Medical Ethics

Ethical and practical considerations of withdrawal of treatment in the Intensive Care Unit

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Purpose: To discuss the medical, ethical and legal basis of decisions to discontinue life-support therapy in the adult intensive care unit (ICU), and to provide practical guidelines for the discontinuation of life support therapy.

Source: Relevant articles were retrieved through Medline (1991-present; terms: ethics, life support discontinuation, double effect, beneficence, non-maleficence). Other sources include legal references, and personal files.

Principal Findings: Understanding the legal and ethical principles of autonomy, beneficence, non-maleficence and double effect are crucial when withdrawing life support therapy. The law respects a competent patient's right to direct his/her healthcare but does not uphold his/her right to demand futile care. Surrogate decision makers can be used when the patient is incompetent, provided they are acting in the patient's best interest. Euthanasia is illegal and the distinction between discontinuation of therapy and euthanasia is legally clear. Skilful administration of palliative therapy cannot be construed as euthanasia when the aforementioned ethical principals are respected. The various practical methods of discontinuing therapy are discussed. Every ICU should develop its own guidelines and a checklist to help caregivers during this difficult time. Caregivers must anticipate the mechanism of death and direct interventions at the symptoms that are likely to cause discomfort. Drugs and dosages must be individualized, and depend on the underlying disease, anticipated mechanism of death, and the patient's pharmacological history. When prescribing a drug, the intention should be clear.

Conclusions: Appropriate discontinuation of therapy in the ICU allows patients a dignified and comfortable death.

Objectif : Discuter des bases médicales, éthiques et juridiques de la suppression du maintien des fonctions vitales chez les adultes de l'unité de soins intensifs (USI), et proposer des directives à appliquer dans ce cas.

Sources : Des articles pertinents ont été choisis à partir de Medline (1991-aujourd'hui ; termes : éthique, suppression du maintien des fonctions vitales, double effet, complaisance, humanité. Les autres sources comprennent des références juridiques et des dossiers personnels.

Constatations principales : La connaissance des principes légaux et éthiques de l'autonomie, de la complaisance, de l'humanité et du double effet est cruciale quand on retire le maintien artificiel des fonctions vitales. La loi respecte le droit d'un patient apte à décider de ses traitements de santé, mais elle ne lui confirme pas le droit de demander de vaines thérapies. On peut traiter le patient inapte à décider en suivant les conseils d'un proche pourvu que ce dernier agisse dans le meilleur intérêt du patient. L'euthanasie est illégale et la distinction entre l'arrêt de la thérapie et l'euthanasie est claire. L'administration adéquate d'une thérapie palliative ne peut être interprétée comme de l'euthanasie quand les principes éthiques susmentionnés sont respectés. Les différentes façons de supprimer la thérapie sont examinées. Chaque USI doit formuler ses propres directives et une liste récapitulative pour aider le personnel soignant pendant ces moments difficiles. Le personnel doit prévoir le mécanisme de la mort et les interventions directes sur les symptômes qui sont susceptibles de causer de l'inconfort. Les médicaments et leurs doses doivent être individualisés en fonction de la maladie sous-jacente, de la mort anticipée et des antécédents pharmacologiques du patient. L'intention doit être claire quand on prescrit un médicament.

Conclusion : Le retrait adapté de la thérapie à l'USI permet au patient de mourir dignement et sans souffrance.

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RECENTLY, there has been growing concern that the dying process is sometimes needlessly prolonged by medical interventions. This may result in needless suffering.[1] There is a widespread consensus that, despite the ethical and legal right of a competent patient to refuse life-prolonging therapy, hospitalized dying patients frequently receive unwanted interventions.[2,3] This may be explained by the lack of training of care-givers in the clinical/practical aspects of withdrawing life-support therapy, and the failure to understand the medical, ethical, and legal principles of terminating life-support measures.[2]

Appropriate medical treatment must follow the ethical principles of ***autonomy, beneficence*** and ***non-maleficence***. The principle of autonomy dictates that the right of a duly informed competent patient to accept or refuse medical care must be respected. The principle of beneficence requires that medical knowledge and skills be intended to benefit patients, while the principle of non-maleficence prohibits physicians from directing their medical knowledge or skills to cause harm. The withdrawing of life-sustaining treatment in the proper context is consistent with the principles of beneficence and non-maleficence. The physician is obligated only to offer sound medical treatment and to refrain from providing treatment detrimental to the patient's well-being. When a physician withholds or withdraws treatment at the request of a mentally competent patient, he or she has fulfilled the legal and ethical duty to the patient.

