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The Durban World Congress Ethics Round Table Conference Report: III. Withdrawing Mechanical ventilation—the approach should be individualized ☆

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ABSTRACT

Purpose: The purpose of this study is to determine the approaches used in withdrawing mechanical ventilator support.
Materials and methods: Speakers from the invited faculty of the World Federation of Societies of Intensive and Critical Care Medicine Congress in 2013 with an interest in ethics were asked to provide a detailed description of individual approaches to the process of withdrawal of mechanical ventilation.
Results: Twenty-one participants originating from 13 countries, responded to the questionnaire. Four respondents indicated that they do not practice withdrawal of mechanical ventilation, and another 4 indicated that their approach is highly variable depending on the clinical scenario. Immediate withdrawal of ventilation was practiced by a large number of the respondents (7/16; 44%). A terminal wean was practiced by just more than a third of the respondents (6/16; 38%). Extubation was practiced in more than 70% of instances among most of the respondents (9/17; 53%). Two of the respondents (2/17; 12%) indicated that they would extubate all patients, whereas 14 respondents indicated that they would not extubate all their patients. The emphasis was on tailoring the approach used to suit individual case scenarios.
Conclusions: Withdrawing of ventilator support is not universal. However, even when withdrawing mechanical ventilation is acceptable, the approach to achieve this end point is highly variable and individualized.

1. Introduction

The frequency of limitation of life-sustaining therapies (LST) has increased during the past 2 decades [1-3]. Large-scale studies demonstrate substantial variation in practice within and between regions and countries such that withdrawal of LST ranges from 0% to 96% [4-7]. In many cases, withdrawal of LST includes the withdrawal of mechanical ventilation. However, the method of withdrawing a patient from mechanical ventilation varies widely and is influenced by intensive care unit (ICU) protocols, physician beliefs, the clinical scenario as well as patient and family preferences. In addition, cultural factors, religious background (of the physician and the family) as well as the regional legal framework also influence the approach that is used in withdrawing mechanical ventilation [8,9]. As such, the "one size fits all" approach may not be used for the process of withdrawal of mechanical ventilation.

The lack of uniformity of approaches and the need to consider several issues before removing a patient from mechanical ventilation

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have great clinical implications for patients and their families and clinicians. Moreover, with globalization and migration, cultural and religious norms are not confined to regions or by borders, and clinicians should be aware of these differences. Thus, we engaged an international group of senior practitioners with an interest in this issue to ascertain their practices. These practices in withdrawing mechanical ventilation are discussed below.

2. Methods

During the 11th Congress of the World Federation of Societies of Intensive and Critical Care Medicine (WFSICCM), which was held in August and September 2013 in Durban, South Africa, an ethics round table was convened as a component of the scientific program. Before the meeting, speakers from the invited faculty list of the World Federation of Societies of Intensive and Critical Care Medicine Congress with an interest in ethics were approached to participate in the ethics round table. Round table participants were asked to identify their 3 most pressing specific worldwide ethical issues that the group should address. Most responded that they were interested in end-of-life issues including withholding and withdrawing life-sustaining treatments. An iterative process among respondents was performed by e-mail before the conference to choose the most pertinent questions relating to these items for further work and discussion at the congress. Initially, 70 questions related to withholding, and withdrawal of LSTs were sent to participants. The interactive process resulted in the identification of 16 relevant topics that were felt to warrant further exploration. Respondents were then asked to identify the most important topics for further discussion at the congress. The 5 topics with the greatest differences between centers and countries were chosen. They included questions related to age as a factor to determine withholding and withdrawing life-sustaining treatments at the end of life, health care professional end-of-life decision making, patient/family end-of-life decision making, how to withdraw mechanical ventilation, and differences between withholding and withdrawing life-sustaining treatments. Before the World Congress meeting, potential questions for the 5 topics were distributed via e-mail to the experts. At the meeting and during several weeks after the meeting, 76 questions were finalized using a Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree), which all round table participants answered. After the meeting, specific questions pertaining to mechanical ventilation were developed and distributed to 22 participants from 13 countries. This manuscript concentrates on a detailed description of individual approaches to the process of withdrawal of mechanical ventilation, terminal weaning (including timelines), terminal extubation, sequence of withdrawal of mechanical ventilation, and the practice of extubation.

