sup>10</sup> A. Kurdi & H. Hijazi. Criteria of Brain Death: A Review. *Middle East Journal of Anesthesiology* 1987; 9: 149–161.

<sup>11</sup> A.F. Ebrahim. Islamic Jurisprudence and the End of Human Life. *Med Law* 1998; 17: 189–196. Haque, *op. cit.* note 3, p. 20.

<sup>12</sup> Ibid.

<sup>13</sup> E. Moosa. Brain Death and Organ Transplantation – an Islamic Opinion. *South African Medical Journal* 1993; 83: 385–386.



When looking for an 'Islamic' view of brain death, medical practitioners would find that many Muslim bioethicists and professional societies support brain death.

In the medical literature, using Medline as representative of this body of knowledge, multiple papers note positive Islamic opinions on brain death. Albar notes that the OIC-IFA ruling which equated brain death with cardiac death 'paved the way for the rapid proliferation of cadaveric transplants in Saudi Arabia, the leading Islamic country in this field' while Hassaballah cites the same verdict as providing finality on the brain death issue.<sup>17</sup> Similarly Moosa cites the OIC-IFA and declares that 'it is clear that in large parts of the Muslim world organ transplants and brain death are accepted on religiously approved criteria.'<sup>18</sup> Al-Mousawi references both the OIC-IFA and IOMS declarations but finds the latter as the more widely-held verdict as 'many (Islamic scholars) concede that a brain-dead person is dying but will not accept that he is dead.'<sup>19</sup> Ebrahim gives a more nuanced view of brain death within Islamic law, referencing multiple Islamic juridical councils in addition to the OIC-IFA and the IOMS but confusingly ends with the IOMS statement that when 'a human being has reached the stage of brain-stem death he is considered to have withdrawn from life.'<sup>20</sup> Thus by perusing the extant medical literature one would conclude that Islamic law and ethics support brain death criteria.

The Islamic Medical Association of North America (IMANA) also contributes to the discussions of brain death through an Islamic lens. IMANA's mission is 'to provide a forum and resource for Muslim physicians [and] to promote a greater awareness of Islamic medical ethics and values among Muslims and the community-at-large'.<sup>21</sup> In this vein, IMANA crafted an Islamic medical ethics primer through consultations with Islamic scholars and reviews of juridical opinions. This work has taken an authoritative position in Islamic bioethics, as it is cited throughout the medical literature, and highlighted on several medical ethics platforms.<sup>22</sup> IMANA's support of brain death is as follows:

<sup>17</sup> M.A. Albar. *Islamic Ethics of Organ Transplantation and Brain Death*. *Saudi J Kidney Dis Transpl* 1996; 7: 109–114; Hassaballah. *op. cit.* note 4, p. 965

<sup>18</sup> Moosa, *op. cit.* note 12, p. 386.

<sup>19</sup> Al-Mousawi et al. *op. cit.* note 4, p. 3217.

<sup>20</sup> Ebrahim, *op. cit.* note 10, p. 196

<sup>21</sup> Islamic Medical Association of North America. *Mission and Vision*. Lombard, IL. Available at: <http://www.imana.org/mission.html> [Accessed 28 Jun 2010]

<sup>22</sup> P. Guinan & M. Haque. 2005. Patau Syndrome and Perinatal Decision Making. In *Virtual Mentor*. American Medical Association. Available at: <http://virtualmentor.ama-assn.org/2005/05/ccas1-0505.html> [Accessed 24 Jun 2010]; SAEM Ethics Committee. Society of Academic Emergency Medicine. Available at: <http://www.saem.org/SAEMDNN/Default.aspx?tabid=558> [Accessed 24 Jun 2010]; Rady et al., *op. cit.* note 4, p. 186.

The concept of brain death is necessitated when artificial means to maintain cardiopulmonary function are employed. In those situations, *cortical and brain stem death*, as established by specialist(s) using appropriate investigations can be used . . . A person is considered dead when the conditions given below are met . . . A specialist physician (or physicians) has determined that after standard examination, the function of the brain, including the brain stem, has come to a permanent stop, even if some other organs may continue to show spontaneous activity.<sup>23</sup>

In summary, the literature most accessible to practicing clinicians uses the OIC-IFA and IOMS assessments as support for brain death within Islamic law. In the next section we analyze the OIC-IFA and IOMS assessments for clinical applicability.

