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Deactivating a Total Artificial Heart: A Preliminary Halachic Analysis

Rabbi Jason Weiner

While Jewish law is certainly able to address any new circumstance that arises, it requires being intimately aware of the new issues as they develop. Today, an incredible device that could transform cardiac treatment is becoming increasingly refined and popular. This technology, known as a "Total Artificial Heart," carries with it wonderful potential as well as perplexing ethical dilemmas. The questions that this innovation presents are largely unprecedented and have not yet been thoroughly dealt with by rabbinic authorities.[1] I will therefore attempt to provide a medical introduction to this technology, a brief summary of some of the current debate about it in the secular medical ethics literature, suggestions as

1. For example, Rav Asher Weiss, who is known for having a mastery of all of rabbinic literature, wrote to us, in an-as-yet unpublished responsum on this topic (detailed later in this paper), "this is a specific technology which our ancestors have never imagined" and concludes by saying that since the issue of deactivating an artificial heart is such a new question, he will not firmly establish his answer unless another recognized expert authority in Jewish law agrees with him. Regarding the permissibility of having an artificial heart implanted in the first place, see *Nishmat Avraham YD* 155:2(4), pp. 86-7 in 3rd ed. It should be noted that the technology has improved considerably and become much safer in recent years, but many other questions have arisen related to the propriety of putting certain patients on a TAH. These questions are beyond the scope of this paper.

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to how Jewish law might respond to these debates, and summaries of the initial responsa that I have received from leading rabbinic authorities on this matter.

The goal of this article is merely to serve as an introduction to the subject by putting these issues before the observant Jewish community. We will then rely on our learned rabbinic authorities to lead us with proper halachic approaches to this issue. This article should by no means be seen as an attempt at a ruling in Jewish law for any specific situation.

Background Information[2]

Heart disease has been the leading cause of death in the United States for many decades, with many heart failure patients eventually in need of a new heart. Every year there are over 4,000 patients on the heart transplant waiting list. Unfortunately, only about 2,200 hearts are actually donated annually, and nearly 25% of the people on the list die each year while waiting.[3] To fill the gap, various types of cardiac assistive devices have been developed to serve as a bridge to maintain a patient's cardiac function while they await a new heart. Still, many patients with end stage heart failure, a condition in which the heart cannot pump enough blood to meet the body's needs, are ineligible for a heart transplant. Cardiac assistive devices are thus increasingly being developed as a permanent "destination therapy" to support or completely replace the function of the heart, so that many individuals won't even need a transplant. These devices are becoming increasingly sophisticated, and their use has increased six-fold since 2006.[4]

2. I would like to thank Drs. Jaime Moriguchi and Francisco Arabia, of the Cedars-Sinai Heart Institute, for their input on this section.

3. Katrina A. Bramstedt, "Contemplating Total Artificial Heart Inactivation in Cases of Futility," *Death Studies*, 27: 295 (2003).

4. Courtney Bruce et al., "Challenges in Deactivating a Total Artificial Heart for a Patient with Capacity," *CHEST Journal* 145(3):625 (2014).

One common technology currently used for such patients is a "ventricular assist device" (VAD), which is essentially a mechanical pump. A VAD is usually connected to a ventricle (chamber of the heart that pumps blood out) on one side, and the aorta (the body's main artery) on the other. A VAD assists the function of a failing heart by helping to pump blood from the lower chamber to the body and vital organs, just as a healthy heart would.

A "Total Artificial Heart" (TAH), on the other hand, is used for patients whose entire heart is failing. Whereas a VAD is connected to, and assists, one of the ventricles (usually the left), a TAH completely replaces both of the lower ventricles and serves as a mechanical substitute for the entire heart. A typical TAH is roughly the size of the heart that has been almost completely removed from the patient's body. It is attached to the heart's upper chambers (atria) inside a patient's chest and has mechanical valves controlling the flow of blood in the heart, in addition to pumping the blood. A TAH thus differs from a VAD in that a TAH requires the removal of most of the patient's heart and is designed to completely take over cardiac function, unlike a VAD that simply attaches to the existing diseased heart and only assists its pump function.

There are times when a change or decline in a patient's clinical outlook may cause reevaluation of his or her situation and lead to a decision to deactivate the device without recovery or a transplant. VAD deactivation usually leads to circulatory arrest within several minutes to hours, whereas TAH deactivation results in immediate circulatory arrest and death.[5] Not deactivating the device could eventually lead to a patient's entire body decomposing while blood is still being pumped throughout the decaying body. These decisions involve excruciating ethical dilemmas.

5. Mohamed Y. Rady, Joseph L. Verheijde, "Ethical Considerations in End-of-Life Deactivation of Durable Mechanical Circulatory Support Devices," *Journal of Palliative Medicine* 16 (12): 1498 (2013).

