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**Assessment of the Knowledge Regarding Refeeding Syndrome
among Doctors and Nurses in the Intensive Care Units and
Inpatient Wards Sana'a, Yemen.**

A Graduated Research Report Submitted for Partial Fulfillment of
bachelor's degree in clinical nutrition & Dietetics

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LIST OF ABBREVIATION

ATP: Adenosine triphosphate

BMI: Body mass index

BP: Blood pressure

BSL: Blood sugar level

CND: Center for nonlinear dynamic in physiology and medicine

DPG: Diagnostic pulmonary gradient

ECG: Electrocardiogram

ICU: Intensive care unit

KCAL: kilo calorie

NICE: National institute for health and care excellence

RFS: Refeeding syndrome

RR: Respiratory rate

SD: Standard deviation

ABSTRACT

INTRODUCTION

Refeeding Syndrome is defined as severe electrolyte and fluid shift associated with metabolic abnormalities in underfed patients.

Objective

The aim of this study is to assess the awareness of Refeeding Syndrome among doctors and nurses in the ICU and inpatient ward.

Methodology:

A cross-sectional, descriptive study was conducted, data collected from five different hospitals in Sana'a capital. The study population was formed of doctors and nurses in the intensive care units and inpatient wards. Questionnaire was prepared relying on literature review and study objective, first part of the questionnaire included personal information (gender -age - education - years of experience and role in the ICU), second part included medical information related to Refeeding Syndrome. Data collected by distributing questionnaire among doctors and nurses in the capital's hospital. (SPSS) was used for data analysis, tables and graphs were used to display data, and chi square test was used to test differences between categories. The test was considered to be significant if P value <0.05.

Result:

This study included the mean age is (28 ± 5.604); most of the doctors and nurses were between (25-35 years old). Moreover, out of 90 Doctors and Nurses in the sample (14 = 15.6%) have diploma degree, (64 = 71.1%) have bachelor's degree, (8 = 8.9%) have master degree, (4 = 4.4%) have doctorate degree, the majority have bachelor's degree (64 = 71.1%). Furthermore, most of doctors and nurses have years of experience from 0-5 (60%), then 6-10 years of experience come second (27.8%), and the least percentage was more than 10 years of experience (12.2 %). According to role in the ICU, the maximum of the sample is from nurses (81.1%), and the minimum is from doctors (18.9%). According to medical information, the total mean score of both nurses and doctors was poor level (39.79%). The level of total knowledge about Refeeding Syndrome among doctors is good, while among nurses is poor. The level of electrolyte knowledge among nurses is more than doctors.

Conclusion and Recommendations:

In this study, the mean age is (28 ± 5.604) . Out of 90 Doctors and Nurses in the sample, the majority have Bachelor. Most of doctors and nurses have years of experience from 0-5. The maximum of the sample is from nurses. Regarding to the total mean score of both nurses and doctors was poor level. About general knowledge, it is good among doctors. Regarding electrolyte knowledge average knowledge among nurses.

It is recommended to increase awareness among nurses, physicians and doctors about Refeeding Syndrome , by teaching them with advanced level of knowledge during their study, and training them as well, to be able to deal with the physiological changes that may occur in critically ill patients who are at risk of this syndrome.

Key words: Refeeding Syndrome, electrolytes, ICU, inpatient, doctors, nurses, patients, malnutrition.

CHAPTER 1: INTRODUCTION

1.1 Background on Refeeding Syndrome:

Refeeding Syndrome was first identified after the Second World War in prisoners who showed cardiac and neurological abnormalities with start of feeding after long periods of famishment, (Schnitzel etal, 1951).

Refeeding Syndrome is defined as severe electrolyte and fluid shift associated with metabolic abnormalities in underfed patients experiencing abrupt refeeding, whether orally, enterally, or parenterally, (Crook etal, 2001). When an aggressive initiation of feeding after prolong starvation for malnourished patients who were not getting enough of their caloric need, -and according to other risk factors- can lead to electrolytes disturbances that cause several metabolic and pathophysiological alteration, which include; severe respiratory, cardiac, hepatic, neuromuscular and hematological complication and even death. According to physiology, the main metabolic and hormonal changes in early starvation include the change from using carbohydrate as the main source of energy to using fat and protein, then the basal metabolic rate decrease [Kraft, Btaiche, and Sacks 2005]. Therefore, patients after being fed aggressively, their insulin level increase, leading to electrolyte disturbances. The wide shifts in phosphate levels profound depletion that occurs in Refeeding Syndrome affects all cellular processes and contributes to complications associated with this condition. In a well-designed prospective cohort study of a heterogeneous group of intensive care unit ICU patients,

34% of patients experienced hypophosphatemia soon after feeding was started, (Crook et al, 2001)

1.2 Justification:

The reason for this research topic is to draw the attention of medical staff specifically doctors and nurses, to the importance of nutritional care which is not less significant than the medical care, mainly in the sensitive wards such as the Intensive Care Unit (ICU) and inpatient ward, where lots of critical cases come to every day. Besides, to confirm on the value of weighting and recording the dietary history of the patients through asking them if it was possible, or asking their guardian to verify the patient's dietary intake, in order to determine the quantity of calories that must be provided to them. On the other hand, there is a number of cases who got metabolic and pathophysiological complication, and sometimes died after being fed at the hospital, because doctors and nurses only focus on medical therapy, unaware that the amount of food itself can be fatal for some patients. Accordingly, this is what induced us to measure the awareness about Refeeding Syndrome at the Yemeni hospitals.

1.3 Importance of study

To the best of the researcher's knowledge, no previous research regarding the Refeeding Syndrome has been done in Yemen. Also, almost of hospitals don't hire nutritionists and understand how much useful this is, we believe that after this study, hospitals will start to concern about having nutritionists or at least educate medical staff about how to feed malnourished patients in order to prevent RS and its further

complication. Eventually, the awareness about Refeeding Syndrome will be increased, and morbidity and mortality rate because of it will be limited.

1.4 General objective:

The aim of this study is to assess the awareness of Refeeding Syndrome among doctors and nurses in the ICU and inpatient ward.

1.5 Specific objectives:

- 1- To determine the social demographics information (age, level of education, years of experience) for doctors and nurses.
- 2- To track the general nutritional knowledge among doctors and nurses in most of Sana'a's hospitals in 2022-2023.
- 3- To find out the knowledge about electrolytes disturbances among doctors and nurses.
- 4- To explore who is more knowledgeable about RFS doctors or nurses.

CHAPTER 2: LITERATURE REVIEW

2.1 Manifestations of RFS

Refeeding Syndrome has been defined as a considerable imbalance of fluids and electrolytes in patients who are malnourished during oral, enteral, or parenteral re-feeding, and may lead to severe metabolic dysfunction and can lead to morbidity and mortality (Zanten, 2015; Fairley, 2015; Crook, 2014) . Refeeding Syndrome is characterized classically by deranged phosphate, potassium and magnesium balance within the body, although abnormalities in the metabolism of glucose and levels of sodium and water balance are widely recognized to contribute to the considerable morbidity and mortality associated with this condition (Tresley and Sheehan, 2008) Refeeding Syndrome is a life-threatening hematological abnormalities and dysfunction of cardiovascular, pulmonary, hepatic, renal neuromuscular, respiratory, metabolic systems, following inappropriate alimentary feeding in the severely malnourished, stressed, elderly, starved individuals (Keys 1950).

2.2 Pathophysiology of RS

The main causative element of Refeeding Syndrome is the hormonal and metabolic changes caused by prompt refeeding, whether enteral or parenteral. The main metabolic and hormonal changes in early starvation include the change from using carbohydrate as the main source of energy to using fat and protein, the basal metabolic rate decrease [Kraft, Btaiche, Sacks 2005] With starvation lasting more than a few days, liver

gluconeogenesis slows; free fatty acids are used to produce energy in the forms of ketones and basal metabolic rate decrease. During refeeding, the reintroduction of glucose induces a series of profound biochemical changes within the body, which will be briefly outlined here. As feeding occurs, the changes undertaken by the body during prolonged starvation suddenly shift, as carbohydrate metabolism once again becomes the primary focus, and fat metabolism rapidly declines. The introduction of glucose and hyperglycemia induces insulin, and this precipitates a cascade of metabolic events. The $\text{Na}^+ - \text{K}^+$ ATPase transporter present on cells is stimulated by insulin leading to dramatic intracellular shift of potassium and water follows by osmosis (Crook, Hally, Panteli 2001). Hence, electrolytes such as potassium and phosphate shift from the extracellular to the intracellular compartment, causing a sudden profound drop in serum levels (Amanzadeh and Reilly 2006). The metabolism of glucose and lipid is itself altered, with an attenuated capacity to respond to glucose loads. Consequences of this deranged glucose metabolism seen in Refeeding Syndrome include metabolic acidosis, ketoacidosis and hyperosmolar states (Crook, Hally and Panteli 2001).