3. Results

Twenty-one participants responded to the questionnaire. The respondents originate from 13 countries. Table 1 summarizes the approach of the respondents who practice withdrawal of mechanical ventilation. Four respondents indicated that they do not practice withdrawal of mechanical ventilation. They were practitioners from Israel, China, South Korea, and Saudi Arabia. Four respondents, each from a different country (Canada, South Africa, United States, and Europe) indicated that their approach to ventilation withdrawal is highly variable depending on the clinical scenario. Immediate withdrawal of ventilation was practiced by some of the respondents (7/16; 44%). A terminal wean was practiced by just more than a third of the respondents (6/16; 38%). Among the respondents who practiced a terminal wean, a third conducted this over a period of less than 30 minutes. Two of the respondents (2/17; 12%) indicated that they would extubate all patients, whereas 14 respondents indicated that they would not extubate all their patients. Extubation was practiced in at least 70% of instances among most of the respondents (9/17; 53%). The extubation rate in this group of respondents ranged from less than 5% to 95% of patients. One respondent from South Africa did not extubate any patient. This practice was attributed to family request—none of the families agreed to extubation. The practice of extubation varies within and between regions (Table 2). Apart from the emphasis on appropriate analgosedation, it is clear that the precise steps involving the withdrawal of mechanical ventilation are highly variable. Despite the same end point, the sequence, adjustments, and targets for reducing fraction of inspired oxygen, positive end-expiratory pressure (PEEP), and tidal volume differed among all the respondents. The major emphasis was on tailoring the approach to suit individual case scenarios.

Table 1
Approach to withdrawal of mechanical ventilation

	Response (n = 17)
Immediate withdrawal	7
Terminal wean:	
- < 30 min	2
- > 30 min	4
Practice variable	4

Table 2
Percentage of cases extubated during withdrawal of LST

Countries	No. of participants	Range (%)	Mean (%)
North America and Canada	6	21-100	69.2
Europe	5	< 5%-80%	52.5
South Africa	4	0-95	50
Australia	1	–	70
Hong Kong	1	–	20

4. Discussion

There was considerable variation in the manner of mechanical ventilation withdrawal not only between the respondents, but respondents varied their individual approach depending on the clinical scenario. This practice variation is supported by a previous report outlining that the manner of mechanical ventilation withdrawal differs among intensivists [10]. The sequence of events is dependent on a multitude of factors, which includes the legal framework, cultural factors, religious background, physician's perspective, and the family's wishes. Hence, it is evident that the withdrawal of mechanical ventilation cannot be addressed in a didactic checklist manner. Nonetheless, there are specific issues that warrant consideration when finalizing the individualized approach that will be used for the withdrawal of mechanical ventilation. These issues include the influence of the legal framework, the components of a family meeting, the precise approach to withdraw mechanical ventilation, symptom management, the approach to the debriefing process, and the need for documentation. These concepts are discussed in the context of the available evidence below.

4.1. Influence of legal framework

Health care practices are essentially informed and molded by the health care legislation of the respective countries. For example, withdrawal of continuous LST is not permitted in Israel in accordance with halacha or Jewish religious law and an Israeli statute [11]. Withdrawal of mechanical ventilation is not practiced in Israel and Saudi Arabia. In China, there is no local or national legislation that governs the withdrawal of life-sustaining treatments, although it is practiced by sending patients "home to die" or as requested by families because of financial constraints [12]. The round table responses indicate that withdrawal of mechanical ventilation is