TAH Deactivation and Euthanasia

One of the concerns related to TAH deactivation is determining if it should be considered euthanasia. Some secular ethicists conceptualize deactivation of artificial life support into two categories: 1. *Supplementing*, such as removal of ventilation, which simply supplements the patient's existing respiratory capacity but does not replace it, and 2. *Replacing*, such as transplantation, in which the patient can rely only upon the new organ to survive. Therefore, some argue, if a cardiac assist device both supplies cardiac function that is essential to maintaining life, and the surgery to implant it includes permanently disabling the patient's own ability to carry out that function, then discontinuing the device would constitute euthanasia, since the patient could not survive without it.[6] Many cardiac assist devices are supplemental, (i.e., pacemaker, defibrillator, VAD), but a TAH replaces cardiac function, and many argue, therefore, that deactivating it would fall under a strict definition of euthanasia.[7] Since a TAH is a perfect substitute for the heart that has become integrated into the patient's body, it might be analogous to a new transplanted heart. If so, just as removal of a heart would be seen as euthanasia, so would deactivation of a TAH,[8] which does not just allow death to occur, but assists in its process.[9]

6. Orentlicher, 1291. Others have framed this distinction as "regulative therapies" vs. "constitutive therapies." Regulative therapies are those that coax the body back towards homeostatic equilibrium, while constitutive therapies take over a function that the body can no longer provide for itself, and for which discontinuation would be more problematic. See: Daniel P. Sulmasy, "Within You/Without You: Biotechnology, Ontology, and Ethics," *Journal of General Internal Medicine* 23: 70 fn. 56 (2008).

7. Ibid., 1292

8. David Orentlicher, "Deactivating Implanted Cardiac Devices: Euthanasia or the Withdrawal of Treatment?," William Mitchell Law Review 39:4:1287 (2013); For more on trying to determine which is the better analogy for a TAH, a ventilator or transplanted heart, see Lars Noah, "Turn the Beat Around?: Deactivating Implanted Cardiac-Assist Devices," *William Mitchell Law Review* 39:4:1229-30, 1250-52 (2013).

9. Rady &Verheijde, 1500, fn. 16 & 17. Some focus on the fact that TAH deactivation is problematic because it is not simply an act of omission, but is an act of commission.

However, many secular ethicists rebut the charge of euthanasia by claiming that euthanasia requires administering a new pathology or drug with the intention of terminating the patient's life. TAH deactivation, on the other hand, simply returns the patient to his/her preexisting cardiac failure.[10] Furthermore, it is claimed, as with all other life-sustaining therapies, American law has clearly established the right to have artificial medical treatment discontinued, and patients have the autonomous right to informed refusal,[11] which may even include the "right to die."[12]

In Jewish law, however, the above distinctions are largely irrelevant, as any manner of active euthanasia (hastening of death) is antithetical to Jewish values and strongly prohibited by Jewish law. This is because Judaism teaches that our lives are needed not just for utilitarian purposes, but that each person is sacred, having been created in the image of God, and life thus has value regardless of one's relative quality or usefulness.[13] Furthermore, not only is human life itself sacred,

10. Green, 6 fn.2; Paula S. Mueller et al., *Ethical Analysis of the Withdrawal of Pacemaker or Implantable Cardioverter-Defibrillator Support at the End of Life*, 78 Mayo Clinic Proc. 959, 959-962 (2003). Another argument offered by secular ethicists is that although removing a patient's heart would certainly kill them, perhaps a TAH cannot be considered a perfect replacement for a heart. After all, every intervention involves benefits, burdens and detriments, and patients have the right to decide which burdens they are willing to endure. As long as risks exist, one has the right to avoid or reduce them, if that is what is better for the patient, without being guilty of euthanasia (Orentlicher, 1292-1294; Veatch in *Lahey Medical Ethics*, 2.).

11. Bruce et al., 626; Rady &Verheijde, 1500; Timothy E. Quill, "Physician-Assisted Death in the United States: Are the Existing 'Last Resorts' Enough?," *Hastings Center Rep*, Sept.-Oct. 2008, 17, 19.

12. Rady &Verheijde, 1500 fn. 8. Some of these thinkers do not conceptualize a TAH as an actual replacement of the heart because it doesn't become physiologically integrated into the body and can't function without its battery source (Bruce et al., 626 fn. 12-13).

13. Mishnah, *Sanhedrin* 4:2; *Rambam, Mishneh Torah*, Laws of Murder &

but every moment of life is valued, and there is thus an obligation to attempt to save all life, regardless of how much time a person may have left to live.[14] Similarly, in Jewish law, hastening death is considered murder even if the victim is about to die anyway.[15] This is true even if a person wants their life taken from them,[16] because of the belief that God owns us[17] and that we thus have very limited autonomy.[18] Judaism also prohibits most forms of bodily damage,[19] suicide,[20] and assisted suicide.[21] Causing death indirectly is also a biblical prohibition.[22] Even "passive euthanasia" is prohibited when it

Guarding the Soul, 2:6-7; *Shulchan Aruch, OH* 329:4 & *Biur Halacha* s.v."*Ele Lefi.*"

14. See *Nishmat Avraham YD* 339:4.

15. *Rambam, Mishneh Torah, Hilchot Rotzeach* 2:7; *Minchat Chinuch, Mitzvah* 34; *Gesher HaChaim* 1:2(2) note 3; *Aruch Hashulchan YD* 339:1; Jakobovits, *Jewish Medical Ethics* (New York: Bloch, 1959), 123-125.