## THE OIC-IFA AND BRAIN DEATH

To address brain death through an Islamic lens the OIC-IFA hosted various conferences in the 1980s. This group consists of both Islamic legal scholars and scholars of medicine assigned to the council by their respective governments or through official recommendations of council members. The council members include representatives from both Sunni and Shiite schools of Islamic law and theology.<sup>24</sup> In 1988 the OIC-IFA judged that Islamic law permitted two standards for the declaration of death: 1) when all *vital* functions of brain cease *irreversibly* and the *brain has started to degenerate* as witnessed by specialist physicians 2) when the heart and respiration stop completely and irreversibly as witnessed by physicians.<sup>25</sup>

### Gaps in the OIC-IFA verdict

The OIC-IFA statement seems clear in its support for brain death yet lacks conceptual and clinical clarity thereby giving little guidance to Muslim physicians on several important questions. 1) What are, and who decides, as to the *vital* functions of the brain? 2) Must the irreversibility of these vital brain functions be determined to declare death? 3) How does one verify and attest to the degeneration of the brain? and 4) By declaring brain death is the physician attesting to the departure of the soul? We briefly examine each of these questions below.

### *What are the vital functions of the brain vis.a.vis the definition of personhood in Islam?*

At the OIC-IFA deliberations medical specialists were unanimous in their support for brain-stem criteria

<sup>23</sup> IMANA, *op. cit.* note 4, p. 12.

<sup>24</sup> Moosa, *op. cit.* note 1, p. 313; Al-Nasser, *op. cit.* note 1.

<sup>25</sup> Moosa, *op. cit.* note 1, p. 326.

signifying the onset of death. Yet the verdict uses the caveat of *vital* functions of the brain having ceased, and does not explicitly note brain-stem or whole-brain criteria.<sup>26</sup> If the OIC-IFA jurists meant medical scientists to determine the *vital* functions of the brain, they seem to shy away from engaging the debates around whole-brain, higher brain and brain-stem criteria and leave their verdict ambiguous. Generally, many Western philosophers find resonance with higher brain criteria by resolving that an individual who no longer possesses the ability for cognition, perception, response to the environment, volition, and similar abilities is effectively 'dead.' Since the construction of personhood and identity within many Western philosophical traditions place great importance upon the human intellect, some type of cognitive function can be deemed necessary for personhood.<sup>27</sup> With empiric neuroscience locating the centers of cognition within the brain, acceptance of brain death as a concept within Western societies has been met with relative ease.

Yet, the philosophical history of Sunni Islam does not parallel that of the Reformation. Within the Sunni orthodoxy (Maturidi and 'Ashari) the human intellect is deemed error-prone and its products are subservient to revelation in epistemology.<sup>28</sup> Further, unlike many secular philosophies, the conception of a human being in Islam is his status as a rational animal who has a capacity to make moral choices, including choosing a path of ultimate salvation. Human autonomy to make moral choices is central to both Sunni and Shia theological traditions. How the brain relates to the mind, and the mind to the notion of the self is less well explored in the Muslim bioethical literature.<sup>29</sup> Thus a theological or philosophical basis for *vital* functions of the brain within the Islamic tradition deserves further reflection and is not adequately addressed by the OIC-IFA assessment.

It remains unclear if the OIC-IFA intended to side with the advocates for brain-stem criterion as was suggested by the medical experts at the proceedings. Some jurists analogized brain dead individuals to beheaded persons, thus implicating a whole-brain criterion for brain death, or at the least a misunderstanding of brain death as total brain failure.<sup>30</sup> Such an analogy may be inappropriate as the diagnosis of brain death does not equate to total brain failure. As one expert notes 'the current condition of a

brain-dead individual is likely to be that of continued retention of integrity and function in all organ systems, apart from the central nervous system. There is also likely to be persisting function in some . . . proportion of the brain.'<sup>31</sup> Furthermore Dr. Fred Plum, a world-renowned neurologist and world-authority on coma states that, 'the physiological practicalities of functional brain death do not necessarily imply the immediate simultaneous death of the organ's many minifunctions . . . only areas critical to survival and communication are tested in most standard clinical protocols.'<sup>32</sup> Hence, conceptual clarity for specifying the *vital* functions of the brain, and some attention to the probability of residual brain or other organ function in those declared brain dead, needs to be clearly addressed by Islamic juridical councils when determining the permissibility of brain death.