Fluid balance is similarly affected. Patients may demonstrate initial fluid intolerance with attenuated water and Na^+ excretion, most notable when refeeding occurs with a protein-heavy diet. This may lead to cardiac decompensating, pre-renal failure with metabolic acidosis and even sudden death (Gault, Dioxn, Doyle and Cohen 1998).

Intracellular micronutrients and vitamins such as thiamine (B1) are already depleted and upon refeeding, are consumed rapidly due to the sudden switch to anabolism induced by feeding. This is most evident in the case of vitamins and nutrients acting as cofactors in metabolic enzyme cascades and can induce neurological complications, leukocyte dysfunction leading to increased susceptibility to infection and metabolic acidosis (Klein 2002). In the case of thiamine, which is a cofactor of transketolase, deficiency can manifest as Wernicke's encephalopathy or Korsakoff's psychosis resulting from increased consumption, driven by carbohydrate metabolism (Manzanares and Hardy 2011)).

2.3 Consequences of electrolyte derangement in Refeeding Syndrome

The clinical features of Refeeding Syndrome arise as a consequence of these electrolyte deficiencies and the rapid change in basal metabolic rate. Many of these patients at highest risk of Refeeding Syndrome already have higher resting energy expenditure, meaning that they have more profound metabolic requirements (Mahler, Winkelman, Andersen and Gaudiani 2010). There are specific features of Refeeding Syndrome, which occur due to depleted electrolyte levels, inducing significant abnormalities of cardiac, renal, gastrointestinal, musculoskeletal and neurological function, which may lead to debilitating morbidity and mortality. Interestingly, the clinical emergence of these conditions varies in timing, with cardiac signs and

arrhythmias occurring often within hours, and neurological signs and symptoms occurring days to weeks later. Furthermore, evidence suggests that cardiac function is compromised in patients subsequent to prolonged periods of starvation, borne out in studies of patients with anorexia nervosa. These patients have demonstrable reductions in cardiac mass along with global loss of muscle mass, contributing to difficulties with fluid balance seen upon refeeding (Goldberg, Comerici and Feldman 1988).

2.3.1 Hypophosphatemia

Phosphorus is a largely intracellular electrolyte with a significant role in many cellular processes within the body. Phosphate deficiency may have consequences for the cardiac, respiratory, neurological, renal, gastrointestinal, hematological and musculoskeletal systems. It is central to the normal functioning of intracellular processes and has a pivotal role in the integrity of the cell membrane. Furthermore, phosphate-binding acts as a step in enzymatic cascades involved in cellular functioning and as second messengers. Energy storage is accomplished with adenosine triphosphate (ATP). More specifically, it is one of the renal buffers attributing to normal acid-base balance and drives oxygen and hemoglobin binding with 2, 3 phosphoglycerates (2, 3-DPG). Hence, the wide shifts in phosphate levels and profound depletion that occurs in Refeeding Syndrome affects all cellular processes and contributes to complications associated with this condition. The drive behind these shifts is multifactorial but certainly is linked with carbohydrate ingestion and acidosis (Crook, Hally and Panteli 2001/ Amanzadeh and Reilly 2006).

2.3.2 Hypokalemia

Potassium is an intracellular cation, which is depleted by the anabolism induced by refeeding, as well as a direct depletion due to the insulin surge that occurs. Potassium deficiency is most widely associated with cardiac complications, in particular arrhythmias, and reduced urinary concentration by the kidneys. These are induced by the electrochemical derangement seen in potassium depletion within the cell membrane (Greenlee, Wingo, McDonough and Kone 2009). In tandem with other electrolyte deficiencies such as phosphate and magnesium, these lead to serious clinical consequences without prompt correction.

2.3.3 Hypomagnesaemia

Another predominantly intracellular cation, the importance of magnesium in the maintenance of cellular homeostasis, especially due to its role in enzyme function, oxidative phosphorylation and ATP production is often disregarded. Magnesium has also been identified as a key component in the structure of nucleic acid and ribosomes. It also is involved in the maintenance of an appropriate membrane potential. Therefore, magnesium deficiency may manifest with an array of cardiac and neuromuscular consequences, as well as hypercapnia and respiratory failure. Furthermore, electrolytes such as phosphate and potassium are particularly difficult to replace during times of deficiency when associated with persistent hypomagnesaemia (Whang, Hampton, and 1994).

2.3.4 Hypocalcemia

Hypocalcemia is a relatively common finding among critically ill patients particularly in the ICU setting (Bugg and Jones 1998). Clinical signs include tetany, seizures, prolonged QT interval, muscle weakness, and altered mental state with emotional lability. Hypocalcemia commonly occurs in combination with other electrolyte disorders, particularly magnesium. One theory offered to explain this interaction with magnesium is that magnesium may impair the function of parathyroid hormone (Vetter and Lohse 2002). Some signs and symptoms associated with low electrolyte levels have been outlined in Table 1.

2.4 Malnutrition risk

	Moderate RFS	High RFS	Extreme RFS
	Two or more	One or more	One or more
BMI	<20kg/m ²	<18.5kg/m ²	<14kg/m ²
Weight loss	Unintentional weight loss >5% within 3-6 months	Unintentional weight loss >10% within 3-6 months	Unintentional weight loss >10% within 3-6 months
Intake	Very little or no food intake for >5 days	Very little or no food intake for >5 days	Negligible intake for >15 days
Biochemistry	Levels within normal limits	Low levels Potassium, Phosphate or Magnesium prior to feeding	Low levels Potassium, Phosphate or Magnesium prior to feeding

2.5 Identification of patients at risk of re-feeding syndrome

The NICE guidelines have outlined an easily implemented system based on major and minor criteria for this purpose. These criteria include Body Mass Index (BMI), recent weight loss, recent oral intake, and drug history and baseline electrolyte levels.

These include patients with a history of:

- Current or recent history of cancer
- Eating disorders
- Chronic debilitating disease
- Patients post gastrointestinal or head-and-neck surgery.
- Alcohol Dependence Syndrome
- Elderly patients living alone.
- Chronic gastrointestinal symptoms
- Chronic dieting

2.6 Nutritional management of Refeeding Syndrome:

	Moderate RFS	High RFS	Extreme RFS
Day 1&2	50% requirements Or 20kcal/kg IBW/day (84kJ/kg IBW/day)	10kcal/kg/day (42kJ/kg IBW/day)	5kcal/kg/day (21kJ/kg IBW/day)
Day 3	Increase as per clinical condition and biochemistry until requirements met	Increase by 21kJ/kg IBW/day as per clinical condition and biochemistry until requirements met	Increase by 21kJ/kg/IBW/day as per clinical condition and biochemistry until requirements met. NB: monitor cardiac rhythm continually

2.7 Role of doctors and nurses towards RS

- 1- The dietitian and not the nursing staff is responsible for dietary care and follow up.
- 2- Daily monitoring of electrolyte levels is the responsibility of the nurse.
- 3- The nurse role is to inform the physician of any abnormality in the patient's electrolyte level.
- 4- . Electrolyte levels should be monitored prior to feeding.
- 5- Patient who receives a significant amount of IV fluid for a prolonged period are at risk of developing Refeeding Syndrome.
- 6- People with Refeeding Syndrome need to regain normal levels of electrolytes. Doctors can achieve this by replacing electrolytes, usually intravenously. Replacing vitamins, such as thiamine, can also help to treat certain symptoms.
- 7- A person will need a continued vitamin and electrolyte replacement until levels stabilize

2.8 Previous studies:

2.8.1 Critical Care Nurses' and Physicians' Perception about Re-feeding

Syndrome

Ghada Shalaby, Hala Abdelrahman

Abstract

Refeeding Syndrome is a fetal syndrome, which results from fatal shifts in fluids and electrolytes that may occur in malnourished patients receiving artificial refeeding. Therefore, nurses and physicians working in ICUs should be aware of this fetal complication and consequences of its occurrence in acutely ill.

The aim of the work is to examine the perception of nurses and physicians about Refeeding Syndrome in critically ill.

Methods

The study design was a descriptive and cross-sectional design. Setting, this study was implemented in general and trauma intensive care units (ICUs) at Assiut university Hospital in Assiut-Egypt. Subjects, 30 critical care nurses and 25 intensive care physicians were drawn from the previously mentioned ICUs. Tools: A questionnaire tool was adopted from the articles to be used in data collection to assess the focus group perception regarding re-feeding syndrome. The data was collected from May 2018 to August 2018. Results: The findings of the current study show that nurses and physicians have poor knowledge regarding Refeeding Syndrome.

Conclusion

The present study shows strong evidence that the level of knowledge of nurses' and physicians about Refeeding Syndrome, was not adequate and low. This may be contributed, as the participants did not receive any previous educative sections about Refeeding Syndrome.

Recommendation

Nurses and physicians need training to give them advanced level of knowledge about Refeeding Syndrome to be able to deal with the physiological changes that occur in critically ill.