16. The *Tzitz Eliezer* 9:47 (5) argues that even if a patient begs not to be saved because his suffering makes him feel that death is preferable to life, everything must nevertheless be done to save and treat such a patient. Similarly, see Rabbi Nathan Friedman, *Responsa Netzer Matta'ai* 30.

17. See for example: *Shulchan Aruch HaRav, Choshen Mishpat,* Laws of Bodily Damages, 4; *Radbaz, Sanhedrin* 18:6.

18. See for example: *Mor Uktzia, OH* 328.

19. *Rambam, Mishneh Torah, Hilchot Chovel U'Mazik,* 5:1.

20. *Rambam, Mishneh Torah, Hilchot Avel,* 1:11; *Tur, YD* 345. For more discussion see *Gesher HaChaim* 25. Regarding the prohibition to take one's own life even if one is in severe pain, see Responsa *Besamim Rosh* 348; Responsa *Chatam Sofer EH* 1:69.

21. This can be inferred from the prohibition against suicide. A person who convinces or enables someone to commit suicide violates the biblical rule against placing a stumbling block before the blind, *"lifnei iver."* If the person actively ends another's life, they would be guilty of murder. Additionally, there is an obligation to try to rescue another whose life is endangered, *"Lo Ta'amod."* A person who sees another drowning has an obligation to try to save him or her -- either by swimming in after the person or by hiring somebody else to do so (*Rambam, Mishneh Torah, Hilchot Rotzeach* 1:14). According to many authorities, this duty to rescue even applies to the saving of someone who is attempting to commit suicide (*Iggerot Moshe,* YD 2:174 (3); *Minchat Yitzchak* 5:8.

22. R. Goren, 77 & Steinberg, *Encyclopedia of Jewish Medical Ethics,* 1057

involves the omission of therapeutic procedures or withholding medication, since physicians are charged with prolonging life.[23]

Although Jewish values are certainly sensitive to pain and suffering, instead of ending life Jewish law encourages aggressive use of sophisticated pain relief,[24] even if it involves some risk.[25] However, even if pain and suffering cannot be completely managed, rabbinic authorities prefer life with suffering over the cessation of life with concomitant elimination of suffering.[26] The only gray area in Jewish law when it comes to passive euthanasia is refraining from painful lifesaving therapy, or therapy that will prolong great suffering, in an imminently dying patient (*Gosses*), under a very specific set of conditions, as will be discussed in the following section.

Comparison between Deactivating a TAH and a Ventilator

Many ethicists approach TAH deactivation as akin to removing a terminal patient from a ventilator (extubation), and claim that when a TAH is deactivated, the patient can still be considered to have died naturally of the underlying heart disease, because they only required the TAH as a result of how

Based on *Rambam, Hilchot Rotzeach U'shmirat Hanefesh,* 2:2.

23. Bleich, *Bioethical Dilemmas* I, 72.

24. Responsa *Minchat Shlomo* 2-3:86; Responsa *Teshuvot V'Hanhagot* 3:361.

25. *Nishmat Avraham YD* 339:1 (2a); Responsa *Tzitz Eliezer* 13:87.

26. R. Shlomo Zalman Auerbach (*Teshuvot Minchat Shlomo* 1:91:24) writes that one should explain to a patient that Torah philosophy advocates living as long as possible even if one experiences pain, as is indicated in the Talmud, *Sotah* 20a (and *Rambam, Hilchot Sotah* 3:20) and the Mishnah (*Avot* 4:22) that states, "One hour of repentance and good deeds in this world is better than all of the World to Come." One should not infer from this that R. Auerbach encouraged patients to endure pain, but simply that one who must do so is laudable, and that it must be selected over actively killing a patient, which is prohibited.

all-consuming their illness became.[27] Many of these thinkers thus claim that TAH is an artificial intervention and its removal is simply "allowing natural death."[28]

However, since death is immediate when a TAH is deactivated, and because a TAH does not just assist the heart but completely replaces it, TAH deactivation is unlike withdrawing other artificial interventions, such as a ventilator, dialysis or artificial feeding.[29] This makes it more difficult to argue that the patient is dying from the underlying organ failure and not the deactivation itself.[30] The fact that death is immediate upon deactivation may also make it experientially seem more like actively killing the patient than simply "ceasing aggressive support."[31] This is why some secular ethicists argue that deactivating a TAH is akin to an execution, where a drug is injected to paralyze the heart muscle, or a switch is thrown to cease the function of a patient's heart.[32]

How does Jewish law guide us in this debate? Jewish law

27. Bruce et al., 626. Some point out that the presence of TAH does not necessarily mean that the cardiac disease process has stopped, as even after TAH implantation there can be symptoms of heart disease (e.g., valve calcification and vegetation, hemodynamic instability, etc.), so despite TAH deactivation, they see the cardiac disease process as causing natural death (Katrina A. Bramstedt, "Replying to Veatch's Concerns: Special Moral Problems with Total Artificial Heart Inactivation," *Death Studies*, 27: 319 (2003).