### *Irreversibility as a criterion to accept brain death*

The OIC-IFA's stipulation of irreversibility is also problematic for medical scientists. Since brain death generally leads to withdrawal of life support, or at least a de-escalation of medical therapy, the natural history of brain dead individuals is wanting. While the prognosis of those declared brain dead is very poor, as no brain death individual will regain consciousness, we do know whether some brain functions may recover (some reversibility). Given the lack of clarity regarding the vital functions of the brain, the issue of potential reversibility becomes paramount. Neuroscientists note that brain stem reflexes may reappear after initial absence in brain dead individuals, and a proportion of the brain may continue to function in brain dead individuals.<sup>33</sup> How do these scientific realities impact the Islamic ethico-legal deliberations? These scenarios and their implications are not discussed within the verdict.

Furthermore there have been rare reports of individuals 'returning to life' after being declared brain dead. While most scientists attribute these cases to improper initial diagnoses of brain death, these reports illustrate the difficulty of diagnosing brain death and the widespread variability in clinical criteria.<sup>34</sup> Should these factors be

<sup>26</sup> Ibid.

<sup>27</sup> J.P. Lizza. Persons and Death: What's Metaphysically Wrong with our Current Statutory Definition of Death? *J Med Philos* 1993; 18: 351–374.

<sup>28</sup> S.A. Jackson. 2009. *Islam and the problem of Black suffering*. Oxford & New York: Oxford University Press: 75–117; S. Stelzer 2008. Ethics. In *The Cambridge companion to classical Islamic theology*. T.J. Winter, ed. Cambridge & New York: Cambridge University Press: 161–179.

<sup>29</sup> A. Yacoub. 2001. *The Fiqh of Medicine*. London: Ta-Ha Publishers Ltd.: 40–43.

<sup>30</sup> Moosa, *op. cit.* note 1, p. 319.

<sup>31</sup> P. McCullagh. 1993. *Brain Dead, Brain Absent, Brain Donors: Human Subjects or Human Objects*. West Sussex: John Wiley & Sons Ltd: 33.

<sup>32</sup> Plum, *op. cit.* note 30, p. 60.

<sup>33</sup> McCullagh, *op. cit.* note 33; D.R. Field et al. Maternal Brain Death During Pregnancy. Medical and ethical Issues. *JAMA* 1988; 260: 816–822; A.R. Joffe. Brain Death is Not Death: A Critique of the Concept, Criterion, and Tests of Brain Death. *Reviews in the Neurosciences* 2009; 20: 187–198.

<sup>34</sup> Author. 2008. Dead man says he feels pretty good. *Herald Sun* 26 March. Available at <http://www.heraldsun.com.au/news/world> [Accessed 11 Aug 2011]; D.M. Greer et al. 2008. Variability of Brain Death Determination Guidelines in Leading US Neurologic Institutions. *Neurology*: 284–289.

considered when formulating religious rulings on the use of brain death criteria and when speaking to Muslim practitioners through religious decrees? The OIC-IFA ruling fails to provide guidance to clinicians in this controversial realm involving variable clinical criteria.

### *Degeneration of the brain as a condition for brain death*

Lastly, the OIC-IFA ruling requires that *the brain has started to degenerate* as witnessed by specialist physicians. This condition brings forth further confusion. In brain death assessment protocols there are no criteria *requiring* verification of brain degeneration. At best a proxy measure of blood flow to the brain is deemed optional. Furthermore no protocol asks one to 'witness' cellular damage since ascertaining degeneration would require obtaining brain tissue for visual inspection. The rationale for why the OIC-IFA added this caveat is unclear and this requirement adds further ambiguity during clinical application of the verdict.

