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Nutritional Support in Patients With Systemic Sclerosis☆

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ABSTRACT

Systemic sclerosis (SSc) is a chronic multisystem autoimmune disease which involves the gastrointestinal tract in about 90% of cases. It may contribute to nutritional deterioration.
Objective: To assess whether the application of a nutritional support protocol to these patients could improve their nutritional status and quality of life.
Methods: Single center prospective study, performed on an outpatient basis, in a county hospital. The Malnutrition Universal Screening Tool (MUST) was used to screen risk for malnutrition. Health questionnaire SF-36 and the Hospital Anxiety and Depression Scale were used to assess quality of life and psychopathology respectively. Weight, height, energy and protein requirements, macronutrient intake and nutritional biochemical parameters were evaluated. Nutritional intervention was performed in patients at risk for malnutrition.
Results: Of the 72 patients, 12.5% were at risk for malnutrition. Iron deficiency anemia (18.35%) and vitamin D deficiency (54%) were the most frequently observed nutritional deficits. The questionnaires on psychopathology and quality of life showed a high prevalence of anxiety and depression, and lower level poor quality of life in the physical and mental component. No significant improvements were observed in the weight, food intake, nutritional biochemical parameters, psychopathology and quality of life follow-up.
Conclusions: Dietary intervention was able to maintain body weight and food intake. Iron deficiency anemia and vitamin D deficiency improved with iron and vitamine D supplements. No deterioration was observed in psychological assessment or quality of life. Studies with larger numbers of patients are needed to assess the efficacy of this intervention.

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Soporte nutricional a pacientes con esclerosis sistémica

Palabras clave:
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Calidad de vida
Déficit de vitamina D
Intervención dietética

RESUMEN

La esclerosis sistémica (ES) es una enfermedad autoinmune sistémica crónica que en cerca del 90% de los casos afecta al tracto gastrointestinal. Se estima que dicha alteración puede contribuir al deterioro nutricional.
Objetivo: Evaluar si la aplicación de un protocolo de soporte nutricional a dichos pacientes mejora su estado nutricional y su calidad de vida.
Método: Estudio prospectivo unicéntrico realizado en consultas externas de un hospital comarcal. Se utilizó el test MUST para el cribado de malnutrición. El cuestionario de salud SF-36 y el de *Hospital Anxiety and Depression Scale* se utilizaron para la valoración de la calidad de vida y psicopatológica, respectivamente. Se determinaron: el peso, la talla, las necesidades energéticas y proteicas, la ingesta de macronutrientes y los parámetros bioquímicos nutricionales. Se realizó intervención nutricional a los pacientes con riesgo.
Resultados: De los 72 pacientes, el 12,5% tenían riesgo de malnutrición. La anemia ferropénica (18,35%) y el déficit de vitamina D (54%) fueron los déficits nutricionales más observados. Los cuestionarios de

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psicopatología y calidad de vida indicaron elevada prevalencia de ansiedad y depresión, y puntuaciones más bajas en las dimensiones física y mental según el SF-36. No se evidenciaron mejoras significativas en la evolución del peso, en la ingesta alimentaria ni en los parámetros bioquímicos nutricionales, psicopatológicos ni de calidad de vida.
Conclusiones: La intervención dietética consiguió mantener el peso corporal y la ingesta energética y proteica. Los déficit de hierro y de vitamina D mejoraron con suplementación. No se observó un deterioro en la valoración psicológica ni en la calidad de vida. Se precisan estudios con mayor número de pacientes para valorar la eficacia de dicha intervención.
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Introduction

Systemic sclerosis (SSc) is a connective tissue disorder characterized by inflammation and fibrosis of the skin, blood vessels and multiple internal organ involvement. The gastrointestinal tract is the second most affected organ, found in almost 90% of patients, and the disorder can occur along its entire length: esophagus, stomach, small intestine, colon and anorectal portion.[1] About half of the patients have nausea, postprandial fullness, bloating and changes in bowel habits, and may be associated with loss of body weight.[2] The impact of this disease on the digestive tract may contribute significantly to the deterioration of the nutritional state.[3]