2.8.2 PTU Refeeding Syndrome: is our Knowledge Deficient 001- a

Mohanaruban, J Landy, C Gouveia, C Collins Abstract

The 2006 NICE guidelines on “Nutrition support in adults” recommend screening and identification of patients at risk of Refeeding Syndrome (RS). Despite the implementation of local hospital policies, RS still occurs. This may, in part, be due to a lack of awareness amongst clinicians responsible for at risk patients. We aimed to assess the knowledge and awareness of RS amongst medical doctors in our Trust.

Methods

We conducted a questionnaire survey of doctors' practices between April and August 2008. In total 68 doctors, working in medical specialties, from FY1 to Consultants, were surveyed.

Results

The overall response rate was 40 (59%). Only 10% were unaware of RS (all FY doctors). However, only 35% were aware of the importance of correcting electrolyte imbalance when commencing enteral feeding. 30% would not monitor electrolytes daily with 25% of the respondents unaware of the important electrolytes to monitor. Although 90% of respondents recognized thiamine as important supplementation, only 20% indicated they would prescribe this to all at risk patients. Only 58% stated they would provide Vitamin B Co-strong and only 63% multivitamins or trace element supplements.

Conclusion

RS is potentially fatal. It is essential that clinicians are aware and able to identify at risk patients. This survey highlights that, although many clinicians are familiar with RS and its effects, there is a lack of awareness regarding the NICE guideline and practice aimed at its prevention in those patients at high risk. Most strikingly, 65% of the doctors surveyed did not consider starting enteral feed prior to or alongside correcting any electrolyte imbalances. Delaying the onset of enteral feed may put patients at greater risk of malnutrition. Further education and training about RS are necessary for all grades, particularly junior doctors.

2.8.3 Incidence of Refeeding Syndrome and Its Associated Factors in South African Children Hospitalized with Severe Acute Malnutrition by: Audrey Philisiwe Mbethe, Siyazi Mda

Abstract

A prospective study of 104 children with SAM admitted to the pediatric-unit of Dr George Mukhari Academic Hospital (a teaching hospital in Pretoria, South Africa) since March 2014 to March 2015 was conducted. On admission, history on socioeconomic status and co-morbidities, a comprehensive clinical examination, and anthropometric measurements were obtained. All the patients were managed using the 10 steps of management of malnutrition with cautious feeding and broad-spectrum antibiotics being instituted. Bloods were taken for calcium, magnesium, phosphorous, urea, and electrolytes on admission and compared to repeat bloods done on day 5 post admission.

Results

There were 46 (44%) females. The mean age was 16 months with a mean weight-for-height Z-score of -2.15 ± 1.87 . The majority 63% (63/104) of the children had edematous SAM. There was an HIV infection rate of 33% (35/104). The incidence of refeeding syndrome was 16/104 (15%). Refeeding Syndrome was strongly associated with the following medical complications: diarrhea 81% (13/16), shock 25% (4/16), and hypokalemia 81% (13/16) (P value < 0.01). Admission potassium and phosphorus were strongly associated with refeeding

syndrome with a mean of 3.04 ± 1.16 for potassium and 1.14 ± 0.39 for phosphate (P value < 0.05). Refeeding Syndrome was also strongly associated with hypophosphatemia (0.65 ± 0.28), hypocalcemia (2.34 ± 0.24), and hypomagnesaemia (0.91 ± 0.52) on day 5 repeat bloods (P value < 0.0001).

Conclusions:

The complication of Refeeding Syndrome is a major problem that occurs with the reintroduction of feeding in children with severe acute malnutrition. This detrimental complication can be avoided by practices that promote cautious feeding, and as well, clinicians being vigilant in detecting the complication in all children with severe acute malnutrition. (27)

Recommendation

Refeeding Syndrome can be avoided by practices that promote cautious feeding, and as well, clinicians being vigilant in detecting the complication in all children with severe acute malnutrition.

CHAPTER 3: METHODOLOGY

3.1 Conceptual framework of study:

Knowledge regarding Refeeding Syndrome among doctor and nurses:

1- Doctor's and nurse's knowledge.

2- Doctor's and nurse's education.

3.2 Study design:

Cross-sectional, descriptive study

3.3 Study duration:

Data collection in the period from September 10, 2022 to December 02.2022

3.4 Study area:

The study was conducted in five different hospitals in Sana'a (University of Science and Technology hospital, AL-Askari hospital, AL-Jmhori hospital, AL-Thorah hospital, AL-Kuwait hospital).

3.5 Study population:

Doctor and Nurses in the intensive care units and inpatient.

3.6 Inclusion criteria:

All nurses and doctors are in care units, and specialist doctors.

3.7 Exclusion criteria:

Uncooperative doctors or nurses were excluded. Nurses and Doctor of Emergency units were also excluded.

3.8 Sampling method:

A convenience sample, all doctor's ICU, nurses and doctors available during data collection were invited to be involved in the study.

3.9 Study tool:

A pre-designed, semi-structures questionnaire was prepared relying on literature review and study objective appendix. Frist part of the questionnaire included a personal information (gender, age, education, years of experience and role in the ICU). Second part included medical information related to Refeeding Syndrome. A copy of the questionnaire is the appendix. The total score of knowledge was scored as 75% or more of correct answer is considered good level of knowledge, 60% to less than 75% is considered faire level, but less than 60% was considered poor level.

3.10 Data collection:

A cross-sectional, descriptive study was conducted in the period of August 28.2022 to October 02. 2022, data collected from five different hospital in Sana'a, Yemen. The study population was formed of doctors and nurses in the ICU, and inpatient wards. Questionnaire was prepared relying on literature review and study objective, first part of the questionnaire included personal information (gender, age, education, years of experience and role in the ICU); second part included medical information related to Refeeding Syndrome. Data collected by distributing questionnaire among doctors and nurses in the capital's hospital to find their knowledge regarding Refeeding Syndrome. (SPSS) was used for data analysis, tables and graphs were used to display data, and chi square test was used to test differences between categories. The test was considered to be significant if P value <0.05

3.11 Study variable.

- Dependent variable:
Role in the ICU, years of experience.
- Independent variable:
Age

3.12 Data analysis:

- Statistical package for the social sciences (SPSS), version 26 was used for data analysis.
- Nominal and categorical variables were described by frequencies and percentages.
- Continuous variable by means and SD, minimum and maximum.
- Tables and graphs were used to display data.
- Chi square test was used to test relation between two quality variables.
- The test was considered to be significant if P-value <0.05.

3.13 Ethical consideration:

The supervisor and then approval taken from the clinical nutrition & dietetics department reviewed the proposal. During data collection, the aim of the study was briefly explained to doctors and nurses. A verbal consent obtained from each one before starting to ask questionnaire. They were also informed that data will be used merely for the purpose of research and will be treated confidentially and no indicative information-like name-will be disseminated.

3.14 Dissemination of the results:

The study will be presented to CND team as a partial fulfillment of bachelor's degree in Clinical Nutrition & Dietetics. - The study also might be useful for interested personnel and related agencies. It could be shared with Dietitians.

CHAPTER 4: RESULTS & DISCUSSION

Refeeding Syndrome is known to be an excessively unknown illness leading to preventable morbidity and mortality in high-risk groups. Moreover, Refeeding Syndrome is a potentially fatal case that can be successfully managed and prevented if it is detected and treated early.

The knowledge of 90 doctors and nurses (17 doctors, 73 nurses) about diagnosis and treatment Refeeding Syndrome was evaluated.

4.1 Distribution of the sample according to age

Current study includes 90 doctors and nurses their age range between 20-45 years old, with mean and SD of 28 ± 5.604 , (Table 4.1 & figure 4.1).

Table 4.1. Distribution of the sample according to age

Age groups	Count	Percent
Less than 25	12	13.3%
From 25 to 35	41	45.5%
More than 35	5	5.6%
Missing	32	35.6%
Total	90	100%

Minimum = 20 years, Maximum = 45 years, Mean \pm SD = 28 ± 5.604 years.

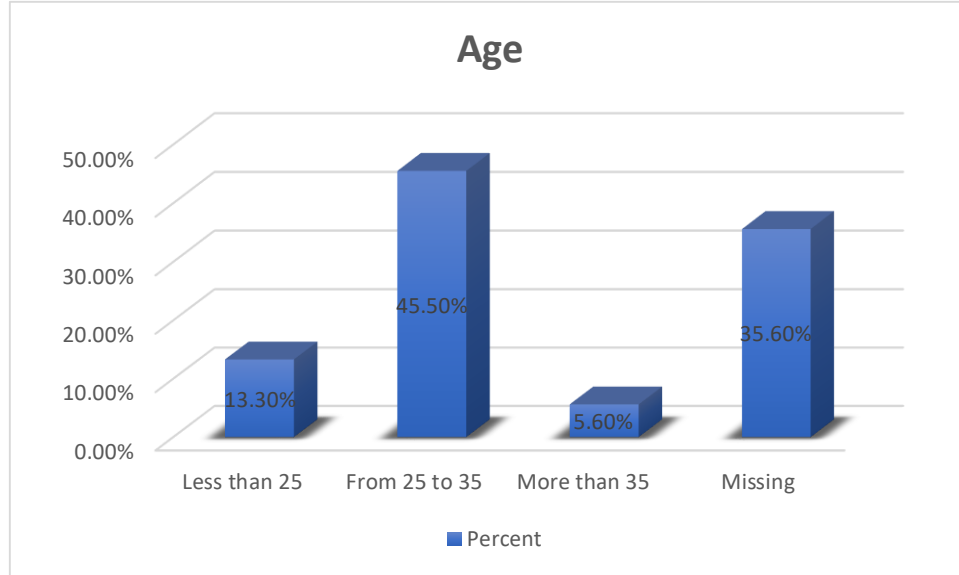


Figure 4.1. Distribution of the sample according to age

In this study the mean age is (28 ± 5.604) this result is in disagreement with the result of (Mahran and Abdelrahman, 2019) the mean age (25.76 ± 4.315) . In present study, most of the doctors and nurses (45.5%) were between (25-35 years old), because these ages are the golden employment age.