28. Rady &Verheijde, 1500.

29. Robert M. Veatch, "Inactivating a Total Artificial Heart: Special Moral Problems," *Death Studies*, 27: 309. For example, a person with severe kidney disease can live for several days after stopping dialysis, and legally the AMA considers this person to have died a natural death. However, TAH may be different because the original organ is gone, unlike the case of dialysis, during which the kidney is still there but bypassed.

30. Bruce et al., 626; Bramstedt, 299.

31. Ronald M. Green, "When is Stopping Killing?" *LAHEY Clinic Journal of Medical Ethics* (Fall 2011): 6, fn. 1.

32. Veatch, 309; Robert M. Veatch, "The Total Artificial Heart: Is Paying for it Immoral and Stopping it Murder?" *LAHEY Clinic Journal of Medical Ethics* (Fall 2011): 2.

regards the provision of oxygen as a basic human necessity,[33] but often distinguishes between withholding (sometimes permitted) and withdrawing (often forbidden) interventions.[34] Therefore, although it is not always required to intubate (place on a respirator) a terminal patient who is suffering,[35] once the patient has already been intubated, Jewish law generally prohibits extubation (removal from the respirator) if the patient may die shortly thereafter as a result. While the various rulings on the matter are complex and many cannot be neatly categorized, for the sake of clarity and simplicity the halachic opinions can be divided into two categories: those who view terminal extubation as murder and those who see it as not saving a life. Murder is forbidden and saving a life is obligatory, but the prohibition against murder is much more stringent and saving a life is not always obligatory. The majority view[36] is that terminal extubation (sometimes also called "compassionate extubation" or "palliative extubation") is tantamount to killing the patient, and that it is thus always prohibited to remove a respirator that is maintaining life.[37]

This perspective is not necessarily advocating that the life of

33. This is based on the ruling of Maimonides (*Rotzeach* 3:1) that walling a person in so that he cannot breathe is a capital offense because it is like strangling him (*Iggerot Moshe* CM 2:73a; *Minchat Shlomo* 1:91 (24); A. Steinberg, "The Halachic Basis of The Dying Patient Law" *Assia* 69-70, pp. 23-58; *Assia* 71-72, pp. 25-39 & *Encyclopedia Hilkhatit Refuit* 5, 147).

34. Steinberg, *Encyclopedia Hilkhatit Refuit* 5, 155 (pg. 1059 in *Encyclopedia of Jewish Medical Ethics* English edition).

35. *Nishmat Avraham YD* 339:(4), pgs. 503, 509-10 (3rd. edition).

36. Steinberg, *Encyclopedia Hilkhatit Refuit* 5, 148 (pg. 1058 in *Encyclopedia of Jewish Medical Ethics* English edition).

37. *Tzitz Eliezer* 17:72; *Iggerot Moshe* YD 3:132; *Teshuvot Vehanhagot* 1:858 also writes that extubation is categorized as killing, so one can't even remove a patient who can only live for a short time (*"chayei sha'ah"*) for the sake of one who can live a normal life span (*"chayei olam"*). See also R. Shlomo Zalman Auerbach in *Assia* 53-54 (5754), p. 5; Rabbi Yitshak Isaac Liebes, Resp. *Beit Avi* 153; R. Ben Zion Firer, *Techumin* 7 (5746), pp. 219 f.; R. Yitshak Yedidya Frankel, *Assia* 3 (5743), pp. 463 ff. See also R. Yisrael Meir Lau, Resp. *Yahel Yisrael* 2:87.

a suffering dying patient be prolonged at all costs, but is based on concerns related to any human intervention in terminating life. According to these authorities, Jewish law conceptualizes extubation as killing the patient because of a Talmudic principle that one may not do any action that directly results ("*koach rishon*") in another person's death, if the process begins immediately upon a human action (even if that action simply removes an impediment).[38] Even though some secular ethicists might not see deactivating a respirator as being the cause of the patient's death, many authorities in Jewish law have indeed categorized death after extubation as a "direct result," because of the proximity of the deactivation and the patient's death, and that it is therefore as if *causing* the death of the patient, not merely *allowing* it to happen, in the eyes of Jewish law.[39]

Although it is generally not followed, there is also a more lenient minority opinion based on a ruling of the *Ramo*[40] in the Code of Jewish Law. The *Ramo* writes that it is forbidden to do an **overt act** that hastens death, and although a dying patient is treated as fully alive in all regards, one may **remove an external impediment** to the death of a patient who is already almost certainly in the process of dying imminently (*Gosses*)[41]

38. *Tzitz Eliezer* 17:72 (13) citing *Talmud Bavli, Sanhedrin* 77b, *Rambam, Hilchot Rotzeach U'Shmirat Hanefesh* 3:13 and *Yad Ramah Sanhedrin* 77b.