Furthermore, there is no ethical distinction between withdrawing or withholding life-sustaining treatment. The former may be emotionally more difficult than the latter because the physician performs an act that hastens death. In contrast, when life-sustaining treatment is withheld, death occurs because of an omission. However, such a distinction is not ethically relevant. What matters is not the difference between acts and omissions but rather the relevance of factors such as the views of the patient/family and the physician's professional obligations.

This paper will review the decision-making process of terminating life-supportive treatment in the intensive care setting, either when the patient is mentally competent and has requested such an intervention (or has so provided by way of a health care directive), or because continued treatment for a mentally incompetent patient is considered futile by care-givers and family. We will also outline a stepwise, practical approach to discontinuing life-support.

Who decides?

The first question to be resolved is "Who decides to discontinue life-supportive therapy in the ICU"? According to the principle of autonomy, the physician must comply with the demand of his/her mentally competent patient that life-support measures be terminated. In fact, continuing unwanted treatment amounts to battery in civil law and assault in criminal law. The law has clearly enshrined the "no treatment without consent" principle. If the patient is mentally competent and requests no treatment, then the decision is legally binding. The physician who regards a patient's decision as ill-advised may attempt to persuade, but not coerce, the patient to change his/her mind. However, as long as the patient understands the reasonably foreseeable consequences of the decision, then it is the patient's entitlement to have the decision carried out.

This principle was affirmed in the 1991-2 Quebec case of *Nancy B. vs. Hotel-Dieu de Quebec et al.*[4] The patient, who was quadriplegic and dependent on mechanical ventilation, had repeatedly asked that she be taken off life-support. The physician's refusal to honour her wishes prompted her to seek judicial relief. Given her undisputed mental competence, the Quebec Superior Court judge ruled in her favour. The ventilator was accordingly removed and the sedated patient died painlessly. Although the case did not occur in an ICU, the ruling is equally applicable to that setting.

What if the patient is not mentally competent but had signed a healthcare directive as recognised by provincial statute? In that case, the document has the same legal effect as if the patient were mentally competent and able to speak for him/herself. Even if there is no such directive, legislation in Ontario and British Columbia sets out a hierarchical list of surrogate (substitute) decision-makers empowered to make treatment decisions for an incompetent patient (beginning with the spouse or partner, and then progressing down the line to adult child, parent, sibling, or any other relative).[5,6]

What if the patient is mentally incompetent, and there is neither a healthcare directive (an instructional and/or proxy directive) nor a statute appointing a surrogate decision-maker? In that event, family members still have a role to play because medical practice is to consult with the patient's close relatives (or partner) on the question whether life-prolonging treatment should be terminated. Since an adult patient has no legal guardian unless one is court-appointed, family members technically have no legal authority to decide for the patient. The reality is that the family is consulted, not for the purpose of allowing them to decide but rather to help facilitate the decision-making process by providing input from what they know about the patient's beliefs and values. Such information would help predict what the patient would want done in the circumstances. Physicians take guidance from the family and, if the medical consensus is to terminate life-support measures, then the family should be asked to agree. However, the law accords no official role in the decision-making process to anyone other than the patient, unless that person is either a proxy appointee or surrogate decision-maker as allowed by statute.

What if a consensus cannot be achieved, particularly when there is a family member who insists upon the continuation of life-support measures although the care-givers and other relatives disagree? Is it necessary to hold the patient hostage to the dissenter's will by continuing treatment? There are several reasons why we do not believe that the dissenting opinion should prevail. Firstly, we are not aware of any case in Canada or in the United States, where a court has faulted physicians for discontinuing life-prolonging treatment. Secondly, Canadian law has never imposed a duty upon physicians to provide life-prolonging treatment that, in considered medical judgement, is unwarranted. Furthermore, there is a recent case in which a Canadian court has, for the first time, ruled that a physician has the right to act unilaterally to reject life-prolonging measures based upon his/her "evaluation of the hopelessness of the case."