4.2 Distribution of the sample according to education level

Out of 90 Doctors and Nurses in the sample (14 = 15.6%) have diploma degree, (64 = 71.1%) have bachelor's degree, (8 = 8.9%) have master's degree, (4 = 4.4%) have doctorate degree, (Table 4.2 & figure 4.2).

Table 4.2 Distribution of the sample according to education level

Education level	Count	Percent
Diploma	14	15.6 %
Bachelor	64	71.1%
Master	8	8.9%
Doctorate	4	4.4%
Total	90	100.0%

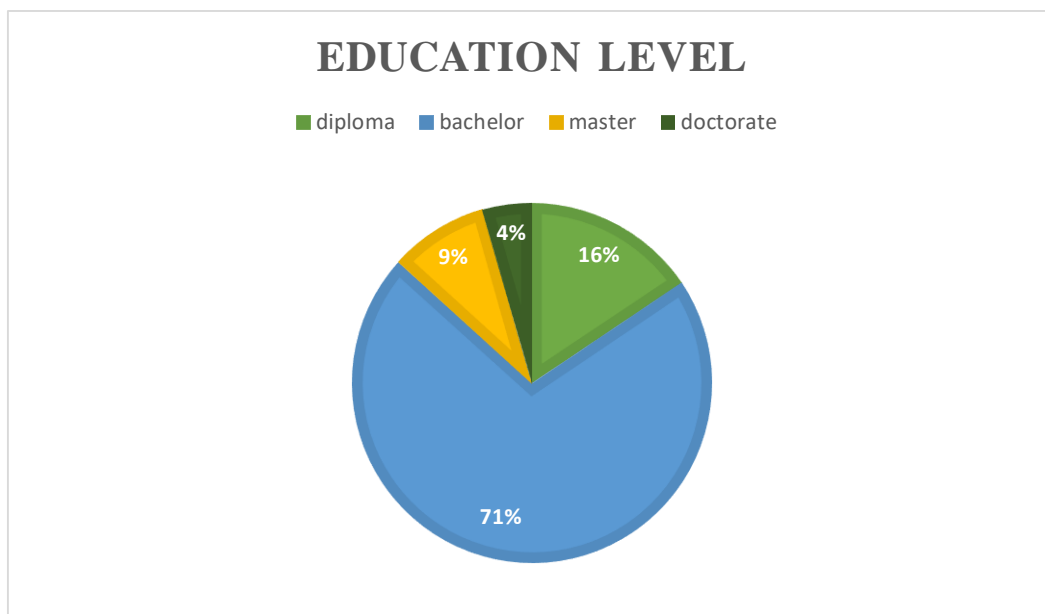


Figure 4.2. Distribution of the sample according to education level

Out of 90 Doctors and Nurses in the sample, the majority have Bachelor degree (64 = 71.1%), and the minor sample were (4 = 4.4%) have doctorate degree. The cause of most workers have bachelor degree that the ICU require more qualified nurses when comparing to other sections in the hospital. This result is the same with (Mahran and Abdelrahman, 2019) most nurses and physicians (67.35%) were bachelor degree.

4.3 Distribution of the sample according to years of experience

Most of doctors and nurses have years of experience from 0-5 (60%), then 6-10 years of experience come second (27.8%), and the least percentage was more than 10 years of experience (12.2 %), (Table 4.3, Figure 4.3).

Table 4.3 Distribution of the sample according to years of experience

Years of experience	Count	Percent
0 to 5 years	54	60.0%
6 to 10 years	25	27.8%
more than 10 years	11	12.2%
Total	90	100.0%

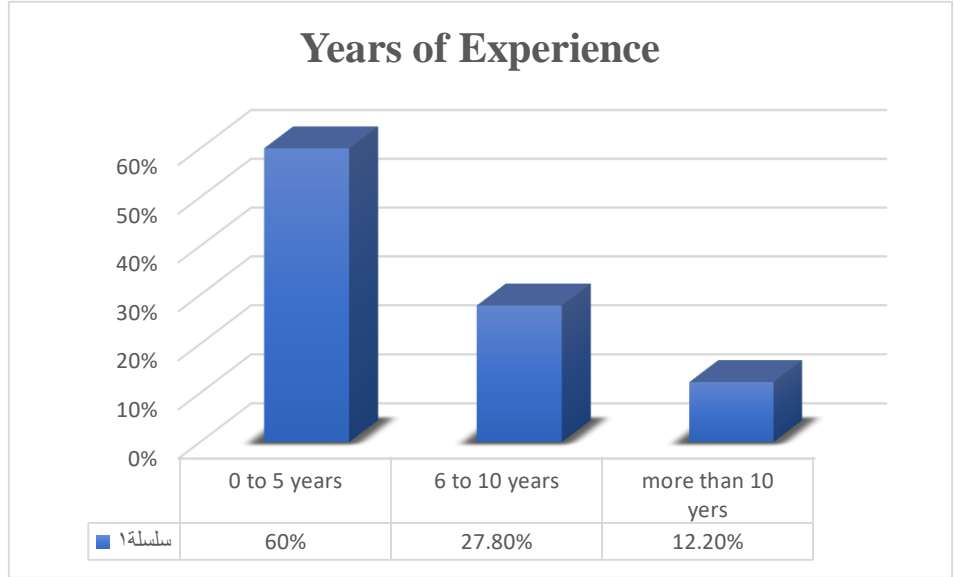


Figure 4.3 Distribution of the sample according to years of experience.

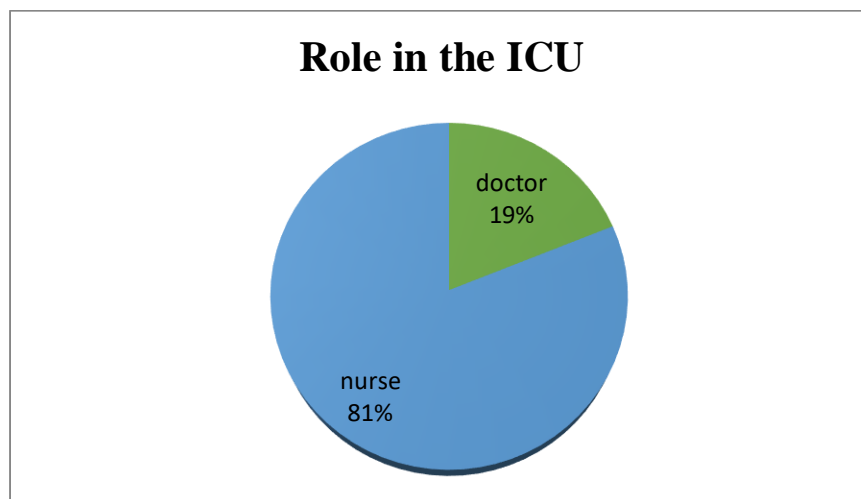
Table 4.3 shows that the highest percentage of experience years is (0-5 years) this means that doctors and nurses in the ICU of Yemen’s hospitals miss experience. The result of this study is in agreement with (Mahran and Abdelrahman, 2019) result about years of experience (0-5 years)

4.4 Distribution of the sample according to role in the ICU

The maximum of the sample is from nurses (81.1%), and the minimum is from doctors (18.9%), (Table 4.4 & figure 4.4).

Table 4.4 Distribution of the sample according to role in the ICU

Role in the ICU	Count	Percent
Doctors	17	18.9%
Nurses	73	81.1%
Total	90	100%



Person chi-square (2) = 10.339 P-value 0.006

Figure 4.4 Distribution of the sample according to role in the ICU

The percentage of the nurses in ICU is more than doctors, because the response rate from doctors was less than nurses because doctors are busy, and there is less number of doctors in ICU in all hospital in our study, this result is in agreement with result of (Mahran and Abdelrahman, 2019) which found that nurses percent was (54.5%) and the doctors percent was (45.5%).