Table 3
Issues to be discussed at the family meeting

1. General
   - Withdrawal of LSTs is individualized in relation to patient's wishes, patient's culture, and clinical condition.
   - Approach is also considered within the context of the laws that govern the region/country.
   -Recommendations and decisions are influenced by observations of previous experiences related to the withdrawal of LSTs—a relatively new practice in that it is less than 50 years since it was first introduced in the ICU setting.
   - The clinical diagnosis, prognosis, and the logic to support the withdrawal of LSTs.
   - The use of additional aids (previous experience or images of anatomic damage) to assist in informing the decision to withdraw LSTs to be considered.
2. Confirm who will represent the patient.
   - This needs to be considered in the context of the countries' legal framework regarding the legal standing of family members and identification of surrogate decision makers.
3. Assurance and reassurance
   - From the outset, it must be made obvious that the caregivers are totally committed to do what is in the best interest of the patient and the family unit.
   - Although there has been a shift in focus from providing life-preserving treatment to the avoidance of prolonging death, respect and care of the patient will continue until the end.
4. Family conflicts
   - Support the family although they imbibe the implications of withdrawing LSTs and deal with the internal conflicts in an attempt to reach a near unanimous decision.
5. Timing and location of withdrawal of mechanical ventilation
   - Possibility of home as location
   - Location within the ICU (possibility of a private cubicle)
   - Transfer to palliative care area before extubation
6. Specifics to be performed before and/or after withdrawal
   - Bathing
   - Rituals
   - Prayers
7. Clinical team members who will be present
8. Would the family like to be present during the withdrawal procedure?
   - How will young children be managed?
   - Presence of nonfamily members
   - Does the family want a psychologist or clergy to be present?
9. Procedure of withdrawal
   - Determine the specific approach to be used
   (i) Terminal weaning (discuss what will be withdrawn, precise steps, and duration) or
   (ii) Immediate withdrawal of mechanical ventilation with:
   -Manual disconnection of the ventilator or
   -Extubation (terminal extubation)
   -Symptom management (breathlessness, death rattle, pain, secretions, vomiting)
   -Reducing discomfort (environment, alarms, investigations)
   -Unexpected events and how some may be avoided
10. Potential outcomes including variable response to withdrawal—discuss that time to death is usually unpredictable (and that the patient may not die immediately and alternative future plans need to be made).
11. Procedure after death (where is the body taken to, undertaker, documentation).
12. Family notification process. If the family chooses to be absent during the withdrawal process or if the process is being conducted over a lengthy period, then there needs to be a plan regarding death notification.

practiced in the United States, Germany, Belgium, France, the Netherlands, Australia, New Zealand, Canada, South Africa, and Hong Kong.

The legal framework governing the practice of withholding/withdrawing in various countries is expanded upon elsewhere [13].

4.2. Family meeting

The family usually feels helpless and filled with mixed emotions before the withdrawal of mechanical ventilation, and hence, a formal meeting to allay their fears, to guide them appropriately, and to address their questions is crucial at an early stage. It is essential that the family be assured from the outset and be made aware that the caregivers are committed to achieving what is best for the patient and family without causing any needless suffering. This will pave the way for appropriate decision making and resource allocation. The family also needs to be aware that the timing of death cannot be predicted with certainty and that after the withdrawal of mechanical ventilation, the dying process may extend from minutes to hours or even several days [14]. This projects honesty and draws the family closer to the caregivers. The family will be more likely to be understanding of midcourse treatment failures and also more accepting of alternative management plans should they need to be considered in the future. If the family requests to be present during the withdrawal procedure, they need to be counselled explicitly as to what to expect. In addition, there needs to be a strong support structure for families because family members present at the time of death report higher symptoms of posttraumatic stress disorder [15]. The aforementioned issues and the specifics related to the timing, location, the withdrawal process, and the subsequent aftercare need to be addressed at the family meeting(s). These issues are listed in Table 3 and need to be considered within the context of withdrawal of other LSTs. This should be formally documented in the medical record before the actual withdrawal takes place. A limitation of this article is that we did not explore the effect of patient and family wishes upon individual physician decision-making processes.

4.3. Withdrawal of mechanical ventilation: terminal wean or immediate withdrawal?

Mechanical ventilation may be withdrawn gradually (terminal wean) or immediately. Although many critical care specialists favor one approach over the other, it is not uncommon to individualize one's approach based on the level of consciousness and the nature and extent of organ dysfunction.

A *terminal wean* was first described by Grenvik [16]. In all instances, it is achieved over a variable period (minutes to several hours generally but may also be over a few days) as it depends on the rate of withdrawal by the physician. Table 4 lists the components that need to be considered in a terminal wean.

The rationale to reduce PEEP is based on the assumption that the resultant atelectasis will worsen ventilation-perfusion ratio mismatch and accelerate hypoxia, which may be advantageous. The concern that the removal of PEEP may worsen secretions may be obviated with the administration of anticholinergic agents if deemed necessary.

End points are achieved at different rates depending on the clinician's and family's preferences and are not evidence based. The rate and manner of withdrawal may need to be further individualized in accordance to the symptoms experienced by the patient. The period to achieve the above may be short (< 30 minutes) or longer (few hours to several hours) and depends on the clinical scenario as well as the patient's symptoms. Depending on the pace of withdrawal, anticipatory sedation needs to be administered when indicated. Sedation increments need to be supported by the presence of distress or discomfort. For each patient, the medical and nursing team need to engage in discussions and agree on the method of achieving adequate patient comfort without intentionally hastening or prolonging the dying process.

