Summary

Ventilator-associated pneumonia occurs in approximately 25% of patients receiving mechanical ventilation at a rate of 4 to 25% episodes per 1,000 ventilator-days ***(Esteban et al., 2002)*** and has a crude mortality rate ranging from 20% to 70% ***(Heyland et al., 1999).***

The impact of VAP on mortality remains controversial; some studies found that VAP had a significant excess mortality, ***(Ibrahim et al., 2000)*** whereas others did not ***(Rello et al., 2002).*** Although mortality is an important element that will help evaluate the impact of prevention efforts, it might not be the best outcome indicator because (1) attributable mortality might be marginal among patients receiving ventilation who are already extremely ill and at high risk of death and (2) it does not capture what happens in patients who survive an episode of VAP. Length of intensive care unit or hospital stay has been shown to be greater among patients with VAP ***(Papazian et al., 1996).***

It is revealed from my observations over a period of 8 years of working as a clinical instructor and assistant lecturer in Benha University Hospital, founded that nearly all patients who were connected to the ventilators at the intensive care unit have ventilator associated pneumonia and that education related to VAP is nearly ignored or nurses might not be adequately aware of their role in this respect. The researcher findings would hopefully guide nurses and health care professionals in caring for such risky group of patients. It is also hoped that this effort will generate investigations into the topic.

The scarcity of researches in this area in nursing was a strong stimulus for me to conduct this study too. So, the current study was conducted to assess the nurse's knowledge and practices related to

prevention of VAP and are to evaluate the impact of a designed training program on nurse's knowledge, practices and on patient's outcome at Benha University Hospital.

To fulfill the aim of the present study, the following research hypotheses were formulated:

H_1: The post mean knowledge scores of nurses who will be exposed to the designed training program will be higher than the pre-program mean scores.

H_2: The post means practice scores of nurses who will be exposed to the designed training program will be higher than the pr-program mean scores.

H_3: There will be a positive correlation between nurse's knowledge and practices scores.

H_4: The frequency of ventilator associated pneumonia post-program implementation will be lesser than that of the pre-program implementation.

The study was carried on 30 nurses including (Diploma and Bsc graduates) whom are actually working as bed side nurses in intensive care unit of Benha University Hospital. Age of the nurses ranged from {19 to 30} with a mean age of (21.7±2.6 SD) years. Their years of experience ranged from {0 to 13} years with a mean of (2.2±3.4 SD) years. The majority of the nurses were single (73.3%) with secondary school education (53.3%) and not receiving any previous training (90%).

The study also was carried on 100 patients that were newly admitted to I.C.U, whom had no VAP and ventilated for more than three days to denote early or late onset pneumonia that will be diagnosed on the basis of clinical examination, plus chest x-ray, leucocytic count and sputum culture. Age of patients in both control and study groups were 45

years and more with a mean ages of (54.8±11.03) and (55.32±10.14) years respectively. The majority of the patients was males in control group (60%) and was females in study group (56%) and all of these females in both control and study group were not smokers, but the majority of males in both control and study group were smokers. The majority of the patients had central nervous disease "CNSD" (cerebral infarction, cerebral stroke, and cerebral hemorrhage) that represents "36%" of patients in control group and "62%" of patients in study group. All patients from Kaliobia, had no recent surgery or past antibiotic therapy, unconscious, had (NGT) in both control and study group and the majority of patients used corticosteroids and stress ulcer prophylaxis drugs in control group and the majority of them didn't use it in study group.

Implementing this study required three tools:

1. Pre-/post-test assessment sheet was utilized for testing theoretical information related to the ventilator associated pneumonia. It included: socio-demographic data of the studied nurses and knowledge related to respiratory system, ventilator, VAP and its prevention, nurse's procedures for patient with VAP. (Appendix III).

2. Observational checklist was utilized to assess nurse's performance level. It included: providing oral care for unconscious patients, withdrawing arterial blood sample, measuring axillary body temperature, changing patient's position, postural drainage, chest percussion, chest vibration, hand washing, donning sterile gloves, inserting and removing NGT, measuring fluid intake and output, using pulse oximetry, endotracheal tube intubation and extubation, Providing care for patient with endotracheal tube, suctioning using catheter and gloves and suctioning with in-line closed suction system. (Appendix II).

3. Physical examination sheet that was developed to evaluate the patient's status as regard to development of ventilator associated pneumonia based on the clinical data, signs and symptoms of the patient including (e.g. x-ray, leucocytic count, sputum culture, temperature…..etc) and this sheet used also as a follow-up observational checklist to evaluate the clinical data of the patients for successive five days. It included: Socio-demographic data of the studied patients, data that related to patient's status (e.g. level of consciousness, presence of NGT, use of corticosteroids, use of stress ulcer prophylaxis) and clinical manifestations and investigations of the patient (e.g. fever, purulent sputum, leucocytosis, positive endotracheal aspirated sputum culture).

Educational program: According to literature review, objectives and nurse's assessment data of the study, the needed knowledge and practices needed were tailored.

The main findings of this study were:

- Nurse's knowledge and practices were improved significantly related to the prevention of VAP for critically ill patients at the I.C.U post-program implementation rather than pre-program implementation but this improvement declined by time.
- Age was negatively correlated with knowledge scores and practices scores of nurses at pre and post program implementation.
- Years of experience were negatively correlated with knowledge scores and practices scores of nurses at pre and post program implementation.
- There was not a relationship between nurse's knowledge and their practices scores.
- The frequency of VAP for critically ill patients at I.C.U was found to be decreased.