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Universidade Federal do Estado do Rio de Janeiro

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## REVIEW

### Refeeding Syndrome: Nursing Implications

Síndrome de Realimentação: Implicações de Enfermagem

Síndrome de Realimentación: Implicaciones de la Enfermería

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### ABSTRACT

**Objective:** To identify the etiological and physiological aspects on RS and describe the main nursing approaches aimed at preventing and reducing injuries from RS. **Method:** Exploratory bibliographic research, of literature and from an online database: Biblioteca Virtual de Saúde (BVS). **Results:** RS is characterized by manifestations that are directly related to an electrolyte disorder. Its tems from the reintroduction of nutritional support in malnourished patients, which can cause lethal damages. **Conclusion:** The studied scientific production reveals sparse theoretical production on nursing care towards RS, and that is related to the process of nutritional repletion associated with enteral and parenteral nutrition therapy in which the nurse must be aware to know provide adequate care. **Descriptors:** Refeeding syndrome, Nursing, Nutrition therapy.

### RESUMO

**Objetivo:** Identificar os aspectos etiológicos e fisiológicos acerca da SR, descrever as principais condutas do (a)enfermeiro(a),visando a prevenção e redução de agravos oriundos da SR. **Método:**Pesquisa bibliográfica,com caráter exploratório,realizada através de consulta em livros e banco de dados: Biblioteca Virtual de Saúde (BVS). **Resultados:** A SR é caracterizada por manifestações que estão diretamente relacionadas por uma disfunção eletrolítica. Decorre a partir da reintrodução do aporte nutricional em pacientes mal nutridos, que pode desencadear danos letais ao paciente. **Conclusão:** A produção científica estudada aponta uma escassa produção teórica acerca dos cuidados de enfermagem frente à SR e que está se relaciona ao processo de repleção nutricional associado à terapia nutricional enteral e parenteral em que o(a) enfermeiro (a) deve estar ciente para saber prestar uma adequada assistência. **Descritores:** Síndrome de realimentação, Cuidados de enfermagem,Terapia nutricional.

### RESUMEN

**Objetivos:** Identificar los aspectos etiológicos y fisiológicos sobre el SR, describir los principales conductas de las enfermeras, destinadas a prevenir y reducir las lesiones por el síndrome de re-alimentación. **Método:** Se trata una búsqueda bibliográfica, con un carácter exploratorio, realizada por los libros de consulta y base de datos: Biblioteca Virtual en Salud (BSV). **Resultados:** El SR se caracteriza por las manifestaciones que están directamente relacionadas con un trastorno electrolítico. Se desprende de la reintroducción de la nutrición en los pacientes desnutridos, lo que puede causar daños letal es para el paciente. **Conclusión:** La producción científica demuestra una señala un escasa producción teórica sobre los cuidados de la enfermería con el SR y que este proceso está relacionado con la repleción nutricional asociadas con la terapia de la nutrición enteral y parenteral donde la enfermera debe conocer para proporcionar una atención adecuada. **Descriptor:** Síndrome de realimentación, Enfermería, Terapia nutricional.

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## INTRODUCTION

Nutritional therapy comprises one of the main nursing actions of and is equivalent to one of the fundamental steps for the establishment of the healthcare process, being the Refeeding Syndrome; it is of one of metabolic complications of this therapy. In this context, it is necessary that the nurse acquire knowledge on the symptomatology and pathophysiology, seeking to implement adequate practices in patient care.

The Refeeding Syndrome is triggered by serum depletion of phosphate (P), magnesium (Mg), potassium (K), as well as vitamin deficiency and water retention, related with the enteral or parenteral nutritional therapy. This syndrome is an important consequence of rapid and excessive food intake in severely malnourished patients. This condition began in times of war, when the military imprisoned were exposed to prolonged fasting and died immediately after being fed.<sup>1</sup>

The Refeeding Syndrome or Cellular Steal Syndrome(CSS) can cause cardiac and respiratory impairment. Is associated with severe malnourished patients or in prolonged fasting, subjected to nutritional therapy is not balanced, in phase of cellular anabolism.<sup>2</sup>

This study aims to identify the etiological and physiological aspects of Refeeding Syndrome and describe the main nursing practices, aiming at the prevention and reduction of health problems stemming from the Refeeding Syndrome.

