

Virtual Mentor

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JOURNAL DISCUSSION

Titration of Medication and the Management of Suffering at the End of Life

Wynne Morrison, MD, MBE

Billings JA. Humane terminal extubation reconsidered: the role for preemptive analgesia and sedation. *Crit Care Med.* Feb 2012;40(2):625-630.

Truog RD, Brock DW, White DB. Should patients receive general anesthesia prior to extubation at the end of life? *Crit Care Med.* Feb 2012;40(2):631-633.

A recent debate in the critical care literature concerns whether it is appropriate to provide “anesthesia” to patients who are undergoing compassionate extubation when a prolonged course of mechanical ventilation is no longer expected to provide benefit. Most of these patients will die following extubation. J. Andrew Billings has argued compellingly that many patients suffer during this process [1], and that the only way to prevent such suffering is to anesthetize the patients prior to extubating them. In a counterpoint article, Robert Truog and colleagues [2] believe that, while general anesthesia (or at least deep sedation) might sometimes be indicated, administering it to all patients when mechanical ventilation is withdrawn would be problematic. They emphasize that it is better to base care on the clinical circumstances of the individual patient and the values of the patient and family.

Clinicians balance conflicting concerns when managing medications at the end of life. No one wants the patient to suffer. Providing enough medication to prevent suffering therefore makes sense. On the other hand, most hope the medications themselves will not be the immediate cause of the patient’s death, particularly if there is a chance that the patient would have survived if not given the medication. “Just enough” is therefore the goal. Billings prefers to err on the side of guaranteeing that there is no suffering, arguing for a preemptive rather than reactive approach. He emphasizes that his approach applies only to patients who are “terminal” and who might have some degree of consciousness that would enable them to experience pain or dyspnea. He refers to recent studies that document a previously unrecognized degree of awareness among patients in a minimally conscious or even persistent vegetative state in claiming that assessing a patient’s pain can be very difficult.

Anticipating discomfort and treating it aggressively sound like appropriate goals, but there are problems with this approach, particularly in the world of pediatrics. One difficulty is that prognostication in pediatrics is challenging. In a recent multicenter study, two-thirds of children for whom palliative care consultations were sought were alive a year later [3]. Although there are concerns that many clinicians are overly hopeful in their prognostication [4], most intensivists, including those who

care for adult patients, can recall a handful of patients who unexpectedly survived after the withdrawal of a mechanical ventilator [5]. If there is a chance that administering an anesthetic agent at the time of ventilator withdrawal could cause the death of a child who would otherwise survive, then doing so before ascertaining that the child is suffering should be avoided. Billings states that preemptive treatment should be used only in patients for whom survival would be “unprecedented.” Yet it is precisely the patients he wants to protect, those who may be partially conscious, who would be most likely to surprise the team by surviving.

In most cases, I agree with Truog and colleagues that medication can be titrated to achieve the goals stated above. Yes, it is necessary to trust that we are able to assess the patient’s distress adequately. It is even possible that an ICU level of care will be required, at least initially, to have staff pay adequate attention to assessment and titration of medication. (Transferring a patient to a floor immediately after extubation if the staff can check in no more than a few times a shift is not adequate end-of-life care.) Both adult and neonatal studies indicate that, in most cases, careful titration of medication—even to very high doses—does not hasten death [6, 7].

For the vast majority of patients, comfort can be achieved with subanesthetic doses of medication, which also may make it possible for a family to hold and talk to their child for some period of time after the ventilator withdrawal. Will there be cases in which the doses of medication required approach what is typically considered anesthesia? Yes, but only when it has first been demonstrated that such levels of sedation are necessary.

Preparing medications and a plan for their escalation, if necessary—“proactive preparation”—is better than preemptive treatment. Whether deep sedation is called anesthesia or sedation may seem to be merely semantic, but suggesting that “anesthesia” is the appropriate course preemptively is more likely to lead to a deeper level of sedation than may be required.

The choice of term may also determine which clinicians are able to administer the drug and, hence, oversee ventilator withdrawal. Billings believes anesthesiologists should manage ventilator withdrawal since they are most familiar with the medications used. I would argue that an intensivist, or anesthesiologist-intensivist, should do so, for several reasons. An intensivist has much more experience in titrating medication and assuring the comfort of patients who are conscious or partially conscious rather than anesthetized, and an intensivist is more likely to have been involved in the prior care of dying patients than a general anesthesiologist. Thus, having the intensivist direct the management is likely to provide greater continuity for the patient and patient’s family, since this physician was probably involved in managing the patient’s illness and helping the family decide that it was time to discontinue the ventilator.

One means of minimizing suffering while making sure that the medications used are not causing or hastening death is a “rapid terminal wean”: in anticipation of

discontinuing the ventilator, the clinician can decrease the ventilator settings to a low level and assess the patient's comfort [8]. A rapid wean, over minutes, is usually more appropriate than the prolonged (hours to days) terminal wean originally described in the literature [9]. If the patient becomes distressed during the weaning, additional narcotic or sedative medication can be provided before removing the endotracheal tube. As Truog mentions, the ability to make an accurate assessment requires that the patient not be receiving neuromuscular blocking agents. Pharmacologic paralysis can worsen suffering by hiding it and can immediately cause death without any justifiable beneficial effect. Similarly, any other medication that had the sole purpose of hastening death, such as potassium chloride, is inappropriate [2, 10].

How could a careful titration of medications unfold? A situation typical in my own practice raises the issues Truog discusses. Imagine that you are the attending physician in the pediatric intensive care unit caring for a 12-year-old boy who was struck by a car while riding his bike without a helmet just over a week ago. The severely increased intracranial pressure that he initially showed despite a decompressive craniectomy has now resolved, and he remains unresponsive, with fixed and dilated pupils and minimal cortical activity on electroencephalogram. An occasional breath over the ventilator is the only evidence of brainstem function. After many long conversations, his parents and you have come to the conclusion that it is not in his best interests to use aggressive interventions to maintain him in such a state, and you make the difficult decision to discontinue the ventilator. His parents, overwhelmed in their grief, ask if you can give him something to "make sure it is all over quickly." You gently explain that you cannot give anything that would cause his immediate death, but promise that you will make sure he is comfortable. You tell them that they can hold him or lie in the bed with him, and that you and his nurse will be right there with them to constantly assess whether he needs any additional medication to treat suffering.

You explain that there may be gasping or noisy breathing, and that his skin may change colors, but that all of these signs are common and do not mean that he is in distress. You let them know that with his current state of neurologic function you expect him to live for only minutes to hours following removal of the ventilator, but you prepare them for the uncertainty that is always present and the small chance that he will breathe adequately for a longer period of time. You tell them that there is no limit on the amount of medication that can be used if he is in pain or struggling to breathe, and you ask them to let you know immediately if they are concerned that he is. In this case, the medical team feels reassured that it is clear which medications are acceptable and which are not and confident that they can use their experience to titrate the medication so that the child is comfortable. In my experience, by using such careful titration, the ICU team can do a tremendous amount not only for the child but also to help the family get through what is likely the most difficult experience of their lives.

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Wynne Morrison, MD, MBE, is a pediatric critical care and pediatric palliative care physician at the Children's Hospital of Philadelphia in Pennsylvania. She is also a senior fellow at the Center for Bioethics and an assistant professor in the Department of Anesthesiology and Critical Care at the Perelman School of Medicine at the University of Pennsylvania, where she teaches in the medical school professionalism and ethics curriculum. Her scholarly work is in the areas of pediatric ethics, end-of-life care, patient-family-physician communication, and the medical humanities.

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