39. *Tzitz Eliezer* 17:72 (13). Another reason that has been given for this prohibition is that the Mishnah teaches "against your will you are born... against your will you die" (*Avot* 4:22). Therefore, life is not in our hands but based only on the will of God, and so we should not be determining when people die (*Masechet Avot "Oz Vehadar" Hamevoar Metivta* vol. 4, *Aliba D'Hilchata*, 9).

40. Rabbi Moshe Isserles, classic 16th century Ashkenazi commentary on the Code of Jewish Law.

41. *Yoreh Deah* 339:1. For in-depth analysis of this ruling and how it relates to contemporary medical dilemmas, see Dr. Avraham Steinberg, *Assia* 69-70 pg. 23-58 & *Assia* 71-72, pg. 25-39; David Shabtai, "End of Life Therapies," *The Journal of Halacha and Contemporary Society*, (LVI, Fall 2008) 25; R. Bleich, *Bioethical Dilemmas* 1 pg. 77, 83.

and cannot be restored to good health.[42] Based on this, some rule that a respirator can be categorized as an artificial impediment to dying, and it is thus not only permitted to remove it from such a dying patient, but it can be required in certain cases to relieve suffering.[43] These authorities see extubation not as killing the patient, but as simply failing to save them, which can at times be permitted, or even obligatory.[44]

However, those who forbid terminal extubation argue that even if it had not been obligatory to put a patient on a ventilator, doing so fulfilled the Divine commandment to treat the patient, and since it is vital and can be considered attached to the patient in a physiological manner such that it is keeping

42. *Teshuvot Beit Yaakov* (59) rules that we can violate Shabbat labors to save the life of a *Gosses* only when there is expert medical opinion that there is something that can be done to heal the individual, but if they are certainly dying we are not permitted to violate Shabbat labors. Even on a weekday we would be obligated to allow the soul to depart without causing an impediment (See also R. Goren, 73; R. Bleich, *Bioethical Dilemmas*, 77, 81-83).

43. R. Hayyim David Halevi, *Techumin* 2 (5741) pg. 304 & *Ase Lecha Rav* 5:30; R. Zalman Nechemya Goldberg (*Moriah* 4-5:88-89, Elul 5738, 48-56; For extensive discussion and back and forth with R. Helperin see *Halacha U'Refuah* 2, pgs. 146-184); *Shut Maasei Choshev* 3:4-5; R. JD Bleich, *Bioethical Dilemmas* 2 pg. 106 fn. 36; *Shiurei Torah L'rofim* 3 pg. 317. In more recent guidelines, R. Goldberg has added that not only must death be preferable to life for this patient, but also that the therapy to be stopped cannot fulfill a natural need of the patient, and it can't be of a routine nature (*Assia* 16:3-5 [63-64] 5759:6-8); R. Menashe Klein, *Mishneh Halachot* 7:287; R. Baruch Rabinowitz *Assia* 1 (5736) pg. 197-198; R. Shlomo Goren, *Torat Herefuah* [reprinted from *Meorot* 2, 5740]; R. Pinchas Toledano, *Barkai* 4 5747 pg. 53-59.

44. Many authorities base this on the story of R. Yehudah Hanasi in Babylonian Talmud, *Ketubot* 104a, as well as the permission of the *Ramo* (YD 339) for a woodcutter in the vicinity of a dying patient to stop chopping wood in order to provide the quiet that will allow a dying patient who is suffering to die (see discussions of this in *Iggerot Moshe* CM 2:73,74(1); *Shevet Halevi* 6:179; Responsa *Minchat Asher* 1:116). Interestingly, some secular ethicists have suggested that Orthodox Judaism would accept deactivation of a cardiac assistive device based on this principle (Ronald M. Green & response by Mohamed Y. Rady, Joseph L. Verheijde, "When is Stopping Killing?" *LAHEY Clinic Journal of Medical Ethics* (Fall 2011): 7).

the patient alive, its removal would be considered actively causing death, not just removing the impediment to the departure of the soul.[45] Moreover, some of the most prominent of the above rabbinic authorities who permit extubation as "failure to save" do so only with the explicit caveat that the patient not die immediately.[46]

