Teaching Basic Dysrhythmias: What Is the Best Approach?
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ABSTRACT

Nurses' ability to accurately interpret cardiac dysrhythmias has resulted in decreased mortality. Four educational approaches to teaching dysrhythmia interpretation were evaluated. Major findings revealed learning was more effective when the lecture-discussion approach was used over a 5-week to 10-week period of time. Nurses also felt more comfortable with their ability to interpret dysrhythmias. These findings have several implications for continuing education departments regarding how and over what period of time this content should be taught.

Coronary care units, first established in the early 1950s, have resulted in a significant decrease in inhospital mortality from cardiac dysrhythmias (Sweetwood, 1989). Nurses have played an important role in maintaining this decrease in mortality not only in cardiac patients but in other critically ill patients.

Nurses who work in a variety of critical care and telemetry units are expected to be proficient in electrocardiographic interpretation of their patients' rhythms and act on their interpretations. The number of lives saved in critical care units is directly related to the competence of the nursing staff (Meltzer, Pinneo, & Kitchell, 1983).

The learning of cardiac dysrhythmias comes very early in critical care education. The skills necessary to analyze and identify common dysrhythmias can be acquired through a number of educational approaches.

The purpose of this study was to evaluate different teaching methods in the development of skills necessary to identify cardiac dysrhythmias. To achieve the purpose of this study the answers to the following research question were sought: Does the instructional method used to teach about dysrhythmia interpretation make a difference in learning among staff nurses?

LITERATURE REVIEW

The need for critical care nurses to develop dysrhythmia interpretation skills is well established (Meltzer et al., 1983; Sweetwood, 1989). However, the efficacy of educational approaches to teach this content has not been closely examined.

Dysrhythmia interpretation is typically taught in a continuing education program after nurses have been assigned to an emergency department, critical care unit, or telemetry unit. The method used in developing this skill varies from institution to institution. For example, in some facilities a separate basic dysrhythmia course is offered, while in another facility this content may be included as part of a basic critical care course. Other variations include offering a basic dysrhythmia course over differing periods of time or as a self-instructional unit.

Role of Continuing Education Department

Continuing education in the nursing profession must meet the challenging needs of nurses. The challenge for any continuing education program is to show the relationship between education and changes or improvements in patient care in the most cost-effective way possible.

Nurses who attend staff development or continuing education programs in hospitals are considered adult learners. Program directors or facilitators must keep in mind that each individual brings to the learning situation their own purposes, goals, and motives which may be complex and varied (Hayes, Morin, Sylvia, & Bashford, 1995). Each individual has a different readiness for learning and learning style (King, 1986). Adult learners do not always respond to tradition-
Through the learning process, mastery of the skill occurs; students will have feelings of self-control, which generates more interest in learning.

Instructional Strategies

Lecture. The lecture method of instruction is the oldest method and continues to be used most often. Lectures can be an effective means for introducing students to new topics (DeYoung, 1990). Difficult concepts can be presented, and knowledge can be integrated and synthesized through lectures. In addition, lectures can serve as a means of preparing for discussions.

Discussion. This method provides for the interchange of opinions or reactions, sharing of ideas, and exchange of questions and answers (DeYoung, 1990). Discussion also gives students the opportunity to apply principles, such as identification of a specific dysrythmia as seen on a cardiac rhythm strip.

Lecture and Discussion Approach. Lecture and discussion instructional methods can be used alone; however, when a combination is used, theory can be blended with application and practice (Ornstein, 1990). This approach can be of great importance in developing the skill of dysrythmia interpretation.

Self-Instructional Modules. Self-instructional modules are another method used in teaching and learning dysrythmia interpretation. Such modules are not new and have been used effectively for a variety of topics (Huddleston, 1990; VanArsdale & Hammons, 1994). Because these modules are self-paced, students are afforded more flexibility in meeting the required objectives. Other benefits are that modules provide clear objectives, contain well-organized material, and accommodate diverse learning styles.

Mastery-Learning

Learning theories have been reported and tested for many years. People learn in numerous and varied ways. The concept of mastery-learning was developed by Bloom (1968). According to Bloom (1968) most students (more than 90%) can master a particular skill. It is the role of instructors to find methods to enable students to master the required skill.

Mastery-learning can be applied to the development of dysrythmia interpretation skills. Using this concept, objectives are established, instruction is provided, students attain mastery through practice, and objectives are met as measured through a dysrythmia identification examination.

Through the learning process, mastery of the skill occurs; students will have feelings of self-control, which generates more interest in learning. This is beneficial in interpreting dysrythmias because nurses will be able to move from basic to advanced dysrythmia interpretation with more ease.

Learning is a process that occurs over time. Numerous studies have indicated most students can achieve mastery if they are allowed to and do spend the necessary amount of time on the learning task (Bloom, 1968; Huckabay, 1980).