The interest on the topic emerged from the evidence of a narrow theoretical production on nursing care towards the Refeeding Syndrome. Moreover, it is justified by the need to contribute to the construction of a scientific reference material based on understanding of the etiological factors and physiological determinants for the occurrence of this syndrome, in order to subsidize the nursing actions, providing quality assistance.

## METHODOLOGY

This is an exploratory bibliographic study. Since that, the objective of this study is to provide greater familiarity with the topic, allowing the construction of hypotheses and making it more explicit.<sup>3</sup>

The search of the bibliographic review occurred through consultation the basis of Virtual Data, Virtual Health Library (VHL), available at <http://www.bireme.br>, in addition to the consultation in specific books on nutritional therapy the appendix shows a table with the works that have been consulted for the data in this article.

The selection criteria were articles published in Portuguese and Spanish with the abstracts available in the previously cited databases, indexed by the descriptors refeeding syndrome; nursing; nutritional therapy; published between 2001-2011, which relate directly to the topic covered in the research, thus justifying their choice. The bibliographic analysis of texts was performed by means of critical reading in order to organize and summarize data in a way that enabled the provision of answers to the problem proposed for research.<sup>3</sup>

## RESULTS AND DISCUSSION

Refeeding Syndrome is characterized by symptoms that are directly related by an electrolytic dysfunction. It follows from the reintroduction of nutritional intake in poorly nourished patients. Being a metabolic complication of enteral or parenteral nutritional therapy, which can cause lethal damage to the patient.

The electrolytic dysfunction that occurs in Refeeding Syndrome is triggered by hypophosphatemia, hypomagnesaemia, hypokalemia, as well as the depletion of vitamins, especially thiamine and water retention. Such electrolytic disorders occur from the elevation of insulin secretion due to the response of the organism to a rapid and excessive intake of nutrients in susceptible patients.

Among the poorly nourished patients who are predisposed to Refeeding Syndrome are affected by malnutrition, among them Marasmus and Kwashiorkor, anorexia nervosa, prolonged fasting with or without stress, morbid obesity with severe weight loss, patients undergoing bariatric surgery. Being that the intensity of the symptoms may vary according to the patient's nutritional dysfunction, clinical condition and they are in a fasting period.

The inadequate diet prescription and/or the initiation of excessive nutritional therapy in patients at risk for developing the Refeeding Syndrome, triggers the cellular anabolism, in which the high insulin secretion is stimulated by caloric intake increased with consequent deviation fast glucose to the intracellular environment, directing the phosphate ions, magnesium and potassium (P, Mg, K) can, this mechanism decreases the plasma levels of these electrolytes.

The depletion of phosphorus (P) is considered the main consequence of Refeeding Syndrome in which the level of P ion plasma may abruptly reduce resulting in thrombocytopenia (deficit deficiency of blood clotting and leukocyte function), neuromuscular dysfunction (musculoskeletal changes, seizures cramps and paraesthesia), impaired ventilatory muscle (hypoventilation and respiratory failure), psychological disorders (mental confusion, and eventually coma).<sup>1,2,4,5</sup>

Potassium (K) and magnesium (Mg) cations are the most abundant in the intracellular middle. Hypokalemia and hypomagnesemia leads to cardiac dysfunction (arrhythmias and cardiac arrest), neuromuscular (weakness, paralysis, numbness, confusion and rhabdomyolysis), gastrointestinal symptoms (abdominal pain, anorexia, constipation, diarrhea) and respiratory depression.<sup>1,2,4</sup>

The main vitamin deficiency is related with the thiamine vitamin(B1) where there is a rapid consumption of this, during the glycolysis, triggering a change in glucose metabolism and subsequent lactic acidosis. In relation to the fluid overload that arises from the water and sodium retention secondary to hyperglycemia and the increase of insulin, resulting in increased extracellular fluid compartment and consequent weight gain, forming edema and may lead to heart failure.<sup>1,2,5</sup>

It should be emphasized that the metabolic imbalances mentioned produce manifestations that directly reflect in the various systems, they being indicators are essential for the early diagnosis and intervention in the refeeding syndrome. In this sense, it is necessary that the nurse should have knowledge on the syndrome, its etiology, as well as its complications.