It has been reported that the prevalence of malnutrition in these patients ranges from 15 to 30% according to several case series.[4–6] To overcome this deficit, a panel of experts from Canada drew up recommendations to detect malnutrition and malabsorption in these patients.[6] Malnutrition, along with all the symptoms associated with SS, has been associated with a poor perceived quality of life,[5,7] which is lower than that reported for the general population.[8] In addition, this patient population referred a higher incidence of depressive symptoms,[9] although symptoms related to anxiety did not receive the same attention and could be a result to be considered.[10]

It is therefore necessary to identify patients at risk of malnutrition to apply measures of nutritional support and to evaluate their effectiveness on a physical, mental and perceived quality of life level.

Only general dietary recommendations symptoms as per the need of the patients have been described to date, and there are no studies assessing the benefits of nutritional intervention.

Based on the above, we evaluate whether the application of a nutritional support protocol[11] in SS patients who visited the outpatient department of a community hospital improves their nutritional status, emotional state and quality of life.

Methods

Type of Study

Single-center, prospective and interventional year-long study. The protocol was reviewed and approved by the hospital ethics committee.

Study Population

We systematically included patients with SS, according to the criteria proposed by LeRoy and Medsger,[12] who visited in the outpatient rheumatology and internal medicine clinics at the Hospital de Granollers, and who required nutritional support.

Inclusion Criteria

Patients of both sexes, aged 18 or older, who could read and write Catalan and/or Castilian and scoring with a score at or above 1 on the MUST screening test.[13]

Exclusion Criteria

(a) Patients diagnosed with neoplastic processes or other conditions that interfere with the nutritional status of the patient, (b) patients who did not sign the informed consent and/or did not wish to participate, (c) those who had a mental, or cognitive psychiatric impairment that could alter the outcome of self-administered tests, though no psychosocial variables were assessed.

Protocol

Outpatient Visits to the Internist-rheumatologist. At each visit, the professional evaluating the involvement of various organs according to the Canadian survey designed for this purpose,[6] determined the anthropometric and laboratory parameters, and applied the MUST method of screening. If the patient met the criteria described above, the food record sheet for the patient/caregiver's was completed over one week and was sent for assessment by the dietitian .In case of vitamin deficiencies, the patient was supplemented pharmacologically: 100 mg Fe^{2+} per day in case of iron deficiency; 400–800 IU/day of cholecalciferol when the deficit was moderate or 50 000 IU a week when there was a material or serious deficiency (vitamin D below 20 ng/ml).[14]

Regarding the presenting symptoms, additional studies (endoscopy, pH-metry, manometry etc.) and assessment by certain specialists (gastroenterologist, otolaryngologist etc.) were made, and treatments applied.

Clinical Study Variables. Age, gender, weight, height, body mass index (BMI), blood count, vitamin A, serum folate, albumin, ferritin, vitamin B_{12} and 25 OH vitamin D_3 were determined. In case of suspected malabsorption, plasma zinc levels and prothrombin time (PT) were determined.

Dietary Intervention. The dietitians–nutritionists carried out semi-structured interviews to collect the variables under study. At each visit, anthropometric parameters were determined and the previous weeks' food record was collected, and energy and macronutrient intake was calculated. Energy requirements were estimated using the Harrison–Benedit formula and protein was established by direct estimation (1–1.5 g/kg/day). The calculation of the energy and protein intake was estimated from the dietary record using a computer program *of* the Center *d' Ensenyament i Nutrició Human Dietetics* (CESNID). With all these variables, the nutritional evaluation was performed and the diet adapted to individual needs, taking into account energy, macronutrient ratio and textures.

Patients were encouraged to eat a balanced diet according to their macro and micronutrient requirements (assuming there were no other medical contraindications). The basic tailored diet indication of enteral products and oral nutritional supplements was not different from that for other diseases associated with chronic malnutrition. Due to the involvement of multiple parts of the digestive tract and the fact that this is an evolutionary process, we were forced to perform highly customized dietary recommendations.

Patients were monitored biweekly for weight and, in case of a sudden and significant change in body weight (5% or more in a month), they contacted the dietitian.

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