Since TAH deactivation results in immediate death, even the "removing an impediment" argument would not work according to them. Indeed, many authorities explicitly rule that any action that may lead to the immediate death of a patient is always prohibited.[47] Additionally, it is usually difficult to determine with certainty if a given patient can be classified as a *Gosses*, and with modern medical technology few dying patients can be put into this category.[48] Therefore, since there is debate on the matter, with some arguing that deactivating a ventilator falls under the severe prohibition of murder, rabbinic authorities are usually unable to be lenient on the matter.[49]

45. Steinberg, "Halachic Basis for Dying Patient Law," see *Assia* 69-70, pp. 23-58; *Assia* 71-72, pp. 25-39.

46. R Z.N. Goldberg (*Moriah* 4-5:88-89) & R. Goren (*Torat Harefuah*, 57, 76). Although R. Goren categorizes extubation as an issue of removing an impediment and failure to save, rather than killing, he compares actively turning off a machine (which may be seen as having become part of the person) that results in a dying patient's immediate demise to snuffing out a flickering flame, which is forbidden (*Shach* YD 339:5 based on *Masechet Semachot*).

47. R. Shlomo Zalman Auerbach and R. Shmuel Wosner, as outlined by Prof. Avraham Steinberg in *Assia* 63-64 (5729), pp. 18-19. Even if it is only possible that the action will immediately kill the patient, it is prohibited. If the physicians maintain that the patient's respiration is wholly dependent on a ventilating machine, it is prohibited to switch it off. R. Zilberstein (*Shiurei Torah L'rofim* vol. 3 pg. 413) writes that even if a patient is a *Gosses*, if stopping the ventilator hastens death, it is completely forbidden, as the *Tzitz Eliezer* writes in 14:85.

48. Rav J. D. Bleich demonstrates that any patient whose life can be prolonged, even by artificial means, cannot be classified as a *Gosses* (*Bioethical Dilemmas*, Treatment of the Terminally Ill, 78-79).

49. *B'mareh Habazak* 8:39 fn. 35.

Moreover, the *Ramo*'s permission to remove an impediment to death seems to be only if that impediment is external to the patient's body, but it is likely that many would not see a TAH as external, since it has replaced internal cardiac function and is located within the body.[50] Indeed, an argument can be made that a TAH not only replaces, but effectively becomes a patient's heart, and deactivating it would thus be tantamount to killing someone by removing their beating heart.[51]

50. Many understand the *Ramo*, with the explanation of the *Shach* (7) and Taz (2), to permit removing only an *external* factor that holds back the death, as long as one does not also thereby touch the *Gosses* and thus hasten death (R. Goren, 68, 76).

51. See David Shabtai "End of Life Therapies," *Journal of Halacha and Contemporary Society* LVI (Fall 2008), 42-43. R. Shabtai points out that R. Shlomo Zalman Auerbach ruled that we may not withdraw basic human needs from a dying patient, and since he includes hemodialysis, once initiated, as a basic human need, we can infer that the machine essentially becomes the patient's kidneys, just as a respirator may become a patient's lungs. There is a similar debate regarding deactivating a defibrillator, in which R. Elyashiv is quoted as ruling that the defibrillator is considered like a limb or organ of the patient's body (just like a ventilator) and thus may not be deactivated (R. Zilberstein, *Shiurei Torah L'Rofim* 3, 340; See also Rosner, *Selected Medical-Halachic Responsa of Rav Yitzchak Zilberstein*, 33). R. Asher Weiss (Responsa *Minchat Asher* 2:132-3), disagrees and argues that whereas a natural limb or organ that is transplanted becomes a part of the recipient's body, an artificial/mechanical object does not become a part of the body (though he notes that perhaps an artificial heart should be considered part of the recipient because it replaces cardiac function). Perhaps support for the contention that a TAH effectively becomes a patient's heart can also be brought from the ruling of the *Binat Adam* (*sha'ar issur veheter* 11) that as long as there is a functional circulatory pump in an animal's body, regardless of whether or not it appears to be "normal," it qualifies as a heart in halacha, rendering an animal containing such an organ to be kosher and not a *treifah*. Furthermore, some have suggested that in cases of surrogate motherhood, the surrogate mother should be considered the mother according to halacha, not the biological mother, because once a body part (or in that case a fetus) becomes integrated into another body, it is seen as part of that body (*B'mareh Habazak* 9:46 fn. 8 based on *Moreh Nevuchim* 1:72).