In *Child and Family Services of Central Manitoba (CFS) versus L. and H.*[7] the Manitoba Court of Appeal dealt with the aftermath of an assault upon an infant who was apprehended by CFS after being violently shaken at the age of three months. According to the medical evidence at the trial, the infant was in a persistent vegetative state (PVS). Further, his overall condition was deteriorating.

The CFS agreed with the medical recommendation for a do-not-resuscitate (DNR) order. But when the parents, who were still his legal guardians, refused to consent, the agency sought judicial approval for the order. The trial judge granted the agency's petition and the parents appealed. Although the Court of Appeal overturned the ruling, its decision was no victory for the parents. That was because the Court ruled that since a DNR order was in the realm of non-treatment, the authority to issue it lay not with the judiciary but rather with the attending physician.

Writing for the Court, Justice Twaddle held that, "There is no legal obligation on a medical doctor to take heroic measures to maintain the life of a patient in an irreversible vegetative state."[8] Given the hopeless condition of a patient in a vegetative state, he could find no sense in seeking to preserve such a life. Consequently, he concluded that "neither consent nor a court order is required for a medical doctor to issue a non-resuscitation direction where, in his or her judgement, the patient is in an irreversible vegetative state."[9] He went on to say that it is for the physician to make a "judgement call...having regard to the patient's history and condition and the doctor's evaluation of the hopelessness of the case."[10] While he acknowledged that the wishes of a patient's family or guardian should generally be taken into account, he stressed that "neither their consent nor the approval of a court is required."[11]

As a legal precedent, does the case say anything more than that the authority to direct a DNR order for a PVS patient lies solely with the treating physician? If the court had simply said that these facts – a DNR order for a PVS patent – were sufficient in themselves to decide the case without looking at broader issues, that would support a narrow based decision. But the Court did not do that. According to Justice Twaddle, the heart of the matter lay "in understanding why authority for medical treatment is necessary."[12] As he explained, consent is required in non- emergency settings when the provision of treatment without it would constitute assault. Therefore, it follows that "there is no need for consent from anyone for a doctor to refrain from intervening," subject to the rider that in denying "heroic measures" the physician can be sued for negligence in "circumstances where qualified practitioners would have thought intervention warranted."[13]

Thus, the Court did not rule as it did because the patient was vegetative or because the proposed non-treatment decision was a DNR order. It ruled at it did because, in its view, it is only treatment – not non-treatment - that requires consent of a patient or family. As a legal precedent, then, the L. and H. case means that, in Manitoba, no consent is required whenever the carrying out of the physician's decision does not entail hands-on treatment. Nevertheless, the decision only sets the law in Manitoba, and it remains to be seen how the consent-and-non-treatment issue will be handled elsewhere in Canada.

To reiterate, since the legal basis of the ruling is grounded in the distinction between treatment and non- treatment, it cannot logically be confined to vegetative state patients. Likewise, it cannot be restricted to a DNR order, which is simply one kind of a non-treatment decision – whether it be withholding CPR, artificial feeding, mechanical ventilation, dialysis, antibiotics, or intravenous hydration, the legal authority to refrain rests with the physician.

Furthermore, it follows from the Court's analysis that even the consent of a mentally competent patient would not be required before denying heroic measures. If it is solely the physician's prerogative whether to refrain from a particular treatment, then it matters not whether the insistence upon it stems from the patient herself, from her health care directive or, in the absence of a directive, from concerned family.

In October 1998 another DNR case was brought to court. In *Sawatsky vs Riverview Health Center*[14] the wife of a mentally incompetent 79 yr-old patient with Parkinson's disease contested his DNR order, and a judge of the Manitoba Court of Queen's Bench granted an injunction that temporarily reversed the order. However, the judge was not empowered to overrule the *L and H*, case. Instead, she issued an interlocutory injunction that put the DNR order for Mr. Sawatsky on hold, and called for at least two independent medical opinions as to his condition and the advisability of the DNR order. As she indicated, the granting of Mrs. Sawatsky's motion does not address the merits of the case. Her expressed hope was that these additional reports would help to resolve the matter. If not, then she would have to settle the dispute between Riverview and Mrs. Sawatsky. Still, the law in Manitoba would indicate that because a DNR order is a non-treatment decision it rests solely in the hands of the treating physician.

