

Assessment of ICU Syndrome among Patients Admitted to Intensive Care Unit and the Practices to Prevent ICU Syndrome

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Abstract: A descriptive exploratory design was used in this study to assess the ICU Syndrome among patients admitted to ICU and the practices to prevent them in a selected hospital at Mangalore. The sample consisted of 30 patients and 30 staff nurses who met the inclusion criteria. The subjects were selected by purposive sampling. The investigator selected the patients who were admitted in the ICU between the age group of 30-60 yrs who have no metabolic disorders. The investigator assessed the ICU Syndrome among patients using the Richmond Agitation and Sedation Scale and CAM-ICU Scale. The staff nurses were given a self reported preventive practice questionnaire and data was analyzed using descriptive and inferential statistics. Majority of the patients exhibited Altered Level of Consciousness while assessment with CAM-ICU scale. The data revealed that ICU Syndrome is present in the current scenario and majority of the cases are left undiagnosed because of lack of knowledge and efficiency in diagnosing it and differentiating it from hypoactive and hyperactive ICU Syndrome rather than considering the patient to be in a drowsy or sedative state. The evidence suggests that out of 24% of the subjects, who developed ICU Syndrome, 17% of them had hypoactive ICU Syndrome and 7% had hyperactive ICU Syndrome.

Keyword: ICU Syndrome, preventive practices, RASS Scale, CAM-ICU

I. INTRODUCTION

ICU Syndrome has been well known since 1960s, but only recently there has been a noticeable increase in published literature. ICU Syndrome appears to be an independent risk factor for mortality in ventilated ICU patients. Mortality may exceed twice the six month mortality rate of nondelirious patients. It may also be associated with longer hospital stay and with a higher rate of cognitive impairment at discharge. Recently the CAM-ICU and Richmond Agitation – Sedation Scale (RASS) tools are being used to detect the presence of ICU Syndrome among the patients.

Since early ICU Syndrome diagnosis is the first step towards prevention and treatment, the introduction into clinical practice of validated tools is a key point of hospitalized patient care. Irrespective of the protocols to prevent ICU syndrome the health care members not effectively practice to prevent the same. Critically ill patients in the ICU are prone to disturbances of mentation due to various distressing factors, such as medical illness at admission, pain and anxiety caused by surgery, other invasive procedures, and mechanical ventilation, hypotension, hypoxia, metabolic disturbances, restraints, and environmental factors (e.g., light and noise) that interrupt the normal sleep cycle.

Admission to critical care unit itself is a stressful situation. Perception of stress is influenced by ones experiences, genetics and behavior. When the brain perceives an experience as stressful, physiologic and behavioral responses are initiated leading to allostasis and adaptation. Allostasis and homeostasis are endogenous systems responsible for maintaining the internal stability of an organism. Allostasis is a continuous process of physiological adaptation that the body undergoes while facing challenges. It is concerned with the process of achieving the balance by change and respond to stress by initiating the adaptive response and sustaining it until the stress ceases. These responses are initiated by an increase in circulating catecholamines and glucocorticoids. Over time , allostatic load can accumulate and can have adverse effects on various organ systems, leading to disease. Thus during an ICU admission the individual faces different

types of stressors and when it reaches a particular threshold the body fails to compensate it leading to the development of ICU Syndrome.

It may also be associated with longer hospital stay and with a higher rate of cognitive impairment at discharge. Increasing age and severity of illness also increase the risk. Despite the fact that ICU patients have multiple risk factors for ICU Syndrome, it is possible to reduce the incidence and severity of ICU Syndrome. This includes careful titration of sedation initially and when patients are waking up, facilitating early mobilization, maintaining sleep awake cycles, ensuring rest, analgesia and comfort and visits by family members. The intensive care clients experience stressors in the environment such as unfamiliar environment and people, inadequate sleep, sensory deprivation, immobilization, sedation or heavily sedated with narcotics, socially isolated, attached to a breathing machine etc.

The prevalence of delirium reported in medical and surgical ICU cohort studies has varied from 20% to 80%. Ely and coworkers studied 275 mechanically ventilated medical ICU patients and determined that delirium was associated with a threefold increase in risk for 6-month mortality.

Only a few studies have examined risk factors for delirium in the ICU. Ouimet and coworkers studied 820 general ICU patients and determined that hypertension, alcoholism, severity of illness, and exposure to sedatives and analgesics increased the likelihood of delirium.