Definition of Death and Practical Suggestions

Modern ethicists and medical professionals debate how death should be defined, generally arguing either for cessation of breathing, cessation of heart function, or brain death. What impact will the definition of death have on this topic? Some secular ethicists have gone so far as to argue that this issue should actually force us to revisit the definition of death. Death is currently defined in America by the irreversible cessation of *either* brain or heart function. However, those who strongly believe that the essence of a living human is related to their brain function have argued that changing the definition of death to focus *only* on neurologic criteria would make TAH deactivation less ethically problematic. Stopping a TAH would then conceptually be like removing a ventilator, which does not directly or immediately kill the patient, since although circulation would immediately stop with deactivation, some brain function would continue for a brief time.[52]

One situation in which many rabbinic authorities do permit extubation is in a case in which the patient shows definite clinical signs of already being deceased, and the respirator is the only thing keeping the body "alive."[53] In such a case it can be argued that the respirator is preventing the soul from leaving the body, and it may thus be seen as an impediment that may be removed.[54] Therefore, those rabbinic authorities

52. Veatch, 309-310; Veatch in *Lahey Medical Ethics*, 2.

53. *Iggerot Moshe* YD 3:132; *Tzitz Eleizer* 14:80-81 requires that the patient no longer have any independent brain or cardiac function since they are actually considered irreversibly dead, but only show signs of life because of an external machine. He assumes that this is the type of patient the *Ramo* was referring to, as he does not allow removing a respirator from a *Gosses* who is in the dying process, but only one who has no independent life force left. By contrast, R. Shlomo Zalman Auerbach permits extubation once a patient is brain dead, because even though we are no longer certain which patient can be classified as a *Gosses*, he assumes that a brain dead patient can be considered a *Gosses* (*Minchat Shlomo Tenina* 2-3:86; *Assia* 5754 (53-54), pg. 5-16 #6-8).

54. R. Shlomo Zalman Auerbach quoted by Dr. Steinberg in *Assia* 5754 (53-54), pg. 5-16 #6-8; in *Minchat Shlomo Tenina* 2-3:86 R. Auerbach argues that since the brain dead patient cannot breathe on his own, and since this machine was placed on him by the physicians, it can be seen as prolonging the dying process and may thus be removed. R. Waldenberg makes a similar argument in *Tzitz Eliezer* 14:80.

who accept neurological criteria of determining death (brain death), would likely permit TAH deactivation once a patient is declared brain dead.[55] Even some of those authorities who do not accept brain death as a valid halachic definition of death may still permit deactivation once the patient is declared brain dead[56] because at the very least such a patient may be considered a *Gosses* and the TAH could be seen as an impediment preventing the soul from leaving, as some rule regarding ventilators.[57] Others might not permit actually deactivating the TAH upon brain death, but would then argue that there is no more obligation to save such a patient and might therefore allow other medications – such as anti-coagulants or vasopressors that maintain blood pressure[58]--- to

55. Personal correspondence with Dr. Abraham Steinberg (August, 2014).

56. Indeed, Professor Avraham Steinberg reported to this author that R. Shmuel HaLevi Wosner ruled that although he opposed the brain-death criteria, in case of an artificial heart the combination of brain death with lack of a natural heart could be defined as the moment of death.

57. R. Shlomo Zalman Auerbach rules that if there is certainty that the brain and brain stem are destroyed, thus making the patient a possible *Gosses*, one may stop the ventilator since it is simply holding back the soul (*Shulchan Shlomo Erchei Refuah*, Vol. 2 pg. 18; *Nishmat Avraham YD* 339, pg. 467 in 2007 edition). Some have challenged this view, arguing that R. Auerbach must have been given misinformation; since a brain dead patient can survive for longer than three days on a respirator, they can't be defined as a *Gosses* (personal correspondence with Rabbi J.D. Bleich, 8/12/14). Furthermore, achieving certainty that each and every cell in a patient's brain has died has become exceedingly rare with sensitive modern technology, R. David Shabtai, MD, *Defining the Moment*, (New York: Shoresh Press, 2012), 339-44. Moreover, determining the death of every cell to R. Auerbach requires radiographic imaging, which is achieved using intravenous contrast, which involves invasive contact with the body in a way that he forbids in a *Gosses* (Ibid., 335 & 344).

58. However, it should be noted that most patients with a TAH do not need vasopressors unless they have concomitant sepsis or bleeding because

passively run out, and not refill them,[59] or perhaps allow the TAH's battery to die, without recharging it.[60]

However, those who require cessation of cardiac function to determine death, as do most contemporary Orthodox rabbinic authorities, face a dilemma in this situation because there will always be a heartbeat (even though it is not the patient's actual heart) unless the TAH is turned off. Therefore, even those who allow a respirator to be shut off when a patient no longer has an independent heartbeat, may not permit deactivation of a TAH as long as it continues to pump blood through the patient's body.[61] This perspective views the patient as being fully alive despite the fact that machines are artificially sustaining him , and that he may not be declared dead until the patient is incapable of any spontaneous motion whatsoever. As Rabbi J.D. Bleich has ruled, a patient whose own heart has been removed and replaced with an artificial heart, and is sustained on a ventilator and incapable of spontaneous respiration, is considered dead by halacha only when incapable of any spontaneous motion whatsoever,

the TAH itself regulates blood pressure. Stopping blood pressure medication in such a patient may drop their pressure slightly but the patient will usually survive.