The question raised by the *Sawatsky* case is whether the law's recognition of the negative right to refuse treatment should be extended to include a positive right by patient or family to enforce a demand for treatment that the caregivers regards as medically unreasonable. What happens if the patient cannot be transferred to a physician prepared to accede to that demand? Should the law require the physician to act against his/her professional judgement that the proposed treatment will harm the patient? A law that orders thus would direct the physician to breach the first principle of medical ethics: Do no harm to your patient. However, the decision in the *L. and H.* case appears to safeguard the physician from such an intolerable position. Furthermore, not presenting cardiopulmonary resuscitation to those who will not benefit is consistent with Canadian Medical Association guidelines.[15a]

Mrs Sawatsky was asserting, on behalf of her husband, a right to treatment (CPR in the event of a cardiac arrest). The *Sawatsky* case involves an insistence upon treatment which the law has yet to recognize. In contrast, there is the patient's right to refuse treatment – even life-prolonging treatment – which is a core principle of medical law and ethics. It is a negative right in that it proclaims one's right to say, "Don't treat me without my consent." It is, after all, the patient's body and the patient has the right to protect it from unwanted invasion. Conversely, the claimed right to treatment is a positive right in that it says, "You must treat me." (The Manitoba cases of course raise the contentious issue of medical futility, a discussion of which is beyond the scope of this paper.)

As suggested by the *L. and H.* case, whatever treatment direction is given by a patient's family, or by a proxy or surrogate decision-maker as recognised by statute, the physician still owes an independent duty of care to the patient. That duty is spelled out by section 215 of Criminal Code, which states in pertinent part that: "Everyone is under a legal duty...to provide necessaries of life to a person under his charge if that person is unable, by reason of...illness...to withdraw himself from that charge...". It follows that whenever the family requests the termination of life-prolonging treatment on quality-of-life grounds, the physician legally cannot comply if he/she disagrees with that assessment. It is a different matter when the patient is mentally competent and asks that life-prolonging treatment be terminated. In that event, the patient is terminating the physician's duty to treat.

Double Effect *vs* Euthanasia

In the 1993 case of *Rodriguez v. British Columbia (Attorney General)*, Supreme Court Justice Sopinka took the opportunity to acknowledge that, in the provision of pain killing drugs, there is a legal distinction based upon the intent of the physician.[16] He stated:

> "The administration of drugs designed for pain control in dosages which the physician knows will hasten death constitutes active contribution by any standard. However, the distinction drawn here is one based upon intention - in the case of palliative care the intention is to ease pain, which has the effect of hastening death, while in the case of assisted suicide, the intention is undeniably to cause death.... In my view, distinctions based upon intent are important, and in fact, form the basis of our criminal law. While factually the distinction may, at times, be difficult to draw, legally it is clear."

Justice Sopinka was, in effect, granting legal recognition to the so-called *double effect* doctrine. In that regard, there are four key conditions that must be met in the clinical context. 1. The intent of the physician must be good – i.e. the relief of pain. 2. What the physician

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must intend is the good effect (relieving pain) – and not the bad effect (deliberately killing the patient) 3. The physician must realize the distinction between means and effect: that death cannot be deliberately imposed as a means of ending pain. 4. The good effect must morally outweigh the bad effect – that the provision of pain control is justified even if an unintended consequence is to accelerate the patient's death.[17] An example of double effect is the provision of morphine to an end-stage cancer patient with severe, intractable dyspnea. The dose required to relieve the dyspnea may be foreseen to shorten the patient's life by causing respiratory depression and a decrease in consciousness. At all times, however, both the health care team (under the direction of the attending physician) and the patient (or family) are under the clear understanding that the primary therapeutic goal of the morphine is to relieve suffering, not to end life. In contrast, if the physician foresees that the dose of the drug is virtually certain to cause the patient's death, it is euthanasia (murder). There is no defence that the motive (the reason for giving the drug) was to end the patient's suffering. On the other hand, if the physician foresees that the dose of the agent will relieve suffering but that, as a consequence of relieving suffering, it may hasten dying (that is, running the risk, but not the absolute certainty, of the outcome), then the physician has acted lawfully. In either case, the motive for acting – to relieve suffering – is legally irrelevant, as the law is solely concerned with the *intention* behind treatment.