4.5 Distribution of the sample according to medical information:

Concerning about the type of nutrition that is associated with Re-feeding syndrome, the highly percentages (57.8%) of answered correctly the oral nutrition, nasogastric tube nutrition and parenteral nutrition, the rest of the sample choose the false answers (42.2%). In concern to the hallmark laboratory abnormality, (34.4%) answered correctly and (65.6%) answered wrongly. Regarding to the cause of electrolyte disturbance in Re-feeding syndrome, (24.4%) stated correctly electrolyte shift from the extracellular to the intracellular and (75.6%) stated wrongly. In relation to the most common vitamin deficiency in re-feeding syndrome (26.7%), correctly stated Vitamin B 1 (thiamine) versus (73.3%) choose the wrong answers. In concern to the type of magnesium, (18.8%) selected intracellular cation that is the right answer, and (81.1%) choose the false answers. Related to the risk factors of RFS, (23.3%) answered hypertension that is the true answer, (76.7%) stated false answers. Regarding to the operation that increases risk for RFS, (62.2%) answered duodenal-switch operations, which is the true answer, while (37.8%) choose the false answers. In concern to the risky weight loss for RFS, (55.6%) correctly stated greater than 10% over a couple of months. In the other hand, (44.4%) selected incorrect answers. For the cause of increased risk to RFS in patients undergoing chemotherapy, (55.6%) correctly answered anorexia nervosa, in the other hand, (44.4%) selected incorrect answers. Regarding to the cause of increased risk to RFS in patients with stroke (51.1%) stated correctly dysphagia. While (48.9%), stated false answers. Regarding to the cause of

impaired respiratory muscle function sometimes resulting in respiratory failure or ventilator dependency occur in patients with RFS, (20.0%) Correctly stated hypophosphatemia, (80.0%) choose incorrect answers. In matter of the cause of ocular disturbance, confusion, ataxia, and coma occur in patients with RFS, (27.8%) stated correctly Thiamine (vitamin B1) deficiency, while (72.2%) stated the incorrect answers. Regarding to the cause of cardiac arrhythmias, hypotension, and cardiac arrest occur in patients with RFS, (52.2%) stated correctly hypokalemia, while (47.8%) choose the false answers. As regard to the cause of abdominal discomfort and anorexia have been described in patients with RFS, only (20.0%) stated correctly hypomagnesaemia, in the other hand (80.0%) stated wrongly answers. For the management of re-feeding syndrome, the calorie repletion should be slow at approximately 5 kcal/kg per day, this was correctly stated by (45.6%), versus (54.4%) stated wrongly answers. The important nursing care for patients with RFS, (61.1%) stated correctly: connect patients to cardiac monitor; vitamins supplementation and monitor electrolyte daily, in the other hand (38.9%) choose the false answers, (Table 4.5 & figure 4.5)

Table 4.5 Distribution of the sample according to medical information

Items	True answers		False answers	
	count	Percent	Count	Percent
Q5. Re-feeding syndrome comprises a constellation of metabolic disturbance that occur with:	52	57.8%	38	42.2%
Q6. the hall mark laboratory abnormality in RFS is:	31	34.4%	59	65.6%
Q7. electrolyte disturbance in Re-feeding syndrome occurs mainly due to:	22	24.4%	68	75.6%
Q8. the most common vitamin deficiency in RFS is:	24	26.7%	66	73.3%
Q9. magnesium is important :	17	18.9%	73	81.1%
Q10. risk factor of RFS is the following except:	21	23.3%	69	76.7%
Q11. which of the following operation increase risk of RFS:	56	62.2%	34	37.8%
Q12. the risky weight loss of RFS:	50	55.6%	40	44.4%
Q13. patients undergoing chemotherapy are risky for RFS due to:	50	55.6%	40	44.4%

Q14. patients with stroke are risky for RFS due to:	46	51.1%	44	48.9%
Q15. impaired respiratory muscles function sometimes resulting in respiratory failure or ventilator dependency occur in patients with RFS due to:	18	20.0%	72	80.0%
Q16. ocular disturbance, confusion, ataxia, and coma occur in patient with RFS due to:	25	27.8%	65	72.2%
Q17. cardiac arrhythmias, hypotension, and cardiac arrest occur in patients with RFS due to:	47	52.2%	43	47.8%
Q18. abdominal discomfort and anorexia have been described in patients with RFS due to:	18	20.0%	72	80.0%
Q19. the calorie repletion should be slow at approximately:	41	45.6%	49	54.4%
Q20. which of the following is most important nursing care for patients with RFS:	55	61.1%	35	38.9%
Total	573	636.7%	867	963.3%

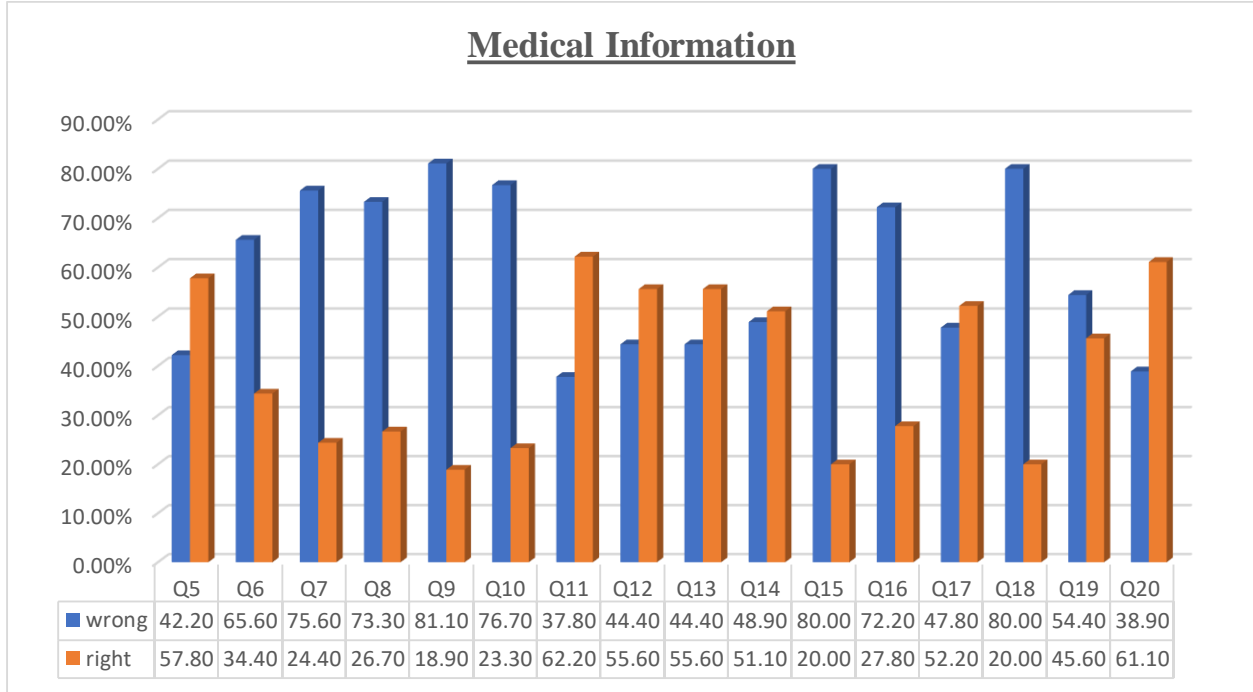


Figure 4.5 Distribution of the sample according to medical information

Q5. About Re-feeding syndrome comprises a constellation of metabolic disturbance that occur with:

In our study, 57.8% choose the correct answer, comparable with (Mahran and Abdelrahman, 2019) 34.3% answered correctly.

Q6.the hallmark laboratory abnormality in RFS is:

In our study 34.4% choose the correct answer, this result is with agreement with the result of (Mahran and Abdelrahman, 2019) 30% answered correctly.

Q7. Electrolyte disturbance in Re-feeding syndrome occurs mainly due to:

In our study 24.4% choose the correct answer, while on the (Mahran and Abdelrahman, 2019) 88.35% answered correctly.

Q8.the most common vitamin deficiency in RFS is:

In our study, 26.7% choose the correct answer, comparable with (Mahran and Abdelrahman, 2019) 79% answered correctly.

Q9. Magnesium is important:

In our study 18.9% choose the correct answer, in contrast, (Mahran and Abdelrahman, 2019) 76.65% answered correctly.

Q10. Risk factor of RFS is the following except:

In our study, 23.3% choose the correct answer, comparable with (Mahran and Abdelrahman, 2019) 38% answered correctly.

Q11. Which of the following operation increase risk of RFS:

In our study 62.2% choose the correct answer, while on the (Mahran and Abdelrahman, 2019) 75% answered correctly.

Q12. The risky weight loss of RFS:

In our study 55.6% choose the correct answer, conversely, (Mahran and Abdelrahman, 2019) 16% answered correctly.

Q13. Patients undergoing chemotherapy are risky for RFS due to:

In our study, 55.6% choose the correct answer, comparable with (Mahran and Abdelrahman, 2019) 27.35% answered correctly.

