

CHAPTER VII

DISCUSSION

This study was conducted in 5 intensive care units at Mararaj Nakorn Chiang Mai Hospital to assess the quality of nursing care provided for patients with mechanical ventilation. During the study period, several favourable factors were found in that there was a full complement of adequately trained staffs working in these intensive care units all through the study and that a relevant inservice program was given during the study period. However, an unexpected event occurred during the observation of the ICU-N on May 20-22, 1991. In this mishap, the clean water supply centre could not provide enough water throughout the hospital, this event may adversely affect the quality of care during this brief period. But we cannot adequately evaluate its effect on the quality of care because the hospital had solved this problem by admitting only the patients with emergency condition, resulting in a very low number of observation.

The study reveals a significant correlation between knowledge and practice in five items. For the item: monitor signs and symptoms that indicate need for suctioning in the procedure of tracheal suctioning, the percentage of correct performance is quite low (49.8%). This finding is similar to those of Grosbache-Landis

and McLane (1979) in a medical center in Minnesota and Silaruk (1980) in Ramathibodi Hospital.

Inadequate suctioning as well as excessive suctioning can be harmful (Beland and Passos, 1975; Berman and Stahl, 1968; Cohn and Gibbon, Jr., 1960). One should make clinical judgement as to how often a patient requires suctioning. It is noted that the nursing staffs perform suctioning when they think that the time interval is long enough for each patient and most of patients receive suctioning every 1-2 hours. This indicates the task-oriented nature of nursing practice. Thus, the nursing personnel need to pay more attention to the patient assessment.

Selecting appropriate pressure of vacuum for suctioning is also important since intense suctioning causes excessive trauma and ulceration (Jung and Gottliet, 1976; Thambiran and Ripley, 1966). Plum and Dunning (1956) demonstrated the need for gentle suctioning by using the regulated-pressure method. To eliminate this problem, every units should assign a person the responsibility of checking the vacuum pressure everyday and should set the maximum level of vacuum to 120 mmHg in units for adults and 70 mmHg in pediatric unit. This measure is a recommended method for controlling circumstances that may lead to errors (Crosby, 1984).

The study also reveals a weakness on the cleansing of the adaptor of endotracheal tube and self-inflating bag or respirator with 70% alcohol before connected with the patient. The process of disconnecting mechanical ventilator or the connecting of self inflating bag when manual ventilation is needed may introduce

bronchial contamination by tiny air-borne droplets or particles (Selwyn, 1972). After being disconnected from a ventilator, an adaptor should be hung on the respirator and be prevented from contamination with any object. Using a sterile cotton with 70% alcohol to cleanse the adaptor before reconnecting with an endotracheal tube or tracheostomy tube may help reduce respiratory tract infection.

When a patient requires mechanical ventilation, it is crucial to deliver appropriate tidal volume to the patient, especially when controlled ventilation is used for patients with few or no spontaneous respiration (Wade, 1982). In this mode of mechanical support, the patient is totally dependent on a functioning ventilator system while the machine is set at a predetermined respiratory cycle (rate, pressure and tidal volume) and is independent of the patient's effort or breathing pattern. Over inflation of the lung may cause barotrauma to the lung tissue whereas under inflation can cause microatelectasis of peripheral alveoli (Bartlett, Gazzaniga and Geraghty, 1973).

It is striking that an important procedure, caring for patient with cuffed endotracheal tube, is not done at all during the period of observation. This finding is confirmed by verbally asking several personnel involved. Unexpectedly, the opposite finding was evident from the response to the questionnaires. Only 8 out of 153 (5.2%) nursing personnels think that cuff care is not essential because they are employing endotracheal tube with high volume and low pressure cuff and this cuff has minute effect to the

trachea. Most of them, 145 out of 153 (94.8%), answers appropriately.

Vathesatogkit et al.(1979) reported 7 cases of tracheal stenosis as a complication of using cuffed endotracheal tube. They pointed out that it might result from over inflation of the cuff, leading to tracheal trauma and infection. So, appropriate cuff care is still essential and motivation should be stressed in order to re-start this practice.

In the light that tracheal suctioning is a routine procedure occurring frequently around the clock, it is surprising to detect so many deficits with it as shown in Tables 10 and 16. Apparently the fundamentals have been overlooked by the zeal of nursing personnel to master new and more modern technologies. Since the completion of this study, many teaching programs have already been provided by the hospital's nursing manager.