In sum, if the physician knows that the drug (and the dose) *may* hasten death but will directly relieve uncomfortable symptoms, then he/she does not intend to kill the patient and thus has acted lawfully. However, if the physician knows that the drug or the dose is virtually certain to kill, then there is intent to kill and that is murder. Moreover, even if the patient had asked that drugs be administered to end his/her life, the physician would still be guilty of murder. This is because Section 14 of the Criminal Code stipulates that: "No one is entitled to consent to have death inflicted upon him." Thus, an act of euthanasia, whether voluntary (at the patient's request) or non-voluntary, stands outside the law. The Canadian Medical Association Policy Summary on physician assisted death[18] is an invaluable resource in this area and is essential reading for all health care providers involved in this area. (The question whether physicians should legally be allowed to practice voluntary euthanasia is beyond the scope of this paper.)

Medical issues to be considered at the time of life support withdrawal

Life-support treatment may include - but is not limited to - mechanical ventilation, dialysis, chemotherapy, medications (including antibiotics and vasoactive drugs), artificial nutrition/hydration, and supplementary oxygen. The decision to discontinue life-support measures should be carried out in the most compassionate and practical way. Each drug, intervention, or treatment administered during the dying process should be assessed in terms of beneficence (to do good) and non-maleficence (to do no harm). Any such measures must clearly be directed to the signs and symptoms of discomfort. Other treatments that could conceivably prolong the dying process should be discontinued.

The cessation of mechanical ventilation is often a difficult decision for physicians, patients, and families. There are two schools of thought in the literature. First, there is support for the process of "terminal weaning" - the incremental reduction in ventilator support over a matter of hours to days.[19] The underlying rationale is that there is no absolute certainty in outcome prediction and, accordingly, there is always a possibility - however remote - that a ventilator-dependent patient may eventually recover. Its advocates suggest that this approach allows for more time to comfort families, is emotionally easier for physicians, and is able to address potential uncertainty in outcome. We believe that the rationale for terminal weaning is fundamentally flawed and do *not* endorse this method of discontinuing mechanical ventilation, because it implies uncertainty about the decision to discontinue treatment and needlessly prolongs dying. In our view, the decision to terminate life-prolonging treatment should be predicated upon the clear expectation that it will result in the patient's death.

Thus, we support the opposing view that mechanical ventilation should be rapidly withdrawn.[20] The advocates of this position believe that the only time to proceed slowly is during the decision-making process leading to the withdrawal of mechanical ventilation - but not to prolong the dying process once the decision has been made. It is advisable that the patient be sedated if dyspnea is likely to occur but that the trachea not be extubated, that inspired oxygen be reduced to room air and that no ventilator support be applied (i.e. the patient receive humidified room air only). It is the practice in our ICU (the three physician co-authors) to remove ventilator support completely when life-support therapy is stopped.

The issue of extubation merits further discussion. One survey found that 13% of ICU physicians preferred this method of ventilator withdrawal.[21] However, extubation can result in accumulation of secretions, struggling, airway obstruction, and respiratory distress. Removal of an endotracheal tube from a patient who may suffer airway obstruction is clearly unethical. Furthermore, the intent of removing the tube is not to provide patient comfort, because the act actually produces death (by asphyxia). For patients who are not at risk of acute upper airway obstruction, some practitioners feel that removing the endotracheal tube provides a more 'natural' appearing death. While this may be true, there is always the accumulation of upper airway secretions that may make the dying process uncomfortable. We advise against extubation in *most* patients.

Muscle relaxants are frequently used in ICU. In that regard, particular caution is warranted when life-sustaining treatment is being withdrawn.[22] These agents have no intrinsic analgesic or sedative properties. In addition, muscle paralysis can mask suffering and hence delay the administration of adequate analgesia. Moreover, since one of their effects is to paralyse the respiratory muscles, such drugs cannot lawfully be administered prior to the withdrawal of ventilator support. This is because the administration of these agents and the subsequent withdrawal of mechanical ventilation fail to satisfy the double effect doctrine. The drugs would have the same direct effect in causing death as would a dose of potassium chloride; and in the eyes of the law that would be euthanasia (murder).