Once ICU Syndrome is identified in ICU patients, management should focus upon identifying potential precipitating factors, providing supportive care and preventing further complications.

In the present study researcher aimed at exploring the concept of ICU Syndrome among patients admitted to ICU and the practices to prevent them. The present study identifies three types of variables. The independent variable in the study is the critical care patients, ICU settings and the nurses. The dependent variable in this study is the ICU Syndrome. In this study, the extraneous variables are age, gender, marital status, educational status, occupation, family income, diagnosis, type of illness, history of smoking and alcoholism, drugs prior to admission, duration of stay in ICU, previous ICU admission.

The present study was conducted in Father Muller Medical College, a multi-speciality hospital. selected the fully equipped medical intensive care unit consisting of 40 beds and intensive coronary care units consisting of 7 beds. The nurse patient ratio was 1:2.

In this study, the population consists of all critical care patients admitted in the critical care units who are between the age group of 30 to 60 years and without any metabolic disorders such as acidosis and alkalosis. sample was selected using purposive sampling technique.

The data collection instruments used for both the patient and staff nurses were:

- Baseline proforma of the patient and staff nurses.
- Confusion Assessment Method for ICU (CAM-ICU Scale)
- Richmond Agitation and Sedation Scale (RASS Scale)
- Self reported preventive practice questionnaire.

Richmond agitation and sedation scale

LEVEL OF CONSCIOUSNESS

(ref: www.vanderbit.edu)

<u>SCORE</u>	<u>TERM</u>	<u>DESCRIPTION</u>
+4	Combative	Combative ,violent, immediate danger to staff.
+3	Very agitated	Pulls or removes tubes or catheters , aggressive.
+2	Agitated	Frequent non purposeful movement , fights ventilator.

+1	Restless	Anxious , apprehensive but movements are not aggressive or vigorous.
0	Alert & calm	Spontaneously pays attention to care givers.
_1	Drowsy	Not fully alert. But has sustained awakening to voice (eye opening & contact >10 sec)
_2	Light sedation	Briefly awakens to voice (eye opening & contact <10 sec)
_3	Moderate sedation	Movement or eye opening to voice (but no eye contact)

IF RASS is > -3 proceed to CAM-ICU

_4	Deep sedation	No response to voice , but movement or eye opening to physical stimulation.
_5	Unarousable	No response to voice or physical stimulation

IF RASS is _4 or _5 then stop & reassess later.

IF RASS is above _4(_3 to+4) then proceed to CAM-ICU

Confusion Assessment Method for Intensive Care Unit

The tool consists of 16 items covering four areas which include the following:

1. Feature 1- acute onset or fluctuating course of mental status(pre hospital mental status, acute change from mental status baseline and fluctuation in mental status during past 24 hours)
2. Feature 2- inattention(listening to series of letters, seeing and memorizing a series of pictures, recollecting the previous pictures from the new ones)
3. Feature 3-altered level of consciousness(current RASS score)
4. Feature 4- disorganized thinking(step 1 , four Yes or No type questions and step 2 contains another set of four Yes or No questions, and responding to the command by doing an action)

II. RESULTS

General characteristics of the subjects

The majority (27%) of the participants belonged to the age group of 35-40 years and were males. 47% of the subjects were regular consumers of alcohol and 27% were smokers.16% of the subjects were given sedatives during their ICU stay and only 14% of them were on physical restraints.

Level of ICU sedation using RASS Scale

Twenty three (77%) of the participants were Alert and Calm, four (13%) were drowsy, whereas one each (3%) were Agitated, Restless and in Light sedation.

ICU Syndrome assessment using CAM-ICU Scale

The Confusion Assessment Method for ICU patients revealed that seven (23%) of the subjects were with fluctuating mental status, ten (33%) had altered level of consciousness, eight (27%) had inattention and two (7%) were with disorganized thinking. From this selected participants seven (24%) were CAM-ICU Positive ie by the presence of feature 1, feature 2 and either feature 3 or feature 4. Out of this CAM-ICU Positive cases five (17%) had Hypoactive ICU Syndrome and two (7%) had Hyperactive ICU Syndrome.

Self reported preventive practice questionnaire

The majority of the registered nurses in the critical care units were females between the age group of 22-26 years. There was no previous knowledge regarding ICU Syndrome for these nurses. The results of preventive practice questionnaire showed that the nurses had Good K knowledge regarding the preventive practices.

