Strategies for communicating with conscious mechanically ventilated critically ill patients

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ABSTRACT

Critically ill patients admitted to the intensive care unit (ICU) frequently require ventilatory support. To provide this life-saving therapy, oral intubation or tracheostomy placements are needed. Consequently, verbal ability to communicate is lost. Furthermore, depending on the severity of the clinical condition and other comorbidities, patients commonly develop ICU-acquired weakness, which may preclude gestural communication and motor abilities. Under this circumstance, the patient's inability to interact with health care providers and/or family members results in psychological alterations, as well as isolation and reduction of self-esteem. A variety of tools have been developed to improve patient-clinician communication. This article reviews patient complications due to lack of communication, available tools to enhance interactions, and current published evidence to support communication tools.

KEYWORDS Communication; intensive care unit; mechanical ventilation; outcomes

Interpersonal communication is vital for our daily activities. Verbal and gestural communication allows us to share our thoughts, bring attention to our needs, and express our emotions and feelings, such as anxiety, sadness, pleasure, gratitude, and love. Critically ill patients admitted to the intensive care unit (ICU) frequently require life-saving therapy, which includes endotracheal intubation with mechanical ventilation. Consequently, because speech function is compromised, the capability for verbal communication decreases, causing miscommunication or noncommunication between patients and health care providers. Severe acquired weakness due to critical illness polyneuropathy and/or myopathy is frequently seen in mechanically ventilated patients. This complication has been associated with a variety of etiologic factors, such as severity of illness, sedation strategies, and physiologic disarrangements (i.e., hyperglycemia).^{1,2} Therefore, as fine and gross motor abilities are affected, gestural communication also becomes impaired, disrupting all options of effective and meaningful interpersonal interactions. This article is divided in three sections. First, it describes the psychological consequences of impaired communication between ICU patients and their health care providers and/or family members; second, it reviews current available tools and technological advances to improve

patient communication; and, lastly, it presents available published evidence to support the utilization of these tools and strategies.

CONSEQUENCES OF INEFFECTIVE COMMUNICATION IN ICU PATIENTS

Prior articles described that up to 60% of ICU patients reported high levels of frustration associated with not having their communication needs met.^{3,4} These difficulties resulted in patients failing to share delusional experiences, with consequent feelings of loneliness, resentment, delirium, and violence.^{5,6} Notably, other reports showed that patient-clinician interactions usually focus on items perceived as relevant by clinicians but not much so by patients. In fact, a recent study that involved a 10-minute interview of 10 extubated patients who had been mechanically ventilated within 5 days revealed that patients had medical and nonmedical topics that were not communicated during their time on mechanical ventilation.⁷ Specifically, nonmedical nonexpressed statements included “don’t visit me,” “take care of the family,” “I love you,” “I want to hold your hand,” “I will change,” and “grow up strong and healthy,” among others. Among medical noncommunicated statements, some of them included “turn me

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over,” “remove the tube,” “will I recover?” and “I would rather die than live like this.”

The aforementioned findings were also confirmed by Foster.⁸ This study included three tracheostomized patients previously admitted to the ICU. A face-to-face semistructured interview revealed six domains of communication that patients were unable to share during the acute illness: (1) patient necessity of communication; (2) patient desire to retain normality; (3) psychological discomfort; (4) painful procedures; (5) fear of the unknown; and (6) relationship with staff. A variety of levels of vulnerability and psychological distress have also been described, including episodes of anxiety and panic,⁹ posttraumatic stress disorder,¹⁰ and delirium.^{5,11} Interestingly, in an interpretive phenomenological study¹² involving 19 mechanically ventilated patients after extubation, the patients expressed that they had been “voiceless,” “trapped in a silent, slow world,” “with a body cut off,” and treated “inhumanely.”

These data show that ineffective communication between mechanically ventilated patients and health care providers may bring about undesirable psychological outcomes. Furthermore, it may be associated with dehumanization, low self-esteem, and isolation, which may preclude integral recovery once critical illness subsides. The following section reviews currently available tools to enhance patient communication.

TOOLS USED IN THE ICU TO IMPROVE COMMUNICATION

According to some reports, 50% of ICU patients could potentially be served by a variety of available tools to enhance communication.¹³ Unfortunately, due to time constraints, lack of tool availability, or insufficient training, caregivers rarely use them.^{4,14} These tools have been grouped as augmentative and alternative communication (AAC) strategies, with some authors separating them into low-technology AAC and high-technology AAC.¹⁵

Low-technology AAC strategies include basically two tools. Patients with preserved cognition and fine motor abilities may be provided pen and paper to freely write. If fine motor abilities are preserved but the patient is unable to write, communication boards are available. These boards consist of icons and pictures representing basic needs. Furthermore, alphabet and symbol charts can be added, allowing patients to point toward individual letters/symbols to form words and/or expressions.