Q14. Patients with stroke are risky for RFS due to:

In our study 51.1% choose the correct answer, in contrast, (Mahran and Abdelrahman, 2019) 11.65% answered correctly.

Q15. Impaired respiratory muscles function sometimes resulting in respiratory failure or ventilator dependency occur in patients with RFS due to:

In our study 20% choose the correct answer, showing agreement with (Mahran and Abdelrahman, 2019) 19.65% answered correctly.

Q16. Ocular disturbance, confusion, ataxia, and coma occur in-patient with RFS due to:

In our study 27.8% choose the correct answer, while on the (Mahran and Abdelrahman, 2019) 36.65% answered correctly.

Q17. Cardiac arrhythmias, hypotension, and cardiac arrest occur in patients with RFS due to:

In our study 52.2% choose the correct answer, conversely, (Mahran and Abdelrahman, 2019) 24.65% answered correctly.

Q18.abdominal discomfort and anorexia have been described in patients with RFS duo to:

In our study 20% choose the correct answer, showing agreement with (Mahran and Abdelrahman, 2019) 23% answered correctly.

Q19.the calorie repletion should be slow at approximately:

In our study, 45.6% choose the correct answer, comparable with (Mahran and Abdelrahman, 2019) 22.35% answered correctly.

Q20.which of the following is most important nursing care for patients with RFS:

In our study 61.1% choose the correct answer, while on the (Mahran and Abdelrahman, 2019) 39.65% answered correctly.

The total score of knowledge was scored as 75% or more of correct answer is considered good level of knowledge, 60% to less than 75% is considered faire level, but less than 60% was considered poor level.

Regarding to the total mean score of both nurses and doctors was poor level (39.79%).

That is in agreement with the (Mahran and Abdelrahman, 2019) (44.3 %) poor level

4.6 Distribution of the sample according to role in the ICU and total knowledge:

Table below shows that percent of poor knowledge is more among nurses (89.7%), while doctors (10.3%). The average knowledge in nurses is higher (81.8%) than doctors (18.2%). The good knowledge is more in doctors (66.7%) than nurses (33.3%) are, (Table 4.6 & figure 4.6).

Table 4.6 Distribution of the sample according to role in the ICU and total knowledge:

Item		Total Knowledge						P-value
		Poor knowledge		Average knowledge		Good knowledge		
		Count	percent	Count	percent	Count	percent	
Role in the ICU	Doctor	3	10.3%	10	18.2%	4	66.7%	0.017
	Nurse	26	89.7%	45	81.8%	2	33.3%	
Total		29	100%	55	100%	6	100%	

_Out of 13 questions, number of correct answers were chosen shows: Poor knowledge (0–4), Average Knowledge (5–9), Good Knowledge (10–13).

There is statistical significant relation between the role in the ICU and the total knowledge P-value < 0.05

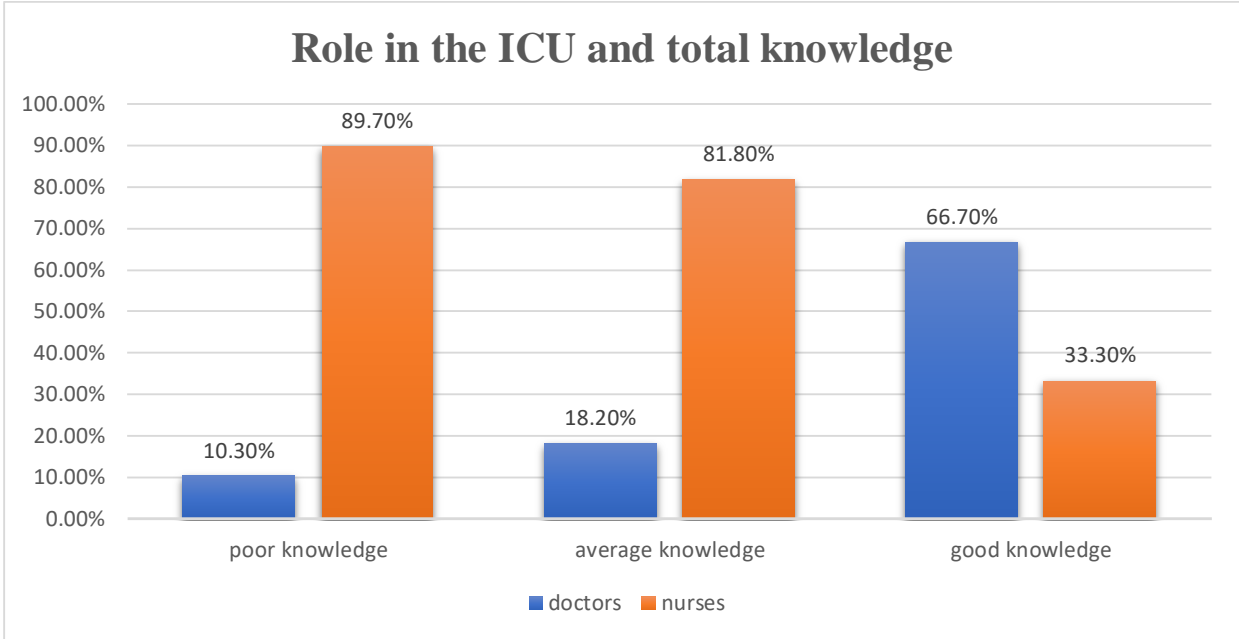


Figure 4.6 Distribution of the sample according to role in the ICU and total knowledge:

In this study, we found the level of knowledge about Refeeding Syndrome among doctors is good, while among nurses is poor.

Because the level of education in doctors is greater than nurses. In addition, their medical study is more comprehensive, and years of study is longer than nursing study.

4.7 Distribution of the sample according to role in the ICU and electrolyte

knowledge:

Table below shows that percent of poor knowledge is more among nurses (85.1%), while doctors (14.9%). The average knowledge in nurses is higher (62.5%) than doctors (37.5%). There is no good knowledge because no one has answered 3 out of 3 questions, (Table 4.7 & figure 4.7).

Table 4.7 Distribution of the sample according to role in the ICU and electrolyte

knowledge:

Item		Electrolyte Knowledge				P-value
		poor		average		
		Count	percent	Count	percent	
Role in the ICU	Doctor	11	14.9%	6	37.5%	
	Nurse	63	85.1%	10	62.5%	
Total		74	100%	16	100%	

Out of 3 questions, number of correct answers was chosen shows: Poor knowledge (0–1), Average Knowledge (2), Good Knowledge (3).

There is statistical significant relation between the role in the ICU and the total knowledge P-value < 0.05

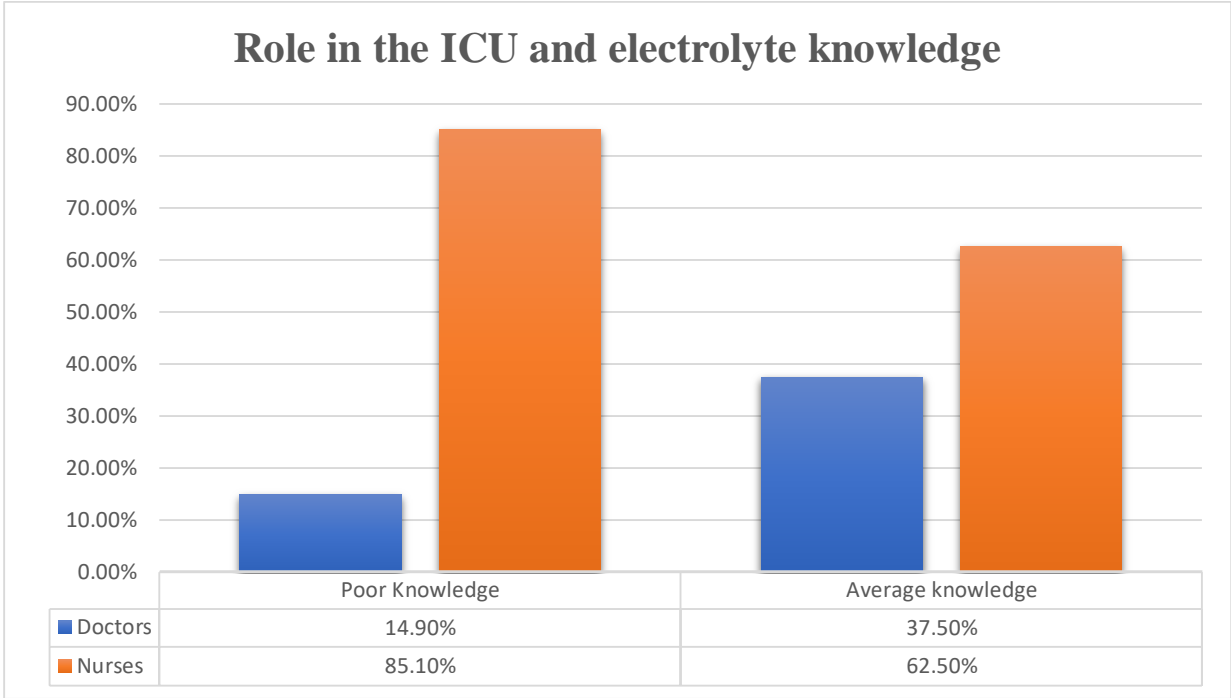


Figure 4.7 Distribution of the sample according to role in the ICU and Electrolyte knowledge:

In this study, we found the level of electrolyte knowledge among nurses is more than doctors. Because the nurses are dealing with normal saline that contain electrolyte, and nurses are in contact with patients more closely than doctors are.

