An Alphabetical Mnemonic Teaching Strategy for Constructing Nursing Care Plans
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ABSTRACT
The strategy of mnemonics has long been used as an aid to learning biology, physiology, pathophysiology, and health assessment in nursing. An application of an alphabetical mnemonics strategy to teaching and learning nursing processes and constructing care plans has been explored for patients with increased intracranial pressure (ICP), hepatic failure, and chronic renal failure. A specific application of this strategy for teaching care planning for patients with ICP is described. Student feedback appears to be positive, and reviews of the teaching–learning experience have received approval in students’ evaluation of instruction. The mnemonics strategy presented has the potential for applicability and transferability to other areas of nursing care planning and other course contexts. [J Nurs Educ. 2015;54(1):57-59.]

Recall of pathophysiological concepts has been identified as an important step in clinical reasoning (Alfaro-LeFevre, 2009) and the challenge of constructing nursing care plans for patients with complex disorders (Hoffman, 2007). Exploring innovative strategies for teaching this step of recall and the process of connecting cues, information, and action was the motivation for this article.

Praxis (bringing knowledge to practice) is a long-held pedagogical conundrum in nursing education (Hewison & Wildman, 1996; Landers, 2002). It is proposed that a mnemonics strategy can be a good fit to bridge the theory–practice gap (Stephens & Dwyer, 1997; VanSandt, 2005). Learning the facts and declarative knowledge is distinct from learning how to do something (procedural knowledge; Michael, 2006) and the application of knowledge. In this way, learning how to recall pathophysiology knowledge and integrating this knowledge with the procedural steps of a nursing care plan requires multiple levels of active student engagement. Visual tools, such as cue cards, posters, tables, diagrams, and images, have been used as aids to merging new and existing knowledge and linking facts and procedural knowledge (Petty, 2009). The aforementioned tools depend on passive learning skills, which can limit the retention, depth of understanding, and applicability of these tools. It is proposed that, if a mnemonic strategy provides active and interactive learning processes (Koeckeritz, Hopkins, & Merrill, 2004), the approach has the potential to foster the constructivist process of linking facts and procedural knowledge. Thus, the use of the mnemonics strategy can become a vehicle for actively translating pathophysiology and nursing concepts into meaningful interventions. This article describes one teaching–learning activity, using an alphabetical/first-letter cueing mnemonic devices to construct nursing care plans for patients experiencing increased intracranial pressure (ICP).