Attention should be paid to the issue of artificial nutrition and hydration. Physicians may have difficulty withholding such basic necessities of human life. There is, however, consensus in the literature that seriously ill or dying patients suffer minimal if any discomfort upon their cessation.[2] Consequently, there should be no hesitation to stop artificial nutrition and hydration once the decision has been made to stop life-support measures.

Recommendations for Life Support Withdrawal in the ICU

We suggest that care-givers develop a set of guidelines for the withdrawal of therapy in their ICUs. We propose that they consider the following recommendations:

1. *Members of the health care team should agree that the probability of recovery is extremely remote and that current interventions are most likely to prolong the dying process when death is virtually inevitable.* It is true that in medicine there is no absolute certainty in predicting outcome. Although each case must be assessed on its own merits, there are outcome data that can help when making end of life decisions.[23,24] For example, Knaus and Wagner[23] demonstrated that the mortality rate in the syndrome of multi-system organ failure approached 100% with the failure of any three organs systems for over 72 hr.

2. *Members of the healthcare team must be aware of who has the decision-making authority in the particular case.* (See previous discussion entitled "Who Decides".)

3. *The family should be informed of the decision to stop treatment unless the patient has decreed otherwise.* Good communication with the family is crucial. If families are well informed throughout the patient's ICU admission and dealt with in an honest but compassionate manner, dissent is unlikely. In cases in which the medical prognosis appears hopeless, it should be clearly stated to the family that the decision to withdraw is a medical decision and, thus, the sole responsibility of the physicians. If the family objects, it has the right to a second opinion. In that event the attending physician should select the consultant from amongst relevant specialists or intensivists and agree in advance to abide by the latter's recommendation. If conflicts with the family impair the attending physician's ability to provide ongoing care, then the case should be transferred to another physician. However, we stress that this situation should be *exceedingly* rare if there has been good communication with the family throughout the ICU admission

4. *The patient and/or family should be assisted in dealing with end-of-life matters (such as preparing a will or seeing people that he/she would like to bid farewell to).* It is our experience that physicians – especially rotating junior housestaff – fail to appreciate that dying patients and their families often have practical matters to attend to. The bedside nurse is often very much attuned to these issues. It is particularly important to advise the family to encourage relatives, including children, to visit the patient at least once during their ICU stay prior to withdrawal of therapy. There is often a tendency for relatives to resist that advice; it is possible that children who are restricted from visiting a dying family member could suffer severe denial. In our experience, children as young as three or four years benefit from the experience provided that they are informed in detail as to what they will see before the visit and are assured that they can leave if they become fearful. Most children ask to visit again and often take the opportunity to make physical contact with the patient and leave greetings in the form of written expressions of affection or drawings.

5. *If the patient had a primary care physician before admission to the ICU, then he/she should be informed of the patient's impending death.* Many patients have had the same such physician for some time and families often contact him/her on such occasions. In any case, the ICU staff should routinely inform the primary care physician of the decision to

terminate treatment as that will enable him/her to offer further support to the family. Any consulting services actively involved in the patient's care should likewise be advised.

6. *The patient's spiritual needs should also be addressed.* Arranging support for such needs should be part of any ICU admission but is of particularly important in the situation when life support therapy is to be withdrawn.

7. *Diagnostic/therapeutic procedures and medications that are not comfort-oriented should be halted.* The burden of care must be continuously and aggressively reviewed; and measures not necessary for comfort should be discontinued (including medication, fluid, feeding tubes, oxygen, and antibiotics). In our experience, rotating housestaff often assume that the withdrawal of therapy only entails the removal of mechanical ventilation or vasopressors. However, unless necessary for patient comfort, all other drugs (including oxygen), fluids and medical devices must also be removed.