The benefits of nutritional therapy are proven in treatment of critically ill patients with disorders of the gastrointestinal tract, in the reduction of the morbidity and mortality of patients with different diseases. However, as every therapy it requires knowledge and skill in its handling already



that can bring complications and risks for patients, especially those most critical and with severe metabolic changes, thus requiring strict control.<sup>6</sup>

Among the nursing implications, primarily, we highlight the need for early detection of patients at risk for developing the refeeding syndrome. Although not all patients are prone to the development, it is essential that nurses recognize it to minimize its occurrence.

The monitoring of patients in use of nutritional therapy should be daily, carried out by the multidisciplinary team (doctor, nurse, dietitian and pharmacist), being the fundamental laboratory monitoring for obtaining the desired benefits, as well as for the detection and control of complications.<sup>5,6</sup>

Therefore, it becomes essential for the detection and control of the Refeeding Syndrome for the realization of biochemical tests, such as the dosage of sodium, potassium, glucose, magnesium and phosphorus. The nurse must ensure that the electrolyte deficiencies are corrected before beginning the nutritional therapy.

In this sense, it is necessary that the nurse should have knowledge on the syndrome, its etiology, as well as its complications.

The benefits of nutritional therapy are proven for the treatment of severely ill patients, with a gastrointestinal tract disorder, in the reduction of morbidity and mortality of patients with different diseases. However, as every therapy, requires knowledge and skill in its handling already that can bring complications and risks for patients, especially those most critical and with severe metabolic changes, thus requiring strict control.<sup>6</sup>

According to the RDC 63 of 2000, the Ministry of Health, which determines the technical regulation for parenteral nutritional therapy (PNT) and enteral (ENT), which is in accordance with the resolution of the Federal Council of Nursing COFEN no. 277/2003 laying down the necessary technical and human resources for the administration of parenteral and enteral nutrition the nurse is responsible for the administration of enteral and parenteral nutrition, being indispensable the strict control of the volume and infusion of this therapy. Such actions are essential for the prevention of Syndrome in that the Refeeding may be triggered by the rapid infusion of diet, added to the clinical situation where the patient lies. Thus, the nurse can establish protocols that address the practices towards the proper management of enteral and parenteral nutrition therapy, contributing to good practice and avoiding the complications associated with this therapy. Professional training is a tool that contributes to the process of identification and treatment of complications, aiming to minimize the injuries.<sup>7,8</sup>

## CONCLUSION

We conclude that the Refeeding Syndrome is directly related to the process of nutritional repletion associated with enteral and parenteral nutrition therapy, being a metabolic complication associated with patients with severe nutritional dysfunction they are malnourished, who underwent prolonged fasting, with anorexia among others. However, Syndrome and Refeeding can be prevented, as well as their diseases. Thus, it is up to the nurse to be able to identify patients at risk, as well as the clinical manifestations and to evaluate patient tolerance in relation to diet, serum levels of phosphorus, potassium and magnesium; strictly control the diet administration (volume and speed infusion), blood glucose monitoring, and water balance vital functions of patients at risk. In this

context, the nurse must have knowledge on the syndrome, its etiology and complications, as well as how to operate in an integrated manner with the multi professional team.

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Appendix - Types of works consulted

Sources	Quantity
Indexed Articles BVS - LILACS	02
Articles not indexed in databases	02
Theses and Monographs / CongressionalAnnals	02
Books	03

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