Nutrition 30 (2014) 1372–1378

Contents lists available at ScienceDirect

Nutrition

journal homepage: www.nutritionjrnl.com

Applied nutritional investigation

Management of patients during hunger strike and refeeding phase

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ARTICLE INFO

Article history:
Received 12 December 2013
Accepted 2 April 2014

Keywords:
Hunger strike
Starving
Refeeding
Refeeding syndrome

ABSTRACT

Objective: Hunger strikers resuming nutritional intake may develop a life-threatening refeeding syndrome (RFS). Consequently, hunger strikers represent a core challenge for the medical staff. The objective of the study was to test the effectiveness and safety of evidence-based recommendations for prevention and management of RFS during the refeeding phase.
Methods: This was a retrospective, observational data analysis of 37 consecutive, unselected cases of prisoners on a hunger strike during a 5-y period. The sample consisted of 37 cases representing 33 individual patients.
Results: In seven cases (18.9%), the hunger strike was continued during the hospital stay, in 16 episodes (43.2%) cessation of the hunger strike occurred immediately after admission to the security ward, and in 14 episodes (37.9%) during hospital stay. In the refeed cases (n = 30), nutritional replenishment occurred orally, and in 25 (83.3%) micronutrients substitutions were made based on the recommendations. The gradual refeeding with fluid restriction occurred over 10 d. Uncomplicated dyselectrolytemia was documented in 12 cases (40%) within the refeeding phase. One case (3.3%) presented bilateral ankle edemas as a clinical manifestation of moderate RFS. Intensive medical treatment was not necessary and none of the patients died. Seven episodes of continued hunger strike were observed during the entire hospital stay without medical complications.
Conclusions: Our data suggested that seriousness and rate of medical complications during the refeeding phase can be kept at a minimum in a hunger strike population. This study supported use of recommendations to optimize risk management and to improve treatment quality and patient safety in this vulnerable population.

Introduction

In most cases, a hunger strike is a voluntary and deliberate refusal to eat by a person, non-restricted in the power of judgment, with the goal of achieving specific requests [1]. In the case of prisoners, the purpose of a hunger strike is typically to demand changes in terms of imprisonment or to protest against a particular judiciary procedure. Although hunger strikes take place relatively often in prisons, available data in the medical literature are scarce addressing basic epidemiologic data and the medical consequences of hunger strikes [2–5]. In France, reported incidences rates equal approximately 1.5% of prisoners [6,7] while reported incidence rates from Swiss prisons varied between 1% and 3% [2].

Based on the duration of nutrition and liquid intake cessation, a hunger strike can lead to severe medical problems [6]. The

This study was supported by Research Funds of the Department of General Internal Medicine of the University Hospital of Bern, Switzerland. All authors declare that this work has been composed by themselves, and describes their own work, unless otherwise acknowledged in the text. All sentences or passages quoted in this article from other people's work have been specifically acknowledged by clear cross-referencing to author, work, and page(s). All authors participated sufficiently, intellectually, or practically in the present work and take public responsibility for the content of the article. EM and MJ were responsible for the study conception and design, acquisition of data, analysis and interpretation of data, and drafting of the article. PM was responsible for the study conception, analysis and interpretation of data, and revising the manuscript critically for important intellectual content. BM was responsible for data interpretation and analysis, drafting the article, and revising it critically for important intellectual content. ZS was responsible for the study conception and design, analysis and interpretation of data, drafting the article, and revising it critically for important intellectual content. All authors read and approved final version of the manuscript. None of the authors has a conflict of interest to declare.

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http://dx.doi.org/10.1016/j.nut.2014.04.007

duration of a hunger strike will be actively controlled by the prisoner [8,9]. Uptake of micronutrients (electrolytes, vitamins, minerals) helps to decrease morbidity and survival may be prolonged [10]. However, continuous energy depletion, finally resulting in death, cannot be prevented. Even after cessation of a hunger strike, medical problems may ensue with development of a potentially life-threatening refeeding syndrome (RFS) [10–13]. The criteria for determination of patients at risk for RFS are shown in Table 1 [14]. RFS is characterized by imbalances of electrolyte and fluid homeostasis, and organ dysfunction [11]. Diagnostic criteria for RFS previously proposed are presented in Figure 1 [13].

To avoid RFS after cessation of a hunger strike, energy and fluid intake should be instituted carefully and gradually increased over 10 d. If indicated, empirical supplementation of electrolytes and vitamins may be started before feeding is initiated. To minimize the risk for RFS, close clinical and laboratory monitoring during the first 10 d after hunger strike cessation is mandatory. Based on our long-term clinical experience and evidence from the literature, we developed a protocol for prevention and management of RFS in collaboration with an international working group of nutrition specialists [11].

The primary aim of this study was to evaluate the safety and effectiveness of this implemented protocol [11] for the prevention and treatment of RFS in hunger strikers after the break-up of their fast.

Materials and methods

This study was designed as a retrospective, observational case study of all consecutive prisoners in a hunger strike who were hospitalized at the security ward of the Bern University Hospital between January 1, 2006 and December 31, 2010. We screened the medical records from all patients hospitalized in the security ward during the study period using the search term *hunger strike* or *hunger striker*. Patients were included if they were >18 y old with a documented diagnosis of hunger strike in the hospital's electronic medical records. We excluded all patients who were hospitalized more than once within the same episode of hunger strike, and all patients with inconsequent or pretend hunger strike (Fig. 2).

