Teaching Pathophysiology Using a Card Set: An Active Learning Strategy

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Active learning strategies lead to deeper learning and improve student performance. One barrier to active learning is that it can take more time than a traditional lecture. This article describes the use of manipulatives to teach pathophysiology using active learning with a strategy that is time and cost efficient.

Introduction

It is exciting to see students become animated and engaged in thoughtful discussion in the classroom. Active learning occurs when students participate in an activity rather than listen passively to a teacher (Oermann, 2007). During active learning, students think about what they are doing and can move to the higher-order thinking levels of analysis, synthesis, and evaluation (Dewing, 2010). Active learning has been used successfully in nursing education (Middleton, 2013). Research on active learning in nursing is positive, and students consider innovative teaching strategies beneficial to their learning (Waltz, Jenkins, & Han, 2014). One strategy for active learning is the use of a card set that students can hold and move. The use of a card set to teach pathophysiology is time and cost efficient and encourages active learning.

Card Sets

A simple card set tool set can be created when flow sheets, concepts, or pictures are placed on index cards or pieces of paper. Students are given the cards and must arrange them in a way that depicts the relationship between the items on the cards. The ability to move the cards gives students freedom to experiment with various sequences and to easily change their mind and rearrange the cards as new understandings develop. This type of teaching strategy appeals to visual and kinetic learners and, when combined with peer discussion, also appeals to auditory learners.

Gestational Hypertension

An active learning strategy with a card set is used in an undergraduate perinatal nursing course. The students are in the fourth year of the program and have completed courses on adult and acute illness, which include the pathophysiology of hypertension and related nursing care. In the perinatal course, the students are introduced to complications in pregnancy, including gestational hypertension. Initially, the content is provided via readings and in a lecture. The readings and lecture, as well as content from prior courses and clinical experiences, provide the knowledge base that students apply to complete the activity.

The Activity

Students are given a set of cards with descriptions of the pathophysiology of gestational hypertension. The cards include physiologic changes, such as “vessels narrow”; signs, such as “drop in hemoglobin”; and symptoms, such as “epigastic pain.” Cards with arrows on them are also included. Working in pairs, the students create a flow sheet by sorting the cards on a table in an order that represents the relationships between the descriptions. The cards can be moved around throughout the activity, enabling students to reorganize as they think of different patterns between the cards. Students utilize their existing knowledge of hypertension and apply it to pregnancy. Working with a partner allows students to share
information by thinking aloud about the rationale for the choices. Thinking aloud provides an opportunity for flawed reasoning to be corrected and for sound reasoning to be reinforced (Banning, 2008).

Once the exercise is complete, each student group joins another group, and the four students compare their completed flow sheets. Students often find that there are differences between the two flow sheets. This gives the students the opportunity to talk about why they made their decisions and to share insights. This discussion and collaboration builds cognitive connections and allows students to hear others’ perspectives, which promotes understanding (Schoening et al., 2015). This is also a time where students realize that many symptoms are caused by more than one physiological change, and the complexity of the illness is emphasized.

Lastly, the students are given an answer sheet to check their work. Instructors circulate throughout the activity in the role of facilitator and, at this point, offer feedback. When questions are asked, the instructor guides the students along rather than providing the answers directly. Instructors allow students time to work through the problem and create their own answers as much as possible.

The card set activity can be followed by a psychomotor skills practice related to hypertension and a case study about hypertension. Students are able to link physiological changes to the symptom and then link this to the nursing action. For example, one sequence in the card activity is “CNS edema → CNS irritability → hyperreflexia”; students then practice reflex and clonus assessment and make connections between the pathophysiology and the nursing care. Considering the pathophysiology along with a case study and skills practice provides students with an understanding of the illness, the impact on a patient, and the nurse’s role in the care of women with gestational hypertension.

Conclusion

The pathophysiology of gestational hypertension is complex, and the nursing care of women with this condition is multifaceted. By using a card set as part of an active learning strategy, gestational hypertension can be taught in a way that is meaningful to students and relevant to their clinical practice. Instructors facilitate the activity and allow students to apply the knowledge they have about hypertension to the unique context of the pregnant client. The student response is positive and energetic. Students usually reach for cell phones and take photos of their finished work for future reference. The card set activity incorporates active learning, collaboration and construction of new meaning on the basis of theory and clinical knowledge in the classroom.

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