A terminal wean potentially confers the following advantages:

- Upper airway obstruction signs—such as stridor, excessive secretions, and coughing—are not encountered.
- As the changes are made over a period of time, analgosedation titration is achieved more easily. Thus, symptoms such as dyspnea are less likely compared with a terminal extubation.
- If the family is present, the lack of signs of patient discomfort is reassuring and comforting.
- The family may prefer a gradual withdrawal of LST compared with an abrupt cessation of LST.
- The family may also prefer this method as it permits them more time (than immediate withdrawal) to interact with the patient during his/her last moments (eg, hold the patient's hand or carry a child in their arms, without the hindrance of multiple devices).
- The staff is also not exposed to the symptoms of patient discomfort.

Table 4
Terminal weaning process

1. Ensure appropriate environment.
2. Ensure adequate sedation and pain relief (analgosedation).
3. Deactivate alarms.
4. Reduce fraction of inspired oxygen to 0.21 (0-5 min).
5. Reduce PEEP to 0 cm H_2O (0-5 min).
6. Reduce pressure support to ≤ 5 cm H_2O or tidal volume to 0 mL—reduce ventilator respiratory rate to zero (15 min).
7. Monitor for need to adjust analgosedation. Although reactive dosing is best avoided, one may need to increase ventilator support for a short duration to ensure patient comfort, while titrating the analgosedative agents.
8. Some patients will have died by this point, where the patient is no longer receiving any positive pressure ventilatory support (ventilator rate and pressure support rate is 0). If not, the mechanical ventilator is disconnected, and the patient is extubated.

If extubation is not planned then the options include
- Use of CPAP
- Connection to a T piece
- Continue to asses for signs of respiratory distress, discomfort, pain, and anxiety and address accordingly

Disadvantages associated with a terminal wean may include the following:

- The process may take longer.
- The family spends more time with the patient, and there is a possibility of them becoming distressed or reconsidering their decisions to withdraw therapy.
- The longer duration compared with immediate withdrawal is associated with a greater use of human and other expensive resources.

Immediate withdrawal of mechanical ventilation may be achieved by either:

(i) Manual disconnection of the mechanical ventilator (with or without transitioning to a T piece) or
(ii) Terminal extubation (removal of the airway without reducing ventilation support).

Immediate withdrawal of mechanical ventilation requires adequate anticipatory sedation (unless the patient is dead or neurologically unresponsive) before the abrupt termination of all ventilator support. The principle advantages of this approach are:

- There is no undue prolongation of the withdrawal process, where the institution of LST is considered to be futile. The process of undue suffering (for the patient, family, and staff) is thus not prolonged.
- Removing the endotracheal tube is in keeping with the decision to remove all LST.
- It may be particularly welcome if the endotracheal tube has been a source of discomfort to the patient.
- In children, families may prefer seeing the child's face without tubes and tapes.
- The family and staff are not subjected to a prolonged weaning process.
- Effective management of resources. Terminal weaning over several hours may deprive another patient ICU care. In the current era of cost containment and lack of ICU beds, it would make sense to consider terminal extubation once therapy is considered to be futile. It is, however, imperative that a terminal extubation not be considered as an afterthought, when there is a sudden need for an ICU bed. The initial decision on the approach to withdrawal needs to be followed as a deviation from the initial plan places undue pressure on the health care providers and the family.

Dyspnea (if inadequately sedated), postextubation stridor, and copious secretions are the main disadvantages of a terminal extubation. The excessive secretions in the upper airways can result in noisy respiration (death rattle). If the family is planning to be present, they need to be prepared for the possibility of severe coughing, impression of the patient choking, and excessive secretions. Discussions with the family should be used to prepare them to expect such scenarios and to gauge the necessity for symptomatic treatment of the patient to reduce family anxiety. As all decisions should focus around the care and needs of the patient, the aim of the discussions should be directed toward preparedness for the process and allaying family anxiety. Although it is controversial whether it is appropriate to give medications to a patient only for the purpose of relieving anxiety or distress of the family, there are countries and cultures where there is also an obligation to care of the ICU patient's families [11]. When medications are considered to be required, the family should be made aware that the medications are not indicated therapeutically but rather being used to reduce family anxiety or distress to family needs. Therapeutic strategies that may need to be considered include the following:

- Administration of steroids (40 mg intravenous methylprednisone, 6 hours and 30 minutes before extubation) to prevent postextubation stridor. For children, an appropriate regimen would be dexamethasone 0.6 mg/kg intravenous (IV) followed by IV methylprednisone 0.3 mg/kg every 8 hours for a 24-hour period.
- Nebulized adrenaline postextubation to reduce stridor.
- Administration of anticholinergic agents to reduce the quantity of secretions (30 minutes before extubation, 20 mg butylscopolamine IV or 0.4 mg hyoscine hydrobromide) [17].
- Diuretics in the hypervolemic patient, to reduce the amount of brochopulmonary secretions.
- Suctioning to remove excessive secretions. This should be done before extubation [18].
- Positioning the patient such that airflow is not impeded.
- If the patient demonstrates signs of discomfort, the analgosedative dosing needs to be adjusted to ensure patient comfort before proceeding with the withdrawal of the mechanical ventilation.
- Administration of humidified air postextubation to prevent drying of the airway passages.

It is debatable as to which of these methods is superior, and it has been suggested that the patient's/family's preferences be factored in the decision-making process [19]. The level of consciousness of the patient is also an important determinant. Patients who are "awake" are more likely to experience distress, and as such, a terminal wean is probably better suited than immediate withdrawal of mechanical ventilation. On the other hand, in a neurologically unresponsive or unconscious patient, immediate withdrawal of mechanical ventilation might be better suited than a terminal wean. It has been observed that the terminal wean is preferred by anesthesiologists, whereas a terminal extubation is preferred by pediatricians and physicians [10]. It has also been demonstrated that most clinicians tend to use several strategies rather than just one method [10,20].

4.4. Management of symptoms

Depending on the precise manner of withdrawal of mechanical ventilation, the patient may experience pain, anxiety, delirium, respiratory distress, dyspnea, vomiting, excessive bronchopulmonary secretions, and postextubation stridor. It is the physician's medical and ethical responsibility to ensure that these issues are prevented and appropriately managed.

4.4.1. Pain and anxiety (anticipatory dosing vs terminal sedation)

The amount and type of analgosedation prescribed is largely influenced by judging the patient's capability of experiencing pain and discomfort before withdrawal of mechanical ventilation. Where it is difficult to predict the requisite dose, it is preferable to adopt a more liberal dosing strategy rather than to risk underdosing and lead to patient discomfort and pain. On one end of the spectrum, the comatose patient requires no analgosedation, whereas the patient who is fully conscious or anxious represents the other extreme, where

Table 5
Analgosedation (adult, 70-kg patient)

	Initial IV loading dose	Initial infusion rate	Dose increment
Morphine	2-10 mg	0.05-0.1 mg/kg per hour	25%
Fentanyl	0.5-2 μg/kg per hour	1-5 μg/kg per hour	25%
Midazolam	1-2 mg	1-5 mg/h	25%
Propofol	1 mg/kg	0.5-3 mg/kg per hour	25%

the anticipatory analgosedation warrants consideration. Once analgosedation is initiated, the patient's clinical response needs to be carefully monitored to ensure that the patient is experiencing no pain or discomfort. It is only then that mechanical ventilation may be withdrawn—with ongoing assessment and adjustment of the analgosedative agent(s). Anticipatory analgosedation is preferred to the practice of increasing the doses in response to observed pain or discomfort (reactionary dosing) as it prevents the deliriogenic potential of benzodiazepines and possibly opioids that is probably irrelevant as in the vast majority the time to death is not protracted. If a prolonged wean is anticipated, then the risk of delirium may be reduced by avoiding the use of both deliriogenic agents and physical restraints, unnecessary suffering of the patients, and distress of the family. Opioids, benzodiazepines, and propofol are most commonly used for analgosedation. An opioid-benzodiazepine combination has been traditionally useful in that the opioid addresses pain, dyspnea, and coughing, whereas the benzodiazepine relieves anxiety and discomfort. An added advantage of benzodiazepines is their anticonvulsive properties in patients who develop seizures secondary to hypoxemia. Opioids can be hallucinogenic. The choice of analgosedatives and the factors influencing this has been extensively reviewed by the Society of Critical Care Medicine's Ethics Committee [21]. There is no maximum dose for the prescribed agents. Reports of documented rates indicate that morphine dosages vary widely and range from 0 to 85 mg/h [10,22,23]. The dose needed will be influenced by previous exposure to the agent(s) and should be titrated at 15-minute intervals. To ensure adequate analgesia, additional boluses of morphine in addition to increasing the morphine infusion dose may be necessary. Suggested regimens are summarized in Table 5.