Whereas low-technology AAC strategies require writing or pointing, high-technology AAC strategies bring a higher level of sophistication. The Society of Critical Care Medicine developed the “ICU Patient Communicator” application, which allows communication with the use of a handheld device.¹⁶ Particularly, the application allows patients to select from a number of icons with the titles “I have pain,” “I need,” “I feel,” and “I want to see.” Once an icon is selected, a drop-down menu or body image appears, which allows the patient to select specific messages or point toward a body

area of pain. The application also includes a language translator, an option to record a daily diary, and resources for patients and family members, such as the “ICU Stay Booklet.”

Speech-generating devices or voice-output communication aids are handheld devices that allow patients to touch a word or picture icon to generate prerecorded messages. Computer communication systems contain databases that include the possibility to provide free text, select letters to form phrases, or select icons with actions, symbols, or preformed messages. The user may combine options to deliver messages, which can be read or amplified by voice synthesizers. The system allows Internet connectivity and utilization of email, social media, and other usual computer functions. Navigation through these devices is possible by buttons, mouse clicking, touch screen, or infrared eye-blink detector. More sophisticated systems incorporate an eye-tracking device, which allows gaze control of the system, not relying on motor ability.

Recently, a wearable personal communication device was developed (EyeControl, EyeFree Assisting Communication Ltd., Tel Aviv, Israel), which avoids screen use. Specifically, a head-mounted infrared camera tracks eye movements and sends information to a small processing unit that translates movements into communication. The patient is able to select from a menu that includes “words and phrases,” “application,” “alphabet,” “rest mode,” and “settings.” Once the message is selected, the device includes audio feedback to the user, and prior communication is transmitted to the output speaker or the connected Bluetooth device. Notably, the user can sleep with the device and it becomes immediately available upon waking.

Technological advances have permitted significant improvement in patient communications with health care providers and family members. Nevertheless, scientific evidence to support the use of these tools is scarce.

CURRENT PUBLISHED EVIDENCE ON COMMUNICATION METHODS

Few studies have evaluated the impact of low-technology AAC tools. A quasi-experimental study compared the use of a communication board among 90 orally intubated patients after cardiac surgery.¹⁷ A questionnaire to assess patient satisfaction with communication comparing an intervention (communication board) vs a control group (no board) revealed that treated patients had less difficulty with communication compared to the control group (2.2% vs 35.6%, respectively). Interestingly, Happ et al¹⁸ reported findings before and after the implementation of a multicomponent program called “Study of Patient-Nurse Effectiveness with Assisted Communication Strategies.” The intervention included training nurses with six components: (1) six 10-minute online educational modules involving slides and videos; (2) a reference manual and pocket cards; (3) a communication cart in the ICU containing communication tools; (4) the presence of resource nurses (communication

champions) in each ICU; (5) weekly teaching with posters; and (6) weekly case conferences with speech language pathologists. Eighty-four percent of nurses completed training. Communication knowledge, satisfaction, and comfort increased among nurses after intervention. Nevertheless, patient-centered outcomes, such as use of restraints, coma-free days, pressure ulcer presence, ventilator-free days, and ICU and hospital length of stay did not change.

Studies involving high-technology AAC strategies included mostly case series and pilot studies. Two case series by Happ et al,^{19,20} which included 11 and 20 patients, respectively, evaluated the use of speech-generating devices (MessageMate and DynaMyte) and their effect using the Ease of Communication Scale. Both series revealed significantly less difficulty with communication with device use. Furthermore, between 60% and 73% of patients were able to utilize the devices without assistance. Of note, most patients had a tracheostomy rather than oral intubation. A pilot prospective evaluation of 35 trauma patients²¹ assessed a computer communication system that could be controlled by eye blinking and/or hand or finger movement. After use, patients and hospital staff were administered a questionnaire with responses graded on a scale of 1 to 5 to assess ease of use and perception of improvement in comfort and anxiety. More than 90% of patients felt that the system assisted them in communicating their needs (pain, personal hygiene, anxiety, etc.). Hospital staff also reported perception of improvement in patient care (96%) and comfort. Of note, this pilot study did not have a control group. Later, a case series involving 15 orally intubated and tracheostomized patients showed similar results with utilization of a gaze-controlled communicating computer system.²² Recently, a pilot prospective study²³ evaluated an eye-tracking device and its ability to improve the Psychosocial Impact Assistive Devices Scale in 12 intubated patients. The overall score improved, as well as that for each of its domains, such as competence, adaptability, and self-esteem.

Lack of rigorous scientific data precludes recommendation of a specific communication device. Furthermore, no study has compared tools head to head. Nevertheless, available publications showed patient and hospital staff satisfaction when exposed to these tools or devices, as well as an overall perception of improvement in communication. Advancement in technology and development of ICU protocols focused on patient communication will likely improve overall well-being, as well as clinical and patient-centered outcomes.

CONCLUSION

Challenges in communication between mechanically ventilated critically ill patients and health care providers are common. The result is a variety of psychological complications, as well as impairment in overall patient well-being. Fortunately, the availability of low-technology and high-technology AAC tools may enhance communication and

improve patient-centered outcomes. Further research, technological advancement, and development of ICU communication protocols will likely improve patient and health care provider satisfaction and short- and long-term outcomes in this patient population.

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