It was revealed by this study that 46.7% of the subjects were alcoholic and 26.7% of the subjects were smokers which were the major precipitating factor for development of ICU Syndrome. 16.6% of the subjects were administered sedatives and 13.3% of them had physical restraints. The level of ICU sedation revealed that 76.7% of the subjects were alert and calm and 13.4% were drowsy and 3.3% were agitated, restless and in light sedation each based upon the screening with RASS Scale. ICU Syndrome assessment using CAM-ICU revealed that 24% of the subjects had developed ICU Syndrome during their ICU stay among which 17% had hypoactive and 7% had hyperactive type of ICU Syndrome according to the CAM-ICU assessment tool. The self reported preventive practice among the staff nurses were found to be good.

III. DISCUSSION

In the present study the level of ICU sedation was assessed using the standardized Richmond Agitation and Sedation Scale. It has got certain scores based on which the sedation is being classified. In this study majority 76.7% of the subjects were Alert and Calm with a RASS Score of 0 and 13.4% were drowsy, 3.3% were agitated, 3.3% were restless, 3.3% were in light sedation. In the present study the prevalence of ICU Syndrome in a selected Hospital was calculated using the formula and was found to be 23.3%. In a similar study conducted in Chandigarh it was revealed that Incidence and prevalence rate of delirium were 24.4% and 53.6% respectively which means that Delirium was highly prevalent in the ICU setting and delirium is associated with longer ICU stay and higher mortality.

According to CAM-ICU scale 33.3% of the subjects had Altered Level Of Consciousness, 26.7% had Inattention, whereas 23.3% had Fluctuating Mental Status and 6.7% had Disorganized thinking. The scores calculated for individual subjects showed the CAM-ICU score as positive, therefore the individual present with ICU Syndrome. Thus the presence of ICU Syndrome was assessed and the data showed that 24% of the subjects admitted in the ICU developed ICU Syndrome during their ICU stay whereas 76% of the subjects were free of ICU Syndrome in the assessment for consecutive three days using the CAM-ICU Scale. The mean score for the presence of ICU Syndrome was three.

The subjects were again classified based on their presence of ICU Syndrome depending upon its type. The results showed majority 76.7% of subjects were Normal, 16.7% had Hypoactive ICU Syndrome whereas 6.7% had Hyperactive ICU Syndrome. A similar study was conducted to identify the psychopathological factors in hyperactive and hypoactive ICU Syndrome which shows that among the patients who have developed ICU Syndrome, 70% patients had hyperactive delirium while 30% was having hypoactive delirium. In the present study 63.3% of the subjects had good knowledge on preventive practice, 36.7% had better knowledge whereas none of the nurses were having poor knowledge and very good knowledge on preventive practices. This self reported preventive practice questionnaire includes areas such as orientation, sleep enhancement, early mobilization, daily delirium monitoring, cognition, spiritual and psychological needs, visual optimization, and environmental disturbances. In a retrospective cohort study conducted in Philadelphia it was revealed that ICU rooms with windows or natural views do not improve outcomes or reduce costs of in-hospital care for general populations of medical and surgical ICU patients. Future work is needed to determine whether targeting light from windows directly toward patients influences outcomes and to explore these effects in patients at high risk for adverse outcomes.

IV. CONCLUSION

ICU Syndrome is now becoming a major threat to the health care professionals because many of the studies reveals that the percentage of patients suffering from ICU Syndrome is being increasing day by day amidst this technological developments. It has really become a challenge for the health professionals to detect ICU Syndrome at the earliest so that they can prevent the cognitive impairment which occurs for their patients and reduce their mortality rate.

The results of this study suggests that even though the preventive practices were Good 24% of the patients developed ICU Syndrome. Therefore it is really a matter of concern for the health care professionals as early detection can reduce the mortality rate as well as the cognitive impairments. The main purpose of the study was to assess ICU Syndrome among patients admitted to ICU and the practices to prevent them. The findings of the study provide useful information to health planners and adopt measures to reduce the incidence of ICU Syndrome and improve the preventive practices and certain facts that have far reaching implications in the field of nursing practice, nursing research and nursing administration. This study has helped to prove the prevalence of ICU Syndrome in the given setting. It also revealed that the preventive practices should be improved and nurses should be given proper guidance in the assessment of ICU Syndrome.

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