Implantable Cardiac Electronic Devices in Palliative Care Patients: A Reflective Exercise

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Abstract
Implantable cardiac electronic devices (ICED and pacemakers) in palliative care patients are a unique problem for the patient, family and a difficult area for the physicians to handle. The conflicting ethical principles of autonomy, beneficence, and non-maleficence in continuing versus discontinuing these devices raise concerns among health professionals if this is euthanasia, physician-assisted suicide or prolonging patient's unnecessary suffering.

Introduction
A 76-year-old male patient, with a Palliative Performance Status (PPS) of 50%, with prostate cancer, post radiotherapy, and multiple chemotherapies, with metastases to spine, ribs and femur was referred to palliative care for transition of care and initiating do not resuscitate (DNR)/Allow Natural Death orders. The patient had co-morbid diabetes mellitus type 2, Ischemic Heart Disease post CABG in 2007, Congestive Heart Failure with Ejection Fraction of 25-35% on Implantable cardioverter defibrillator (ICED). The patient was managed with furosemide, bisoprolol, hydralazine, morphine sulfate by the cardiologist together with the primary oncologist. The patient improved clinically and was able to maintain saturation in room air and was discharged home in a vitally stable condition.

The critical incident happened when the primary oncologist began discussing DNR code status with the patient and the family members. The patient and his designated proxy felt that deactivation of the ICED were hastening death and were not ethically valid. The transition to palliative care was not successful.

The following is a reflective case report on the knowledge and changes in practice attained from this case incident.

Literature Review
ICED’s are devices which are inserted to prevent sudden cardiac death from life-threatening arrhythmias. The device continuously monitors the electrical rhythm of the heart, and if certain arrhythmias are detected, a ‘shock’ may be delivered to convert the heart back into sinus rhythm. When an adult patient with ICED is in the terminal stages of life, it may no longer be appropriate for the device to remain active and deliver shocks to the heart.

Cardiac implantable electrical devices are of three types: pacemakers, implantable ICEDs, and cardiac resynchronization therapy (CRT) devices. CRTs are one of two forms: CRT pacers (CRT-P) or CRT defibrillators (CRT-D) [1,2]. Cardiac electronic devices reduce the likelihood of arrhythmic death and have clear survival benefit, but ICED discharges are uncomfortable, and therefore some terminally ill patients may prefer to deactivate their ICEDs at the terminal stage as these devices may subject patients to a prolonged, more painful dying process [3]. Approximately 20% of ICED recipients sustain painful shocks and do not necessarily prolong a life of satisfactory quality [3].

Little is known about physicians’ views surrounding the ethical and legal aspects of managing these devices at the end of life. Goldstein et al. surveyed the next of kin of 100 patients who died with ICEDs in place, and only 27 reported that physicians discussed with patient/family member/caregiver, deactivation of the ICED and sometimes did so only in the late stage where death is approaching [3].

Kramer et al. surveyed physicians’ experiences and views of 185...
physicians surrounding the ethical and legal aspects of managing cardiac devices at the end of life. Compared to the withdrawal of PMs (pacemakers) and ICEDs, physicians more often reported to counsel the patient/family member/caregiver to minimize active treatments like withdrawal of "mechanical ventilation (86.1% vs 33.9%, P .0001), dialysis (60.6% vs 33.9%, P .001), and feeding tubes (73.8% vs 33.9%, P .0001). Physicians faced difficulties in discussing the cessation of PMs and ICEDs compared to other life-sustaining therapies [4]. "Physicians more often characterized deactivation of a PM in a pacemaker-dependent patient as physician-assisted suicide (19% vs 10%, P .027) or euthanasia (9% vs 1%, P .001)" [4]. However, it is considered neither euthanasia nor assisted suicide to respect a patient's right to refuse any further treatment or request treatment withdrawal.

No medical therapy is mandatory, and there is no meaningful distinction in the law or among ethicists regarding different life-sustaining management, such as mechanical ventilation, feeding tubes, dialysis, and cardiac devices. [4,5]. One study supports that there is no ethically significant difference between pacemaker treatment and other life-extending management and that requests for its withdrawal from patients or their surrogates should be honored. [5].

In the US, HRS (Heart Rhythm Society) Expert Consensus issued Statement on the Management of Cardiovascular Implantable Electronic Devices (CIEDs) in end of life patients [6]: Holding the treatment is a personal right and should not be influenced by treating physicians (i.e., Cardiac electronic devices). Hence, ethically and legally, there is no difference between refusing the institution of Cardiac electronic devices therapy and requesting its withdrawal. Legally, responding to a request to withdraw life-sustaining treatment is neither physician-assisted suicide nor euthanasia. This legal concept applies equally to Cardiac electronic devices therapy.