59. Comparable to R. Shlomo Zalman Auerbach's ruling regarding a patient who had suffered an extensive irreversibly damaging heart attack, was comatose, in kidney failure, with extremely low blood pressure and no hope of recovery and was now defined as a *Gosses*, that there was no obligation to refill or change the bag of vasopressor medications when the present one ran out, for this would come under the category of "removing the impediment to dying" (*Nishmat Avraham*, YD 339:7).

60. This may be similar to the permission given by some authorities in certain circumstances in the days when ventilators were connected to an oxygen tank, to not replace the tank when one ran out (R. Moshe Hershler, *Halacha Urefuah* 2, 30-49; *Iggerot Moshe CM* 2:73(1); R. Goren, 77). When this happens in a TAH, a very loud alarm sounds to warn caregivers of the failing battery. Presumably it would be permissible to deactivate or muffle such an alarm in this case.

61. This is likely especially true for those *poskim* who define death based on circulation.

including motion of internal organs, e.g., peristaltic action of the small intestine. Until then, such a patient must be treated, and it would be forbidden to deactivate their TAH.[62] Similarly, Rav Yitzchak Zilberstein prohibits deactivation of a TAH until the patient's body begins to decompose, though precisely what this means requires clarification.[63]

Others have suggested that while heartbeat is normally the determinant of life, when it comes to a patient with a TAH, we simply have to look for other criteria. Rav Asher Zelig Weiss has suggested that as long as a person is alert and able to function, despite not having a natural heart, they are obviously still to be considered alive according to Jewish law. On the other hand, if a person is completely unresponsive and shows all other signs of death, it seems that it should be permissible to deactivate the TAH.[64] The specific guidelines and criteria for this determination are yet to be worked out.

Conclusion

As various types of TAH are utilized for longer periods of time and become more common, perhaps even more common than transplantation, these questions will become all the more challenging and pressing. Most secular writers on this topic contend that TAH deactivation should be permissible in most situations,[65] but as we have seen, it is often problematic in

62. Personal correspondence with this author, 8/12/14.

63. Currently unpublished responsum written to this author in September of 2014.

64. R. Asher Weiss in a currently unpublished responsum written to us in May of 2014. R. Weiss points out that there are people who live normal lives with an artificial heart, and despite not having a natural heart, they are obviously completely alive. On the other hand, there are people who are hooked up to a heart bypass machine during surgery, yet if their heart doesn't restart after the surgery they are removed from the machine. However, we don't consider this to be murder even though had they not been hooked up to this machine they would still be alive.

65. Bruce et al., 626 fn. 12-24; Rady &Verheijde, 1500, fn. 7, 20-22.

Jewish law, even for those *poskim* who take a more lenient approach to passive euthanasia, and it requires much fine nuance and case-by-case analysis. There is tremendous grappling with this issue in the world today, but the Torah and *poskim* can provide us with clarity and guidance.

Although therapies are often initiated without truly considering ending them, discussion about TAH deactivation should be part of the informed consent process prior to implantation of a TAH, so that patients and families are given the choice and made aware from the outset of the potential moral dilemmas about how life could end. This should be part of the conversation when any therapy is begun, and hopefully some of the perspectives provided in this paper can assist patients and families in framing those discussions and making difficult decisions.

This paper has presented only an initial look at some of the challenging questions and complex resources that can be marshaled to help us approach this technology. It must be emphasized that each rabbinic ruling quoted in this paper related to one specific case, and it is frequently impossible to make some of the intricate cross-category comparisons that have been suggested or theorized in this paper. We must therefore leave it up to the greatest rabbinic minds of our generation to provide pathways for us to properly navigate these crucial life and death questions, and in the meantime pray for the time when "I will give you a new heart and put a new spirit within you; I will take the heart of stone out of your flesh and give you a heart of flesh" (Ezekiel 36:26).

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Camels, Cows and *Chalav* Certification

By Rabbi Yona Reiss

I. Introduction

It has become customary for kashrut agencies to accept the leniency of Rabbi Moshe Feinstein allowing kosher certification of commercially manufactured milk in the United States despite the absence of a *mashgiach* (kosher supervisor) at the milking facility or production site. However, the recent introduction of camel milk to the commercial market, and its ancillary issues, have raised concerns regarding the continued viability of his ruling from both a factual and halachic perspective.

This article will explore the impact of recent changes in factual circumstances with respect to four different areas of halachic analysis: (a) the certification of milk in the United States according to Rabbi Moshe Feinstein; (b) the certification of milk in the United States according to the *Pri Chadash*; (c) the reliance upon the opinion of Rabbi Moshe Feinstein with respect to the production of kosher cheese from non-certified milk; and (d) the issue of milk pasteurization from the standpoint of *bishul yisrael* (the requirement that foods be cooked by Jews in order to be considered kosher).

II. The Halachic Background

According to the Mishnah in *Avodah Zarah*, one of the rabbinic enactments forbidding food produced by non-Jews is

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