Background
Mnemonic devices have been used in nursing education, such as in learning about curriculum organizing frames (Gibson, 2009), assessment of patients with stroke (Evans, 2010; Rowat, Steele, & Morrow, 2009) and heart murmur (Sapin, 1997), learning medical terminology (Brahler & Walker, 2008), and bioscience education (Yeoh, 2013). This strategy has been systematically studied across various disciplines. Michael (2006) established that mnemonics facilitate and expedite the construction of meaning by creating multiple links between the infor-
A mnemonic teaching strategy is based on the familiar alphabetical order of the English language letters (A, B, C...) for first-letter cueing. This style of mnemonic is used effectively to teach basic life support foundations, such as the cues for “airway, breathing, circulation,” and in mental health assessment for “affect, behavior, cognition.” The alphabetical first letter cueing strategy also features in some of the musical mnemonics described by Yeoh (2013) for teaching biology concepts. In the ICP nursing care planning mnemonic, “A” stands for “airway opening.” Opening the airway prevents increased partial pressure of carbon dioxide, as it provides for effective ventilation (Connolly et al., 2012; Day, Paul, Williams, Smeltzer, & Bare, 2010). The mnemonic and illustrations are used to show nursing students that opening the airway and providing effective ventilation will prevent the buildup of carbon dioxide in the blood, thus limiting vasodilating effects on the cerebral arterioles, decreasing the engorgement of the cerebral blood vessels, and eventually controlling or limiting the increase in ICP (Connolly et al., 2012; Copstead, 2013). In care planning for ICP, “B” stands for “blood pressure monitoring.” Blood flow to any body organ depends on effective blood pressure. In ICP, it is important for nursing students to understand the significance of maintaining the mean arterial pressure at >90 mmHg; in doing so, students can ensure that the cerebral perfusion pressure will be strong enough to overcome the ICP, maintaining effective perfusion to the brain cells (Day, Paul, Williams, Smeltzer, & Bare, 2010). “C” in this mnemonic stands for “care concerns for the cervical spine” due to the anatomical proximity of the head to the neck. In this element of the tool, nursing students are reminded to assume that any head injury is associated with cervical spine injury, and, as such, cervical spine immobilization is warranted. Next is “D,” or the nursing care required to “decompress the stomach” (Connolly et al., 2012; Day et al., 2010). Patients with head injury are likely to be mechanically ventilated. Patients on mechanical ventilation usually receive narcotics, muscle relaxants (paralyzing agents), and sedatives. Most of these drugs can lead to decreased tonicity and movements of the smooth muscles in the gastrointestinal tract (GI) and lead to decreased GI function, which results in accumulation of air and fluid in the GI tract. This accumulation increases intra-abdominal pressure, eventually hindering effective ventilation and increasing intracranial pressure. Inserting a nasogastric tube or decompressing the stomach will minimize these potential problems. Nursing students are taught to link severe abdominal distention to the restriction of effective diaphragmatic contraction, which decreases the intrathoracic volume and increases the intrathoracic pressure, thus impeding the jugular venous outflow (Connolly et al., 2012; Day et al., 2010). Hence, it is crucial for nursing students to understand the importance of decompressing the stomach by inserting a nasogastric tube to remove air and intestinal secretions. Although the mnemonic is simple, it links many complex physiological concepts and nursing care activities.

In the last aspects of this mnemonic, “E” stands for “eye assessment,” “F” stands for “fluid monitoring and administration,” and “G” represents “Glasgow Coma Scale” monitoring (Connolly et al., 2012; Day et al., 2010). “H” in the mnemonic represents “head of bed elevation.” “I” refers to intraventricular catheter care and monitoring, and “J” stands for nursing care to support jugular venous blood outflow by preventing severe neck flexions and avoiding tight neck collars (Day et al., 2010). The “K” represents Kerning’s sign assessment (flexing of the knee to assess neck rigidity), and may aid in recall, assisting students to detect early signs of meningeal irritation (Copstead, 2013). Finally, the mnemonic “L” refers to avoidance of lumbar puncture. Lumbar puncture is best avoided in patients with ICP, as this procedure may put the patient at risk for cerebral herniation (Connolly et al., 2012; Day et al., 2010).

**Application and Evaluation of the Mnemonic Teaching Strategy**

The mnemonic activity is presented lecture style in a classroom setting, alongside a visual aid of a white-board or chalkboard drawing of the brain, illustrating the typical structures within the skull and using the Monro-Kellie hypothesis (Copstead, 2014) to highlight the importance of maintaining a balanced ratio and percentage of these structures to avoid a sudden or detrimental increase of pressure inside the cranium. The format of this teaching strategy has evolved over four academic semesters, with classes of approximately 40 students each, where the students are asked to complete the alphabetical first letter cues for the example given and to develop their own mnemonics for other complex pathophysiologic topics. In some classes, quizzing (providing students the blank illustration and requiring connection of the pathophysiology and nursing care activities), which is based on the images and mnemonic cues, was also implemented, incorporating the mnemonic tool.
The mnemonic, set up in this manner, inserts mental cues to assist with recall and enliven the care planning process with the pathophysiology crucial to the care of patients with ICP. Student appraisals of this teaching and learning strategy have been favorable. Students have commented that they found the learning activities fun and engaging and that they wished all nursing care planning could be approached in a similar fashion. Similar mnemonic devices are being developed for nursing care plans of patients with hepatic failure and patients with chronic renal failure. Formal studies are proposed to investigate the effectiveness of the particular strategies, the value of repetition of the mnemonic device, and use of multiple strategies (visual aids, quizzing, and student development of additional mnemonics). The possibilities for this old, but popular again, teaching–learning strategy appear endless.

References