Clinicians are sometimes uncomfortable with the concept of anticipatory sedation and hence hesitant to prescribe it as they fear that this practice may hasten the patient's death. The use of analgosedatives (which have the potential to hasten death) is commonly justified by the doctrine of double effect—an action, which on the one hand promotes good due to a good intention but also simultaneously causes unintentional serious harm. This principle is used to justify the use of analgosedatives so long as they address pain and discomfort and are not being used with the intention of hastening death. The relief of pain and discomfort is considered to be important enough to permit its use, and although it may unintentionally result in a hastened death, the use of sedatives under these circumstances is ethically sound. However, although the potential exists, the use of sedatives has not been demonstrated to significantly hasten death [24-27].

In fact, the reality is that the patient's actual cause of death (the underlying organ dysfunction or disease) always remains unchanged. The time to death is also influenced by a multitude of other factors including the combined decisions made by the physician, family, and nurses on how to withdraw therapy. Once the decision to withdraw LST is made, it is essential that there is detailed documentation relating to the clinical assessment, agents prescribed, and the doses used and reasons for dose adjustments. Such documentation will clarify the reason(s) for anticipatory sedative use.

4.4.2. Dyspnea or abnormal breathing patterns

Dyspnea constitutes a commonly observed phenomenon. Treatable causes of dyspnea need to be sought and addressed. This may include the use of opioids, sedatives, bronchodilators, or even diuretics. With terminal weaning, the pattern of breathing changes in that the breaths are less frequent and are shallow and erratic. The family needs to be aware of this so that they do not get unduly distressed. It is recommended that sedatives be prescribed to keep the respiratory rate below 28 breaths per minute [22]. In addition, sedatives should be initiated or increased if patients demonstrate further signs of respiratory distress or if the respiratory rate doubles. Occasionally, the patient may choose that he/she remains lucid during the process, rather than be sedated (to mask symptoms), and this needs to be respected so long as there is no undue suffering of the patient.

4.4.3. Nausea and vomiting

Nausea and vomiting are frequent symptoms, which may necessitate the use of antiemetic agents or nasogastric tube drainage [28].

4.4.4. Neuromuscular blockade

These agents do not provide analgesia or sedation. They need to be stopped if previously prescribed, and ideally, one should wait, until they have been cleared from the system. This may be judged by the return of respiratory efforts. On rare occasions, this may not be possible, and if it is in the best interest of the patient to have a terminal extubation without delay, then adequate anticipatory analgosedation needs to be meticulously ensured. Neuromuscular blockade has no role in end-of-life care and should never be initiated as part of the terminal weaning or terminal extubation process.

4.5. Documentation

Documentation should include discussions, decisions, timelines, and outcome of actions.

Important items to document pertaining to the withdrawal of mechanical ventilation include the following:

- Reason(s) for withdrawal.
- Decision-making individuals involved (including family members).
- Chairperson for discussions.
- Consensus reached regarding procedure to be followed.
- Specific requests.
- Family support.
- Debriefing sessions.

4.6. Debriefing

Health care workers are trained to save lives rather than be involved in withholding or withdrawing LST. Thus, although withdrawal of mechanical ventilation is in the interest of the patient, the ICU team may still experience distress, anxiety, and grief. As such, a formal debriefing meeting, scheduled a few days after the event, should be performed. The goal is to alleviate caregiver burnout by providing adequate emotional support in an atmosphere that is conducive of trust and mutual understanding of different opinions. Ideally, it should be moderated by a professional who is acceptable to everyone and is not involved in the withdrawal process. Items to address include the following:

- Why was treatment withdrawn.
- Specific approach agreed upon.
- Specific family requests.
- Feedback from all involved.
- Feelings/emotions of the individuals involved.
- The need for and provision of personal space—for individuals who may need this.
- The provision of skills to deal with the issues that may arise.
- Summary and future plans

Although the lack of resources may preclude the implementation of a comprehensive debriefing process, the vast majority of these objectives may be achieved with an in-house debriefing program. Debriefing sessions may be moderated by the head of the unit together with the nursing manager. Individuals identified to require additional assistance may then be referred for appropriate assistance if necessary.

5. Conclusions

Although the end point of withdrawing mechanical ventilation is unambiguous, the approach to achieve this end point remains highly variable (within and between countries) and needs to be individualized. A single approach therefore cannot be applied to all patients. The clinical scenario, patient/family preferences, clinician's opinion as well as the legal framework of the country need to be considered in deciding the manner in which mechanical ventilation is withdrawn, if at all.

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