METHOD

A posttest-only multiple-treatment group design was used in this study. The target population was RNs assigned to the emergency departments, critical care units, and telemetry units. The sample included 244 RNs in three 200-bed to 500-bed hospitals in a rural setting over a 2-year period of time. They ranged in age from 22 to 54 and had 6 months to 22 years of experience in a variety of clinical areas. None of the nurses had worked in settings that required the ability to interpret cardiac dysrythmias.

Random assignment was not possible. Nurses were assigned to one of four groups depending on when they were employed in the specialty unit and which educational method was being used at that time. Only nurses who had never attended a course or other educational program focusing on dysrythmia interpretation were included in this study.

Nurses completed one of the following educational activities:

- Group 1: a 20-hour basic dysrythmia course offered in 2-hour sessions over a 10-week period; each session was presented on the same day and same time each week with 72 participants.
- Group 2: a 20-hour basic dysrythmia course offered in 2-hour sessions over a 5-week period; two sessions were presented on the same days and same times each week (Tuesday and Thursday) with 48 participants.
- Group 3: a 20-hour basic dysrythmia course offered in 2-hour sessions over a 5-day period; one session was held from 8 a.m. to 10 a.m. and the second
session was held from 1 p.m. to 3 p.m. each day with 60 participants.

- Group 4: a self-instructional module to be completed prior to the end of a 10-week orientation period with 64 participants.

The objectives, content (Table 1), reference book, and posttest were the same for each of the courses and the self-instructional module. The courses were taught by the same critical care clinical specialist. These four groups comprise the four levels of the independent variable.

A posttest was developed to measure attainment of dysrhythmia interpretation skills. To establish content validity, the posttest was reviewed by two critical care clinical specialists. The reviewers were asked to compare the percent of single items in Table 1 to the number of questions on the posttest. A high level of agreement (98%) existed that the percent of course content was equally reflected in the number of questions on the posttest. Ninety percent of these questions dealt with interpretation of rhythm strips. A Kuder-Richardson reliability coefficient of .90 was obtained for the posttests. The scores on this posttest are used as the dependent variable in the analysis.

RESULTS

After the posttest scores for each of the instructional strategies were obtained, an analysis of variance (ANOVA) was performed to determine if any significant difference existed among the four groups. The .05 level of significance was designated as the criterion of reference.

The scores on the posttest for the RNs who completed the 10-week, 5-week, 1-week, and self-instructional courses are reported in Table 2. An ANOVA revealed there were statistically significant differences ($F = [3,243] = 27.51, p = .0001$) between the groups. Follow up (Tukey) revealed that nurses participating in the 10-week and 5-week programs scored significantly higher on the posttest than nurses participating in either the 1-week or self-instructional programs.

Evaluation surveys were completed by each nurse on completion of their educational activity. Ninety percent ($n = 102$) of nurses attending the 10-week and 5-week courses indicated that course objectives were attained, the length of the course was appropriate, and they felt prepared to begin dysrhythmia monitoring of their patients with an experienced RN available to serve as a consultant. One hundred percent ($n = 60$) of the nurses attending the 1-week course indicated that too much new information was presented, and they felt uncomfortable with their dysrhythmia skills after completion of the educational activity. Sixty-two (91%) of the nurses completing the self-instructional module indicated some classroom sessions would be beneficial so questions could be answered and rhythms could be discussed.

In this study, lecture-discussion groups were found to be more effective for learning dysrhythmia interpretation skills than self-instructional modules. Time appears to be a factor in developing these skills. The RNs who attended classes over 10 weeks and 5 weeks were more successful than nurses who learned the content over 1 week. In addition, those nurses felt more comfortable with their knowledge base and beginning dysrhythmia interpretation skills. On the other hand, nurses in the 1-week course wanted more time “to digest all of the material.” A recurrent theme was “too much too fast with not enough time to practice.” Nurses who completed the self-instructional module wanted more time with the clinical specialist or course coordinator to ask questions and discuss cardiac rhythms.
CONCLUSIONS

Based on the results of this study, the need to reconsider how critical care, emergency department, and telemetry nurses are prepared in dysrhythmia interpretation became evident. The efficacy of an instructional method may have significant impact on the ability of nurses to function effectively in units where cardiac rhythm monitoring is initiated or continuous. Furthermore, RNs are often decision-making members of the health care team, required to act on observations and judgments, particularly in emergency situations where a life-saving treatment of a dysrhythmia cannot be delayed.

The findings and conclusions drawn from this study have several implications for nurse managers and staff development coordinators. Nurse managers have the responsibility for assuring that RNs have the knowledge and skills necessary to provide cardiac rhythm monitoring, dysrhythmia identification, and appropriate nursing interventions. Nurse managers must collaborate with continuing education coordinators and staff development instructors in providing efficient and cost-effective teaching-learning strategies. Because dysrhythmia interpretation is so important in managing cardiac and critically ill patients, strong consideration should be given to the method and time spent learning this life-saving skill.

REFERENCES