Assessment of Nurses' Performance Regarding to Care of Patients with Fluid and Electrolytes Imbalance in Critical Care Units

Thesis

Submitted for Partial Fulfillment of the Requirement of
Master Degree
(Critical Care Nursing)

By

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Abstract

Fluids and electrolytes imbalances are common problem in acute care settings. Nurses who are familiar with the causes, manifestations and management of these problems are in the best position to anticipate electrolyte imbalance and treat quickly. Moreover, the life- threating nature of these imbalances makes them a particularly important area for nursing assessment and care. **Aim**: This study aimed to assess nurses ' level of knowledge and practices regarding to care of patients with fluid and electrolytes imbalance in critical care units. **Setting** : This study was conducted in critical Care Unit of trauma at Al Zagazig University Hospital affiliated to Zagazig University. **Sample**: Convenience sample of (30) nurses working in Critical Care unit were recruited to fulfill the aim of this study. **Tools of data collection** : Three tools were formulated and tested to collect data pertinent to the study :1) Self adminsterated questionnaire to assess nurses 'knowledge .2) Observational checklist to assess nurses` practices. 3) Factors affecting nurses` performance. **Results**: The study result revealed that more than half of studied nurses had unsatisfactory level of knowledge and practices regarding to care of patients with fluid and electrolytes imbalance .In addition , there were factors affecting nurses` performance such as : loss of training about procedure performed in unit , physical stress , lot of cardiopulmonary resuscitation cases in absence of equipment and devices. **Recommendation**: The study recommended for increasing the knowledge through appropriate curriculum, educational program and providing standard of fluid and electrolytes balance booklet.

Keywords: Nurses' performance, fluid and electrolytes imbalance and critical care unit.

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LIST OF ABBREVIATIONS

ABG	:	Arterial Blood Gases
ADH	:	Antidiuretic Hormone
ATP	:	Adenosine Triphosphate
BUN	:	Blood Urea Nitrogen
Ca++	:	Calcium
CNS	:	Central Nervous System
CVP	:	Central Venous Pressure
D5%	:	Dextrose 5%
E	:	Electrolytes
ECF	:	Extracellular Fluid
ECG	:	Electrocardiogram
F	:	Fluid
FVD	:	Fluid Volume Deficit
FVE	:	Fluid Volume Excess
GIT	:	Gastrointestinal
IM	:	Intramuscular
IV	:	Intravenous
K+	:	Potassium
KCL	:	Potassium Chloride
LOC	:	Level of Consciousness
MEQ/L	:	Mile Equivalent / Liter

List of Abbreviations (Cont.)

MEQ/L/H	:	Mile Equivalent /Liter/ Hour
Mg+	:	Magnesium
ML	:	Mile Liter
MMOL/L	:	Mile Moll/ liter
Na+	:	Sodium
PO4++	:	Phosphate
PTH	:	Parathyroid Hormone

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Introduction

The human body is made up of over 60 percent water that contains a mixture of minerals (electrolytes) including sodium, calcium and potassium. Fluid and electrolyte balance refers to the controlled partition of water and major chemical constituents among the cell and extracellular fluids of the body. Electrolytes are the smallest of chemicals that are important for cells in the body to function and allow to work. Electrolytes such as sodium, potassium and others are critical in allowing cells to generate energy, maintain stability of their walls and function in general. They generate electricity, contract muscles, move water and fluids within the body and participate in myriad other activities **(Disabled Worled, 2013)**.

Fluid balance is the concept of human homeostasis where amount of fluid lost from the body is equal to fluid taken added to water is necessary for all life on earth. Homeostasis is the property of a system that regulates its internal environment and tends to maintain a stable constant condition of properties such as temperature or PH. The body constantly uses feedback mechanisms to maintain fluid and electrolyte balance. The nerve and endocrine

systems are most intimately involved in feedback **(Nursing Times**, **2011)**.

Electrolytes play important role in maintaining electrochemical and fluid balance within the body. Any alteration in the homeostasis of major electrolytes (sodium potassium, calcium, magnesium and phosphorus) can disrupt normal body functions at the cellular, tissue or organ level. Fluid and electrolyte imbalance occurs to some degree in most patients with major illness or injury because they disrupt the normal homeostatic mechanism **(Boundless**, **2017)**.

Fluid and electrolytes balance is an important everyday practice in the intensive care unit. It is an integral part of everyday patients` care. In critically ill patients fluid balance management is an integral part of care process. Fluid and electrolyte imbalances must be identified promptly because they can increase the risk of subsequent decline and may be life threatening **(Bouchard & Mehta, 2010)**.

Patients are admitted to intensive care unit because they have a physiological crisis threatens one or more bodily systems and their life. Critically ill patients are at great risk for fluid and certain electrolyte imbalances.

Recognition and appropriate management of fluid and electrolyte disorders in critical patients is extremely important in more cases **(Lee**, **2010).**

In more cases, these secondary problems are serious and complicated than the initiating disease process. A severely ill diabetic patient for example is more likely to die from dehydration, hyperosmolality, metabolic acidosis, hypokalemia or hypophosphatemia than from hyperglycemia or lack of insulin therapy. Proper fluid therapy and treatment of electrolyte abnormalities make a major difference in the survival rate of critically ill **(Lee, 2010).**

A critical care nurse has in- depth knowledge of anatomy, physiology, pathophysiology, pharmacology and advanced technology. Critical care nurse perform frequent assessment to monitor trends in the patients` physiologic parameters (eg. BP, ECG) which allows nurses to rapidly recognize and manage complications while aid healing and recovery. The nurse must provide physiological support to the patients and their families communicate and collaborate with all interprofessional team member **(Lewis, Bucher, Heitkemper and Harding, 2016)**.

Significance of the study:

Fluid balance monitoring is an essential part of the critically ill patients care process. Fluid balance is the balancing of fluid intake and output to permit metabolic processes for correctly function. Maintaining fluid balance play an important role in managing critically ill patients. The accurate monitoring of fluid balance activities is a vital part of patients' baseline information which guide medical and nursing interventions to achieve physiological stability **(Asfour, 2016).**