As suggested by Gardner (1981), after the corrective action has been implemented, a second series of evaluation should be given to the same group of personnel to determine the effectiveness of the effort. So we would like to suggest a follow up study to evaluate the result of the teaching programs. Because our observation of tracheal suctioning had been completed right before the teaching program, this study can serve as a baseline for the comparison. If the result remains the same, the method of intervention as provided by the hospital's nursing manager is probably not effective. As an alternative, an intensive supervision should be delivered by supervisors, head nurses and peer group.

The feedback from nursing authorities and peer may also be useful, if it is delivered appropriately, since the nursing staff will get benefits from it in many ways.

It is evident from Tables 12, 16 and 17 that the frequency of giving instructions to patients do vary from one procedure to the other. Instructions are necessary and should be given everytime before providing nursing care. The studies of Erbert et al. (1964) and Linderman and Aerman (1971) indicated that instruction of patients significantly affected the patient's outcome.

One of the major concerns resulting from the study is on insufficient documentation of the nursing care. As seen in Tables 10, 12, 14, 15 and 16, there is a severe problem in documentation. For example, nurses do not adequately document whether or not breath sounds are equal on both sides when mechanical ventilation is initiated or whether endotracheal tube care, tracheostomy inner canular care and suctioning are done. If retrospective chart audit is needed, several items cannot be assessed because of the lack of information.

During the observational period, the investigator found that the nursing record forms in the ICU-M were more efficient and useful than those in other units. The written communication form serves a three fold purpose: 1) keeps a record of the nurse, 2) double checks the previous work by next shift personnel and 3) provides a message for others. McNeilly (1987) found that improving a report form had significant effect on the reporting of medication

errors. So, the same suggestion may be offered: if the record forms for common procedures are improved, they may exert a positive effect on the recording system. Also, an in-service education program should again be offered to encourage the staffs to correct these deficits.

The study had met some difficulties during the observational period, especially on the rare procedures. Because these are emergency procedures that can occur any minute, the investigator is still unable to obtain enough sample of rare procedures in some unit even with much effort.

A particular difficulty was encountered with intubation since it is truly an emergency procedure. Most of the patients who were admitted in intensive care units have already been intubated from either the operating room or the emergency room. Thus, over a period of 9 months, only 26 intubation episodes can be observed in all 5 units. Intubation is observed more commonly in the ICU-M and ICU-P than in others; these are mostly the elective re-intubation procedure.

With the small number of observation, we were not able to detect many problems with the rare procedures. This does not mean that there is no need for improvement. Being unable to show several problems with the rare procedures may be due to many factors. Firstly, inadequate number of observation may result in making a wrong conclusion. Clearly, the measurement is less sensitive when the number of observation is small. Secondly, some of the rare procedures, such as intubation and initiation of mechanical

ventilator care, are real emergency procedure and most of the time (84.6%, 88.9 %) they were performed by head nurses and more experienced nurses.

Suggestion for Improving of Nursing Care

Starting with the belief that changes require commitment, support at the leadership level and co-operation of staffs, improvement of the nursing care is a multi-faceted task.

For the poor performance items with significant correlation between knowledge and practice, an inservice education activity should be most beneficial. The inservice teaching program should take place as often as necessary to reinforce learning and the change of behavior. In the case of teaching of the nursing procedures, teaching should be done in a small group which can facilitate demonstration and return-demonstration. In addition, giving incentive periodically for satisfactory level of performance may also be helpful. When other measures are not effective, the setting up of the hospital standard and policy regulations for the personnel to follow may be needed.

Suggestion for Further Study

1. After corrective actions have been implemented as previously suggested, they should be reevaluated in order to assess the change in practice.

2. Observation and questioning should not be the only methods of evaluating nursing care. These methods should be used in

conjunction with peer review, self-evaluation and other quality control measures.

3. To select one approach over another may result in an inadequate representation of the situation with which nurse and other health care personnel confront. The study should be conducted through multidisciplinary co-operation to evaluate structure, process and outcome of nursing care. Such co-operative efforts, although costly, may greatly enhance the overall quality of care in the long run.

4. Competence supervisor may use this measurement to evaluate nursing personnel in others intensive care facilities.