CHAPTER 5: CONCLUSION

In this study, the mean age is (28 ± 5.604) . Out of 90 Doctors and Nurses in the sample, the majority have Bachelor. Most of doctors and nurses have years of experience from 0-5. The maximum of the sample is from nurses. Regarding to the total mean score of both nurses and doctors medical information knowledge was poor level. About general knowledge, it is good among doctors. Regarding electrolyte knowledge average knowledge among nurses.

CHAPTER 6: RECOMMENDATIONS

Recommendations to increase the knowledge and awareness of Refeeding Syndrome among doctors and nurses:

1. Educational programs to improve the knowledge of the nursing staff regarding Refeeding Syndrome need to be implemented.
2. Nurse guided protocol, based on current nutrition guidelines should be introduced to optimize nutrition care. (Ben-Tovim and Theilla, 2021)
3. Compulsion the health sector to employ nutrition specialized or dietitian in the central hospitals especially in the ICU. (Ben-Tovim and Theilla, 2021)
4. Providing the management guidelines of Refeeding Syndrome:
 - Identify patients who are at risk of RFS, document in medical notes and refer to dietitian urgently for nutritional assessment and prescription prior to commencing nutrition.
 - Collect recent weight history.
 - Measure patient weight, height.
 - Baseline investigation and clinical assessment (potassium, magnesium, phosphate) prior to commencing nutrition.
 - Correct electrolyte abnormalities before RFS aiming for mid normal range.

- Prescribe supplements before starting RFS (thiamine, multi vitamins, and minerals).
- Nutrition prescription by dietitian: commence nutrition at 40-50% of requirement.
- Monitor during RFS period: hr., RR, BP, and (initially 4-5 hourly) consider cardiac monitoring if required.
- Monitor fluid input and output, repeat ECG as required.
- Review patient at least twice-daily initially epically monitoring cardiovascular, neurological, mental, respiratory status, and fluid balance.
- Monitor electrolytes at least every 24 hours for the first 3 days.
- Weigh daily initially (first 4 days) then twice weekly.
- If clinically stable, electrolyte stable for at least 24 hours, increase feeds as guided by dietitian 10-20% calories increment daily until final requirements are met.
- when electrolytes drop but still in normal range, clinically stable, do not increase feeds, correct electrolytes using oral supplements or iv sidelines, recheck electrolytes at least every 24 hours.
- If electrolytes drop outside normal range or any sign or symptoms of RFS develop:
 - a- Discuss with senior staff, reduce or consider ceasing feeds.
 - b- Correct electrolyte and stabilize clinically.

- c- Recheck electrolytes at least every 24 hours.
 - Continue supplementation and monitor for RFS at least until electrolytes and clinical status are stable.
- 5. In addition to guidelines for the identification of patients at risk of Refeeding Syndrome , we advise that local service providers consider implementing of guidelines for electrolyte repletion to maximize patient benefits.
- 6. Nurses and physicians need training to give them advanced level of knowledge about Refeeding Syndrome to be able to deal with the physiological changes that occur in critically ill patients.

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APPENDIX

English format questionnaire

Questionnaire of the awareness of the Re-feeding Syndrome in the

ICU's Doctors and Nurses

1. Age:

2. Education:

- a) Diploma
- b) Bachelor
- c) Master
- d) Doctorate

3. Years of experience:

- a) 0-5 years
- b) 6 to 10 years
- c) More than 10 years

4. Role in the ICU:

- a) Doctor
- b) Nurse

5-Re-feeding syndrome comprises a constellation of metabolic disturbance that occur with:

- a) Parenteral nutrition
- b) Nasogastric tube nutrition
- c) Oral nutrition
- d) All of the above

6- The hallmark laboratory abnormality in RFS is:

- a) hypophosphatemia
- b) hyperkalemia
- c) hypomagnesaemia
- d) high erythrocyte sedimentation rate

7-Electrolyte disturbance in re-feeding syndrome occur mainly due to:

- a) electrolyte shift from the extracellular to the intracellular compartment
- b) electrolyte shift from the intracellular to the extracellular compartment
- c) Decrease electrolyte supplementations.
- d) hypervolemia

8- Eight-The most common vitamin deficiency in Refeeding Syndrome is:

- a) Vitamin B 1 (thiamine)
- b) Vitamin D
- c) Vitamin A
- d) Vitamin C

9-Magnesium is an important

- a) intracellular ion
- b) intracellular action
- c) extracellular ion
- d) extracellular cation

10-Risk factors of RFS are the following except:

- a) Malignancy
- b) alcoholism
- c) intestinal mal-absorption
- d) hypertension

11-Which of the following operation increase risk for RFS:

- a) duodenal-switch operations
- b) mastectomy
- c) tonsillectomy
- d) open heart surgery

12-The risky weight loss for RFS:

- a) Greater than 10% over a couple of months.
- b) Greater than 5% over a couple of months.
- c) Less than 10% over a couple of months.
- d) Less than 5% over a couple of months.

13-Patients undergoing chemotherapy are risky for RFS due to:

- a) Anorexia nervosa.
- b) Metastasis.
- c) Bleeding.
- d) Stress

14-Patients with stroke are risky for RFS due to:

- a) Anorexia nervosa.
- b) Dysphagia.
- c) Bleeding
- d) vomiting

15-Impaired respiratory muscle function sometimes resulting in respiratory failure or ventilator dependency occur in patients with RFS due to:

- a) Hypophosphatemia.
- b) Hypomagnesaemia
- c) Hypokalemia.
- d) Thiamine (vitamin B1) deficiency

16-Ocular disturbance, confusion, ataxia, and coma occur in patients with RFS

due to:

- a) Hypophosphatemia.
- b) Hypomagnesaemia
- c) Hypokalemia.
- d) Thiamine (vitamin B1) deficiency

17- Cardiac arrhythmias, hypotension, and cardiac arrest occur in patients with

RFS due to:

- a) Hypophosphatemia
- b) Hypomagnesaemia
- c) hypokalemia
- d) Thiamine (vitamin B1) deficiency

18- Abdominal discomfort and anorexia have been described in patients with RFS

due to:

- a) Hypophosphatemia.
- b) Hypomagnesaemia.
- c) hypokalemia
- d) Thiamine (vitamin B1) deficiency

19- The calorie repletion should be slow at approximately:

- a) 5 kcal/kg per day.
- b) 10 kcal/kg per day
- c) 15 kcal/kg per day.
- d) 20 kcal/kg per day

20-Which of the following is most important nursing care for patients with RFS.

- a) Connect patients to cardiac monitor, vitamins supplementation and monitor electrolyte daily.
- b) Connect patients to oxygen.
- c) Suctioning
- d) Connect patient to urinary catheter.



السلام عليكم ورحمة الله وبركاته ،،،،، وبعد

إن هذه الاستبانة تهدف إلى تقييم الوعي والمعرفة لدى الأطباء والممرضين بخصوص متلازمة إعادة الغذاء- Refeeding Syndrome في وحدات العناية المركزة في المستشفيات، وتهدف أيضا لمعرفة تواجد الدور التغذوي في هذه الحالات.

ولا شك أن تعاونكم معنا سيكون له الأثر البالغ في تحقيق الهدف المنشود من هذه الدراسة لذا نرجو منكم التكرم بإعطاء المعلومات على النقاط المذكورة أدناه.

ومع رغبتنا في تعاونكم الكريم فإننا حريصون على أن المعلومات الواردة في الاستبانة لن تستخدم إلا لأغراض البحث العلمي ولن يتم التطرق إلا للنتائج العامة وبمنتهى السرية، ولكم كامل الحرية في المشاركة أو الاعتذار عن المشاركة دون تحمل أي تبعات.