In certain religious belief systems and personal beliefs, the distinction between letting life go and taking life is important. Cessation of Cardiac electronic devices therapy is intended to discontinue unwanted treatment and allow death to proceed naturally—not to terminate the patient's life. "In assisted suicide and euthanasia, the cause of death is the intervention provided, prescribed, or administered by the clinician. In contrast, when a patient dies after treatment is refused or withdrawn, as after pacemaker or ICED deactivation, the cause of death may be deemed to be the underlying disease. General agreement exists that ICED deactivation in dying patients may be ethically permissible" [7].

Pacemaker deactivation differs significantly from those associated with ICED deactivation. It is, therefore, crucial to be aware of the legal situation in the jurisdiction in which one is practicing. Deactivation of either PM's or ICED's is a sensitive issue that requires sensitive communication of the intention, palliative care goals, benefits, risks and harms of continuing vs deactivating such devices. The ICED placement should be coupled with a detailed deliberation, and documentation, also, the patients should be in the competent state where he can handle possible future eventualities, including end-of-life issues.

In the event of the patient having a do not resuscitate (DNR) decision or receiving the end of life care, a discussion about device deactivation should be undertaken at the same time of initiating DNR. At the least, the deactivation of shock therapy should be suggested.

Cardiac Devises deactivation is performed noninvasively and painlessly using a computer/radio-frequency interface. Features that can be deactivated include Shock therapy, anti-tachycardia pacing (ATP) and CRT therapy. These features can be disabled with a single on/off switch. Pacing, on the other hand, is not always as straightforward because few devices offer an "off" option [8].

Table 1: The indications for deactivation of an ICED (9)

- Patient preference.
- Imminent death (an active ICED is inappropriate in the dying phase).
- Withdrawal of anti-arrhythmic medications that is related to a decline in the trajectory of illness.
- While an active No CPR order is in place.

Table 2: Points to be considered as part of the discussion about device deactivation (10)

- Turning off the ICED will not cause death.
- Deactivating the defibrillator (shocking) function of the ICED does not deactivate the pacemaker function of the ICED.
- Deactivating the ICED will not be painful and dying will not be more painful if the device is turned off.
- If the patient’s circumstances change following the deactivation, the patient can request re-activation.
- Discussions relating to ICED deactivation should be initiated early, rather than at the terminal stage.
- There may be a logistical delay between the request for deactivation and this process being carried out.
- Delivery of shocks near the end of life may be ineffectual, painful to the patient and distressing to the patient’s care-givers and relatives.

Discussion
The management of ICED devices in patients who are DNR/Allow natural death (AND) are complicated. While DNR/AND in our hospital is a medical decision based on a review of benefits, risks and prognosis by three consultants, guided by a clear policy document, deactivation of ICED and/or Pacemakers in DNR patients is a gray area not clearly governed by policies.

This case led us to two questions: 1. ccccc
ksjdnkfjwdCan DNR patients opt to have their ICED's on? What about pacemakers? 2. Can patients (DNR or Full code) request to switch off their ICED/Pacemakers/Shocking function of ICED?

We tried to consider these questions within the ethical framework of Autonomy, Beneficence, non-maleficence and Justice.

Islamic Perspective

The religion of Islam commands its followers to treat the body and never neglect health. The Prophet Mohammad, peace is upon him sent for a Physician doctor to come and treat his companions [11]. Knowledge is of two kinds: the knowledge of Islam and the understanding of medicine [12]. The truth of believing in Allah and trusting Him follows in applying what is needed for to maintain health, not doing so will negate it [13]. The final say in taking medication is that: it is obligatory if not taking it will lead to harm and deterioration, and medicine will lift off the harm [14]. The Fiqh Complex recommendations are as stated: treating yourself if benefiting it is compulsory [15]. Not treating the patient is better sometimes for the patient and family, if there is no benefit from the medication itself, or if medication will increase the harm at this stage [16].

From the above, Islam permits the withdrawal of harmful intervention if there is no benefit. ICED’s that deliver painful shocks without any evidence of improvement in the quality of life can be withdrawn in agreement with the patient and family.

Conclusion

ICED’s and pacemakers are life sustaining and life-prolonging measures. Like all medical treatments, patients have the right to refuse ICED/pacemakers and withdraw at any time in the future if they decide to. Withdrawing ICED/pacemakers would not be considered Euthanasia or Physician-assisted suicide. It should not be considered any different from withdrawing from a ventilator or total parenteral nutrition. Nevertheless, DNR patients should be offered the right to continue or switch off ICED/pacemakers after knowing the risks and benefits from such decisions, although DNR and ICED/pacemakers seem mutually exclusive. The patient and their appointed attorneys play a central role in this decision. Cardiologists and electro physiologists perform a vital role in starting patient and family education before the placement of these devices and at the time of deactivation of one or more its functions at the end of life. The knowledge attained through this reflective process was shared with the multidisciplinary team and the policy makers in the hospital. The hospital policy will soon be drafted for approval.

References