### *Brain death and the soul*

In Islamic theology and metaphysics death occurs when the soul leaves the body. As the OIC-IFA declared brain death to be legal death they implicitly suggest that a brain dead individual is one in whom no soul is present. Yet no discussion was provided regarding questions that may ensue such as: How does our scientific understanding and legal reformulation of death influence the metaphysical 'truths' about the soul? Did the Muslim theologians intend to tie vital functions of the brain to vital functions of the soul? In other words does malfunction of the brain represent departure, or impending departure, of the soul? When the Muslim physician is asked by patients if brain death is 'really' death, addressing metaphysical questions about the status of the soul are critically important, even if the metaphysics is by its nature speculative.

## THE IOMS AND BRAIN DEATH

In 1985, the IOMS held a multidisciplinary symposium consisting of religious jurists, medical scientists, legal experts and humanities scholars to study the end of human life. There were several important conclusions of the seminar. First they expressed the view that 'the diagnosis and the signs of death have always been a medical matter'.<sup>35</sup> Having given purview to the physicians in

diagnosing death, they accepted physician testimony, which again was unanimous, that the death of the brain-stem is the death of the patient. However in contrast to the OIC-IFA where brain death was legal death, this group considered only some of rulings of death to be applicable to those who are brain dead, and maintained legal death to occur upon cessation of cardiopulmonary function. They state:

if a person has reached, with certainty, that state of brain-stem death, then such a person has departed from his life and some of the rulings concerning death are applicable to him. This is in analogy – although not similarity – to the juridical ruling about the person that has reached the stage of 'movement of the slain' (unstable life or *al hayat ghair al mustaqirr*). . . . disconnecting the person from artificial life support apparatus may be carried out.<sup>36</sup>

The IOMS revisited the issue in 1996 after they sent three members to participate in an international bioethics conference convened by the American Association of Bioethics and the International Association of Bioethics. These members reported back to the IOMS, this time without jurists present, that 'no case properly diagnosed as brain + brain stem death ever regained life' and all such purported cases 'had an obvious and flagrant fault in making such diagnosis, omitting, misreading or violating the standard criteria'.<sup>37</sup> Based on this report the IOMS found no reason to discard, modify, or alter the 1985 assessment.

### Gaps in the IOMS verdict

The IOMS declaration offers more clarity than the OIC-IFA to the practicing clinician. They explicitly defer to medical expertise in diagnosing death and thus endorse brain-stem criteria and escape deliberations on the *vital* functions of the brain. They also stay clear of the philosophical and metaphysical debates which would ensue when brain death is equated to death as described above. Yet they also leave several areas uncharted and ambiguous. The IOMS statement stipulates certainty in diagnosing brain-stem death, but does not specify what level of certainty is required. Furthermore, they do not expound on practical concerns that ensue from declaring brain-stem dead individuals similar to those deemed to have unstable life in Islamic law. What interventions can or cannot be performed on these brain dead individuals, i.e. what is a clinician's ethico-legal responsibility to the person in this state?

<sup>35</sup> A.E.-R.A. Al-Awadhi. 1985. Human Life: Its Inception and End as Viewed by Islam. In *Medical Definition of Death*. K. Al-Mazkur et al., eds; 1996. Kuwait: Islamic Organization of Medical Sciences. Available at: <http://www.islamset.com/bioethics/death/index.html> [accessed 10 Aug 2010].

<sup>36</sup> Ibid.

<sup>37</sup> Ibid.



### *Certainty of medical testimony*

These IOMS statements relegated ascertaining death to the medical profession and welcomed expert testimony on brain death which unanimously supported brain-stem death. They then required physicians to be certain in this diagnosis before declaring brain-stem dead individuals to be in the state of unstable life and removing life support. What level of certainty was meant by the Muslim ethicists?