مع خالص الشكر والتقدير،

الباحثون/طالبات قسم التغذية العلاجية والحميات

جامعة العلوم والتكنولوجيا

الملحق العربي

استبيان الوعي بمتلازمة إعادة التغذية لدى أطباء وممرضات العناية المركزية والطوارئ

1. العمر:

2. درجة التعليم:

- دبلوم
- بكالوريا
- ماجستير
- دكتوراه

3. سنوات الخبرة:

- 0-5 سنوات
- 6 – 10 سنوات
- أكثر من 10 سنوات

4. الدور في وحدة العناية المركزية:

- دكتور /هـ
- ممرض/هـ

5. تكون متلازمة إعادة التغذية من مجموعة من الاضطرابات الأيضية التي تحدث مع

- التغذية الوريدية
- تغذية الانبوب الأنفي المعدي
- التغذية الفموية

- كل ما ورد اعلاه

6. السمة المميزة التي تظهر في الفحوصات المختبرية في RFS هي:

- نقص فوسفات الدم

- فرط بوتاسيوم الدم

- فرط مغنسيوم الدم

- ارتفاع معدل ترسيب كرات الدم الحمراء

7. يحدث اضطراب الإلكترولونات في متلازمة إعادة التغذية بشكل رئيسي بسبب:

- انتقال الإلكترولونات من خارج الخلية إلى داخل الخلايا

- انتقال الإلكترولونات من داخل الخلية إلى خارج الخلية

- تقليل كمالات الإلكترولونات

- فرط حجم الدم

8. أكثر أنواع نقص الفيتامينات شيوعاً في متلازمة إعادة التغذية هو:

- فيتامين ب 1 (الثيامين)

- فيتامين د

- فيتامين أ

- فيتامين ج

9. المغنيسيوم مهم في:

- أيون داخل الخلايا
- الكاتيون داخل الخلايا
- أيون خارج الخلية
- الكاتيون خارج الخلية

10. عوامل الخطر لمتلازمة إعادة التغذية هي التالي باستثناء:

- الورم الخبيث
- إدمان الكحول
- سوء الامتصاص المعوي
- ارتفاع ضغط الدم

11. أي من العمليات التالية تزيد من مخاطر متلازمة إعادة التغذية:

- عمليات تبديل الاثني عشر
- استئصال الثدي
- استئصال اللوزتين
- جراحة القلب المفتوح

12. خسارة الوزن المحفوفة بالمخاطر بالنسبة لمتلازمة اعادة التغذية:

- أكثر من 10 % خلال شهرين
- أكثر من 5 % خلال شهرين
- أقل من 10 % على مدى شهرين
- أقل من 5 % على مدى شهرين

13. المرضى الذين يخضعون للعلاج الكيميائي معرضون لخطر الإصابة بمتلازمة اعادة التغذية بسبب:

- فقدان الشهية العصبي
- ورم خبيث
- النزيف
- الإجهاد

14. المرضى المصابون بالسكتة الدماغية معرضون لخطر الإصابة بمتلازمة اعادة التغذية بسبب:

- فقدان الشهية العصبي
- عسر البلع
- النزيف
- القي

15. ضعف وظيفة الجهاز التنفسي مما يؤدي في بعض الأحيان إلى فشل الجهاز التنفسي أو الاعتماد على جهاز

التنفس الصناعي في المرضى الذين يعانون من متلازمة إعادة التغذية بسبب:

- نقص فوسفات الدم.
- نقص مغنسيوم الدم
- . نقص بوتاسيوم الدم
- نقص الثيامين (فيتامين ب 1)

16. يحدث اضطراب بصري، ارتباك، ترنح، وغيوبية في المرضى الذين يعانون من متلازمة إعادة التغذية

بسبب:

- نقص فوسفات الدم
- نقص مغنسيوم الدم
- نقص بوتاسيوم الدم.
- نقص الثيامين فيتامين ب 1

17. عدم انتظام ضربات القلب وانخفاض ضغط الدم والسكتة القلبية تحدث في المرضى الذين يعانون من

متلازمة إعادة التغذية بسبب:

- نقص فوسفات الدم
- نقص مغنسيوم الدم
- نقص بوتاسيوم الدم
- نقص الثيامين فيتامين ب 1

18. تم وصف الانزعاج البطني وفقدان الشهية عند مرضى متلازمة اعادة التغذية بسبب

- نقص فوسفات الدم
- نقص مغنسيوم الدم
- نقص بوتاسيوم الدم
- نقص الثيامين (فيتامين ب1)

19. يجب أن يكون امتلاء السعرات الحرارية بطيئاً تقريباً:

- 5 كيلو كالوري / كغ في اليوم
- 10 كيلو كالوري / كغ في اليوم
- 15. سعرة حرارية / كغ في اليوم
- 20 سعرة حرارية / كغ في اليوم

20. أي مما يلي هو أهم رعاية تمريضية لمرضى متلازمة اعادة التغذية:

- توصيل المرضى بجهاز مراقبة القلب ومكملات الفيتامينات ومراقبة الإلكتروليت يومياً
- توصيل المرضى بالأكسجين
- الشفط
- توصيل المريض بالقسطرة البولية

المُلخَص العَرَبِي:

مُقدمة:

تُعرَّف متلازمة إعادة التغذية بأنها تحول شديد بالأيونات الكهربائية والسوائل المرتبط باعتلالات أيضية في التمثيل الغذائي في المرضى الذين يعانون من نقص التغذية نتيجة الإدخال المفاجئ للطعام.

الهدف:

الهدف من هذه الدراسة هو تقييم الوعي بمتلازمة إعادة التغذية بين الأطباء والممرضات في وحدة العناية المركزة وجناح المرضى الداخليين.

منهجية البحث:

كانت هذه الدراسة مقطعية وصفية، تم جمع البيانات من 5 مستشفيات مختلفة في العاصمة صنعاء. تم تشكيل مجتمع الدراسة من الأطباء والممرضات في وحدات العناية المركزة وأقسام الرقود. تم إعداد الاستبيان بالاعتماد على مراجعة الأدبيات بالإضافة إلى هدف الدراسة، وشمل الجزء الأول من الاستبيان المعلومات الشخصية (الجنس-العمر -التعليم -سنوات الخبرة والدور في العناية)، وشمل الجزء الثاني معلومات طبية متعلقة بمتلازمة إعادة التغذية. كذلك تم جمع البيانات عن طريق توزيع الاستبيان بين الأطباء والممرضات في المستشفيات المستهدفة. تم استخدام (SPSS) لتحليل البيانات، وتم استخدام الجداول والرسوم البيانية لعرضها، أيضاً تم استخدام مربع تشي لاختبار الاختلافات بين الفئات. تم اعتبار الاختبار مهماً إذا كانت قيمة $p < 0.05$.

النتيجة:

شملت هذه الدراسة متوسط العمر (28 ± 5.604) ، وكان معظم الأطباء والممرضات بين (25- 35 سنة). علاوة على ذلك، من بين 90 طبيبياً وممرضاً في العينة $(14 = 15.6 \%)$ حاصلين على درجة الدبلوم، $(64 = 71.1 \%)$ حاصلون على درجة البكالوريوس، $(8 = 8.9 \%)$ لديهم درجة الماجستير، $(4 = 4.4 \%)$ حاصلون

على درجة الدكتوراه، والأغلبية لديهم درجة البكالوريوس (64 = 71.1 %). بالإضافة، فإن معظم الأطباء والمرمضات لديهم خبرة سنوات من 0-5 (60 %)، ثم 6-10 سنوات من الخبرة تأتي في المرتبة الثانية (27.8 %)، وكانت النسبة المئوية الأقل أكثر من 10 سنوات من الخبرة (12.2 %). وفقًا للدور في وحدة العناية المركزة، يكون الحد الأقصى للعينة من الممرضات (81.1 %)، والحد الأدنى هو من الأطباء (18.9 %). وفقًا للمعلومات الطبية، فقد كان متوسط نسبة الوعي بمتلازمة إعادة التغذية ضعيف بنسبة (39.7 %). فيما يخص المعلومات العامة فقد كانت النسبة أعلى عند الأطباء مقارنة بالممرضين، لكن بالنسبة للمعلومات التي تخص الالكتروليت فقد كتان الوعي عند الممرضين أكثر منه عند الأطباء.

الخلاصة والتوصيات:

في هذه الدراسة، متوسط العمر هو (28 ± 5.604). من بين 90 طبيبًا وممرضًا في العينة، وكانت النسبة الأكبر للمرضين. وكان الغالبية من الأطباء والممرضين حاصلين على درجة البكالوريوس مع سنين خبرة تتراوح ما بين 0-5 سنوات.

فيما يتلق بالمعلومات الطبية فقد كانت نسبة الوعي ضعيف، بينما ما يتعلق بالمعلومات العامة فقد كانت نسبة الوعي عند الأطباء متوسطة، فيما يخص المعلومات المتعلقة بالالكترولايت فقد كانت نسبة الوعي عند الممرضين متوسطة.

من المهم زيادة الوعي خلال الأطباء والممرضين فيما يخص متلازمة إعادة التغذية من خلال تدريسهم بمصطلحات متقدمة خلال دراستهم وتدريبهم بشكل مناسب ليصبحوا قادرين على التعامل مع التغيرات الفسيولوجية في الأمراض الحرجة الذين قد يكونون عرضة لهذه المتلازمة.

الكلمات المفتاحية: متلازمة إعادة التغذية، وحدة العناية المركزة، أقسام الرقود، المرضى، الأطباء، الممرضين، سوء التغذية:



تقييم المعرفة المتعلقة بمتلازمة إعادة التغذية بين الأطباء والمرضات في وحدة العناية المركزة وأقسام الرقود. صنعاء، اليمن

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والحِمَّيات

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