8. *The specifics of treatment cessation - physicians' orders, nursing care plans, the mechanics and time frame of the actual process - should be reviewed and understood by all care-givers providers involved in the case.* Physician orders must clearly define which treatments are to be stopped, and the orders for palliative drugs should reflect the physician's intention – e.g. 'morphine 1 to 4mg·hr^{-1} *iv* continuous infusions required for pain and midazolam 2 - 10 mg·hr^{-1} *iv* continuous infusion as required for agitation.' An order so worded clearly defines the parameters the bedside nurse needs to consider when administering the drug. Further, giving the drugs by infusion creates less disruption when administering or changing the dose and is moreover emotionally easier for family and care-givers.

9. *Even when death is considered imminent, care-givers should be cautious about providing patient and/or family with a specific end-of-life time frame.* Patients may die almost immediately after cessation of mechanical ventilation or vasopressor support, while others survive for hours and even days. We suggest that the prudent course of action is to inform the patient and/or family that, while death is certain, the course of events after withdrawal of therapy is sometimes unpredictable. At the same time, the patient and/or family must be reassured that the death will not be marked by suffering or discomfort. Furthermore, a patient expected to live for several days after cessation of supportive therapy may need to be moved to a step-down unit or a general medical ward. Every effort must be made to impress upon the patient and the family that this is *not* an act of abandonment.

10. *The decision concerning the particular drugs and the amount to administer will depend upon the patient's medical condition and the anticipated distressing symptoms that may occur during the dying process (i.e. manner of death).* Anticipating the pathophysiological mechanism by which the patient will die is *crucial* in selecting the type and dose of medication that will be used and the sequence of interventions to be withdrawn. For example, a comatose, head-injured patient may require little or no sedation and will likely die over a period of hours to a few days from withdrawal of mechanical ventilation, supplemental oxygen, intravenous hydration and feeding. A patient with severe respiratory failure who is removed from mechanical ventilation will need titrated doses of opioids and sedatives to relieve dyspnea, and agitation and death might occur in a matter of a few hours from hypoxemia and hypercarbia. A patient in profound septic shock will likely die in minutes or hours after withdrawal of mechanical ventilation and vasopressors / inotropes.

Opioids are the agents of choice for pain and discomfort at the end of life.[25,26] They can be given via many routes including continuous infusion, which is our technique of choice as it allows constant drug levels and fewer interruptions. Narcotics should be titrated against anticipated symptoms; the dosage may vary widely as some terminal patients may be resistant to the effects of conventional doses of psychoactive drugs (often due to enzyme induction from chronic use). Sufficient amounts should be given to relieve the patient's distressing symptoms. Although large amounts of morphine may be required to accomplish that end, skilful administration should obviate the concern for excessive respiratory depression. When skilfully done, it should seldom be necessary to invoke the doctrine of double effect (severe respiratory depression as a by-product of treating the distressing symptoms). As stated in [8], the physician's orders for the drug should reflect his/her intention of the treatment.

11. *Hospitals caring for the critically ill should have an on-site ethics committee for consultation in difficult cases, particularly when there is disagreement within the family or between family and health care providers on termination of treatment issues.* It is not for the committee to decide cases, but rather to help achieve a consensus between the parties and to act as a resource in the difficult cases. Unfortunately, there is the infrequent case in which a family member threatens legal action unless aggressive therapy continues. However, when the clinical responsibility to discontinue therapy is clear, it is clinical error to continue treatment because of the spectre of a lawsuit. If the

health care providers have understanding of the legal and ethical principles summarised in this paper, then they can be assured that their reasonable medical judgement will if necessary be vindicated.

12. *A withdrawal of life-support checklist as a method to ensure that all pertinent issues have been addressed should be available in every ICU.*

Conclusion

There are patients admitted to the ICU who are then determined to have only a small chance for recovery. It can occasionally be difficult to draw and maintain distinct boundaries around justified end-of-life interventions. Critical care professionals must acknowledge and honour the overriding moral duty to relieve pain and suffering and recognize that this duty is constrained by the legal prohibition against killing. As the boundaries around end-of-life care become more blurred and debate about euthanasia continues to unfold, healthcare professionals and patients must communicate and promote the healthy dialogue and debate pertaining to these important issues. Physicians and healthcare professionals must continue to examine the ethical and legal justifications for the actions that they undertake. It is our hope that an understanding of ethics, law, and the recommendations we propose will help to provide a humane and technically competent resolution to the process of end of life decision-making in the intensive care setting.

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