The question of what level of certainty is required from specialists who determine matters of (scientific) fact is heavily debated within Islamic law and highly contextual. A higher degree of certainty may be required to overturn normative prohibitions or to establish capital punishments than for establishing defects in merchandise. Islamic jurists also recognize the impossibility of mastering all the relevant sciences for every case presented to them; that requiring definite certainty of content experts can paralyze ethico-legal deliberation. As such there are two different views on expert testimony in Islamic law. Some require experts to make determinations on dominant probability (*ghalabat al zann*) while others hold that certainty without doubt must be required (*yaqin*).<sup>38</sup> The IOMS does not explicitly state whether they require dominant probability or certainty without doubt in diagnosing brain-stem death and an argument could be offered on either side. However, this author is inclined to the view that they required dominant probability. Having conceded the responsibility of ascertaining death to physicians the jurists implicitly acknowledged a dominant probability argument. They knew that medical science is probabilistic and not deterministic, thus if the medical experts determine death they can only do so with dominant probability. This acknowledgment is hinted at in their statement ‘in absence of a Qur’an or Tradition text which explicitly defines death . . .’ By opening their statement as such, IOMS is noting that ascertaining death falls within the realm of juridical and ethical discretion (*ijtihad*).<sup>39</sup> Since the moment of death is not determined by any univocal normative sources in Islamic law and ethics, from the perspective of Islamic bioethics determining death only requires the criteria to meet a dominant probability threshold.

### *Medical rights of the brain-stem dead individual*

The IOMS allowed for removal of life support upon declaration of brain stem death. Yet they did not address other clinical obligations that ensue in this

circumstance. For example life support may continue after brain stem death has been declared in a variety of cases. Brain-dead individuals may be used as organ donors, thus life support systems remain in place for organ procurement; pregnant women who are declared brain-dead may be maintained on life support in order to allow fetal maturation and delivery; and some Muslim and non-Muslim families may reject brain-death and ask for life support to be maintained until cardiopulmonary failure. Given that clinicians may need to continue life support and other therapies on those declared brain-dead, what are the Muslim clinician’s Islamic ethico-legal obligations? While mechanical ventilators and other such measures are seen as extraordinary parts of medical care and the IOMS allowed for their removal, what medical and non-medical treatments must be continued? Muslim authorities note that according to Islamic law feeding patients is basic care and must be continued for patients near the end-of-life; does this obligation apply to those declared brain dead?<sup>40</sup> Taking a step back, is it even ethical to maintain life support for brain-stem dead individuals in order to procure organs or for any other purpose?

The IOMS assessment, although predating the OIC-IFA assessment, offers much more clarity for medical practitioners. While it has some gaps the IOMS acknowledged that ‘concerning the applicability of other rulings (regarding unstable life), the jurists preferred to defer discussing them for a future occasion.’<sup>41</sup> Yet upon reconvening in 1996 the IOMS did not bring jurists back to the table and felt no need to change their verdicts. However, clinical and ethical controversies, and the medical science around brain death, have changed considerably since the 1980s. (See Table 2).<sup>42</sup> It behooves future Islamic juridical councils to reconsider prior rulings in order to clarify the responsibilities of medical practitioners to those declared brain dead and to revisit the ethico-legal arguments for and against brain death.

<sup>40</sup> M. Gordon & S.H. Alibhai. Ethics of PEG Tubes – Jewish and Islamic Perspectives. *Am J Gastroenterol* 2004; 99: 1194.

<sup>41</sup> Al-Awadhi, *op. cit.* note 38.

<sup>42</sup> R.M. Bonelli et al. Philosophical Considerations on Brain Death and the Concept of the Organism as a Whole. *Psychiatry Danubina* 2009; 21: 3–8; Greer et al., *op. cit.* note 37. K. Hornby et al. Variability in Hospital-based Brain Death Guidelines in Canada. *Neuroanesthesia and Intensive Care* 2006; 53: 613–619; C. Machado & G. Leisman. Towards an Effective Definition of Death and Disorders of Consciousness. *Reviews in the Neurosciences* 2009; 20: 147–150; Lizza, *op. cit.* note 27; H.M. Sass. 1991. Philosophical Arguments in Accepting Brain Death Criteria. In *Organ Replacement Therapy: Ethics, Justice and Commerce*. W. Land & J.B. Dossetor, eds. Springer-Verlag: 249–258; S.J. Youngner et al. 1999. *The definition of death: contemporary controversies*. Baltimore: Johns Hopkins University Press.

<sup>38</sup> Moosa, *op. cit.* note 1, pp. 316–326.

<sup>39</sup> Al-Awadhi, *op. cit.* note 38.

*Table 2. Clinical Criteria for Brain Death and Contemporary Medical Arguments For and Against Equating Brain Death with Death in Human Beings* [Copied from M.Y. Rady, et al. Islam and End-of-life Practices in Organ Donation for Transplantation: New Questions and Serious Sociocultural Consequences. *HEC Forum* 2009; 21: 175–205.]