Consequently, the study population consisted of prisoners on a hunger strike with deteriorating general health conditions who finally had to be transferred to the security ward of the hospital for further monitoring and treatment. Hospitalized hunger strikers at the security ward were treated by University Clinic for General Internal Medicine physicians and received regular consultations from physicians from the Psychiatry Department, if necessary.

For all patients included, we assessed demographic data (age, sex, and nationality); general characteristics (reasons for hospitalization, background and duration of hunger strike); clinical and laboratory parameters at admission, during, and after the hunger strike; and the prescribed electrolyte and vitamin substitutions. Clinical characteristics at admission were summarized into four categories:

1. General symptoms: collapse, nausea, weakness, tiredness, and dyspnea;
2. Gastrointestinal symptoms: vomiting, abdominal pain, and constipation;
3. Pain syndrome: abdominal pain, chest pain, and headache or back pain;
4. Psychiatric symptoms (depression, anxiety, and suicidal ideation).

Table 1
Criteria for determination of patients at risk for RFS

One of the following:	Two of the following:
BMI <16 kg/m^2	BMI <18.5 kg/m^2
Unintentional weight loss >15% in the preceding 3–6 mo	Unintentional weight loss >10% in the preceding 3–6 mo
Very little or no nutritional intake for >10 d	Very little or no nutritional intake for >5 d
Low levels of serum potassium, phosphate, or magnesium before feed	History of alcohol or drug abuse

BMI, body mass index; RFS, refeeding syndrome

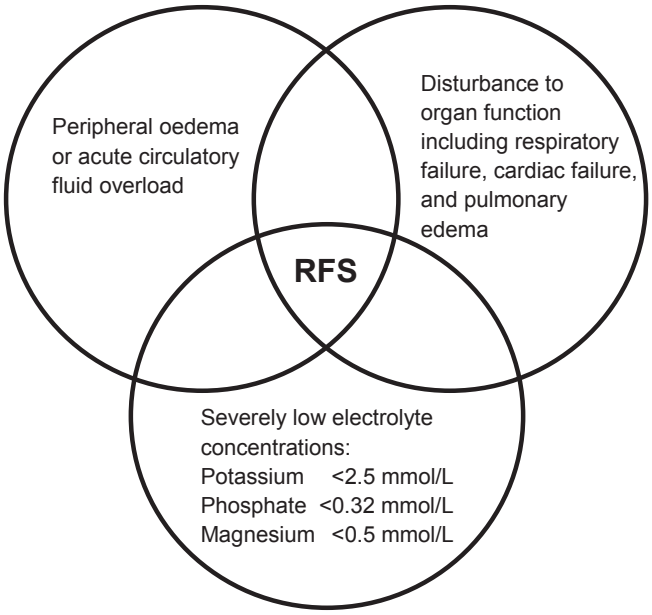

Fig. 1. Diagnostic criteria for diagnosis of RFS [1]. RFS, refeeding syndrome.

Calculation of body mass index (BMI) was based on guidelines from the World Health Organization. Hemodynamic parameters were defined according to the Swiss Society of Hypertension [15]. Slight to moderate hypokalemia was defined as 2.5 to 3.4 mmol/L; slight to moderate hypophosphatemia as 0.32 to 0.84 mmol/L; and slight to moderate hypomagnesemia as 0.5 to 0.74 mmol/L. Severe serum electrolyte disorders were defined as a potassium level <2.5 mmol/L; phosphate level <0.32 mmol/L; and magnesium level <0.5 mmol/L, respectively (Fig. 1) [13].

To describe therapeutic management during and after cessation of the hunger strike, the study population was divided into groups A and B (Fig. 2), with group A resuming eating after admission or during the first week of hospital stay, and group B continuing their hunger strike during hospitalization.

Ethical approval

The ethical committee of the University of Bern and the State of Bern approved this study.

Statistical analysis

The software IBM SPSS Statistics for Windows (IBM Corp. Released 2010, Version 19.0. Armonk, NY, USA) was used for statistical analysis. Categorical variables were reported as percentages and continuous variables as average (mean) with SD.

Results

We identified 48 episodes of potential hunger strikes in the medical records. Eleven episodes were excluded for different reasons (Fig. 2) and 37 were finally included in the analysis. The 37 episodes represented 33 individual patients, 4 of whom were admitted twice with the diagnosis of hunger strike. Group A included 30 episodes, group B 7 episodes. The majority of the cases were men (n = 34, 91.9%), and mean age was 36.6 ± 9.5 y. The 37 episodes of hunger strike made up 1.9% of all 1992 cases admitted at the security ward during the 5-y study period.

Demographic and general characteristics are presented in Table 2 and clinical and laboratory data at admission are displayed in Table 3. The population had a mean BMI within the normal range, and the observed mean weight loss was 0.5 kg/d. Duration of hunger strike was 20.0 ± 19.2 d, with a range of 1 to 71 d. The mean duration of hospital length of stay (LOS) was 10.9 ± 8.5 d. Biochemistry parameters at admission are shown in Table 3.