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**Clinical criteria of whole-brain death**

Irreversible loss of

- Wakefulness and awareness (i.e., coma)
- Motor responses to pain in all extremities
- Brain stem reflexes
- Spontaneous capacity to breathe

**Medical arguments for equating brain death with death in human beings**

Irreversible loss of

- the capacity for consciousness
- the capacity to breathe
- the 'essence' of humans
- 'personhood'
- the integration of body functions as a living human being

The certainty of cardiac arrest within hours or days

Medical care is futile

**Medical arguments against equating brain death with death in human beings**

- Brain-dead patients maintain residual vegetative functions; e.g., growth, reproduction, pregnancy, childbirth etc. that are mediated or coordinated by the brain or the brainstem
  - Cerebral functions can not be tested by clinical examination, because the tracts of passage to and from the cerebrum thought the brainstem may be destroyed or nonfunctional
  - Clinical assessment of internal awareness is limited in patients who may otherwise lack the motor function to show their awareness
  - 'brain-dead' patients have stereotyped complex movements, presumed to be spinal cord responses, but may originate in the brain stem
  - Clinical tests to confirm complete and irreversible cessation of whole-brain or brain-stem functions do not have the reliability or accuracy to declare brain death with certainty
  - Brain autopsy reveals no or minimal structural damage to critical brain structures such as the brain stem in organ declared 'brain dead'
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## CONCLUSION

Islamic juridical deliberations around brain death largely took place over 20 years ago in response to medical developments and ethical controversies in the Western world. The Islamic experts who assessed brain death based their deliberations upon scientific data at the time and largely borrowed the *clinical* and *conceptual* definitions of brain death from medical experts in the West. As these definitions have been transplanted into Muslim contexts and the Islamic tradition, the debates within Muslim bioethics need both updating and deepening with regard to the early rulings on brain death. Is brain death equal to

cardiopulmonary (traditional) death or is brain death just an intermediate state between life and death? Which formulation, whole-brain or brain-stem death, is consonant with Islamic bioethics? Finally what are the clinical responsibilities of physicians to patients in these states? A renewed discourse around brain death ought to take place in a multidisciplinary fashion and with greater attention to the numerous complexities in order to meet the needs of Islamic bioethics consumers.

## Acknowledgements

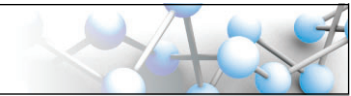
This paper was presented in partial form at the 3<sup>rd</sup> Islam and Bioethics International Conference in Antalya Turkey in 2010. Dr. Padela's time-effort was funded through the Robert Wood Johnson Foundation Clinical Scholars Program. We thank the staff and students at Darul Qasim Islamic Institute and all those who participated in our bi-monthly scholastic seminars for feedback and content review.

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## ERRATUM

This article corrects Brain Death in Islamic Ethico-Legal Deliberation: Challenges for Applied Islamic bioethics. Authored by A.I. Padela, A. Arozullah and E. Moosa, *Bioethics* 2013; 27(3): 132–9. Article first published online: 13 DEC 2011, DOI: 10.1111/j.1467-8519.2011.01935.x

The following error was published: On page 133, column 2 it is stated that: ‘Ayatollah Khomeini allowed organ transplantation from brain dead patients in Iran as early as 1964.’ The accompanying Table 1 also reproduces this error. This claim was attributed to the following article ‘Haque. Brain Death and its Entanglements: A Redefinition of Personhood for Islamic Ethics. *Journal of Religious Ethics* 2008; 36: 13–36,’ which, in turn,

referenced the manuscript ‘Akrami, S. M., Z. Osati, F. Zahedi, and M. Raza 2004 ‘Brain Death: Recent Ethical and Religious Considerations in Iran.’ *Transplantation Proceedings* 36.10: 2883–87.’

Unfortunately we misinterpreted the writing in aforementioned manuscripts and Dr. Kiaresh Aramesh and Dr. Mohammed Albar have brought to our attention that Ayatollah Khomeini did not issue a fatwa on organ transplantation until the 1980s.

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A. AROZULLAH and E. MOOSA)  
KIARASH ARAMESH