

Case Report

Systemic Lupus Erythematosus and Obesity Successfully Treated with Nutraceuticals and a Gluten-Milk-Sugar-Free Diet

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Keywords

• Systemic lupus erythematosus, obesity, overweight, immunity, vitamin D, nutraceuticals, supplements, gluten-free diet, milk-free diet

Abstract

Objective: To describe a patient with systemic lupus erythematosus (SLE) and obesity who was successfully treated by nutraceuticals and a gluten-milk-sugar-free diet.

Material and methods: Case report.

Results and Discussion:

Case report: A 37-year-old female patient with an unmarked past medical history was diagnosed as SLE and methotrexate 20mg/week, prednisolone 60mg/day, and monthly injection betamethasone depot were initiated. After this treatment, she gained 36 kg. The lactose tolerance test was positive. We suspended the corticoid injection, increased vitamin D3, and added omega-3, vitamin C, N-acetyl cysteine, 5-hydroxytryptamine, thiamine, and pyridoxine. Dysbiosis was treated. A gluten-milk-sugar-free diet and low salt intake were suggested. After 3 months, she returned, feeling much better; she reduced 18kg in the period. She stopped propranolol, and prednisolone was tapered off. Currently, two years later, the patient is asymptomatic, SLEDAI=0, using only hydroxychloroquine and vitamin D, she keeps a gluten-milk-sugar-free diet, and her weight is 63kg.

Conclusion: This case illustrates an interesting case of a patient with lupus and obesity that was successfully treated by a gluten-milk-sugar-free diet and nutraceuticals. It may be an alternative therapeutic option for these patients.

INTRODUCTION

Systemic lupus erythematosus is the prototype of systemic autoimmune diseases and is characterized by periods of flare and remission and the presence of autoantibodies, mainly antinuclear antibodies [1].

The lupus treatment involves using a glucocorticoid, hydroxychloroquine, and immunosuppressive drugs to control disease activity. Such glucocorticoid drugs present several and frequent side effects like hypertension, obesity, striae, cataract, glaucoma [2]. After disease control, a corticoid tapering is performed.

Obesity in lupus is observed at a frequency of 17.5% [3], demonstrating that the present therapeutic scheme is not yet adequate for one hand. On the other hand, a holistic approach is imperative to take care of these patients.

New modalities of treatment are therefore desired. In this line, low-risk treatments such as diet have shown efficacy in the obesity treatment, and other elements such as nutraceuticals are desired for a lupus therapeutic process.

MATERIAL AND METHODS

The purpose of this article is to report the case of a patient

with SLE and obesity secondary to corticotherapy, who was successfully treated for both conditions using a combination of nutraceuticals and a gluten-milk-sugar-free diet.

RESULTS

Case presentation

A 37-year-old female patient with an unmarked past medical history started in 2002 dyspnea, pleuritic pain, fever, and polyarthralgia, diagnosed a pleural effusion, and had a spontaneous resolution. In 2005, she had alopecia and recurrent skin lesion, mainly on her lower limbs. In 2015 she had diffuse subcutaneous nodules, malar rash, lupus profundus in her left face, polyarthritis, and photosensitivity, and a diagnosis of lupus was determined. Methotrexate 20mg/week, prednisolone 60mg/day, and monthly injection of betamethasone depot were initiated. After this treatment, she gained 36 kg. She came to our private clinic complained of diffuse pain for years, no specific skin or organ-related lupus complain. Her physical examination demonstrated the weight of 98.6kg, the height of 1.57m, and a body mass index (BMI) of 40.0kg/m² (type III obesity). She had a Cushingoid facies, mild livedo reticularis, no skin lesion, or arthritis. She had 12 tender points, and fibromyalgia was also determined. She was under propranolol 20mg twice a day, tramadol 50mg

twice a day or codeine 30mg twice a day, prednisolone 8mg/day, hydroxychloroquine 400mg/day, calcium 500mg/day, vitamin D3 7,000IU/week, and betamethasone depot one injection per month. She practices walking 5 days per week. She developed a depressive picture and was receiving trazodone 50mg/day. Beck anxiety inventory (BAI) was 21 (nr: < 8), Beck depression inventory (BDI) was 16 (nr: < 10), Bristol stool form scale (BSTS) was 5 (nr: 3-4)) and SLEDAI was 0. Laboratory tests revealed vitamin D3 21.5 ng/mL [normal range (nr): > 30ng/mL], normal cell blood count and blood biochemistry. Antinuclear antibodies were positive with a titer of 1:160 with a speckled pattern. Anti-dsDNA, anti-Sm, anti-Ro/SS-A, anti-La/SS-B, anti-U1RNP, rheumatoid factor, and anti-CCP were negative. IgM anticardiolipin was 11.5 MPL (nr: < 10 MPL), with negative IgG anticardiolipin and lupus anticoagulant. Complement levels were normal (CH50- 150, Ce 124 ng/dL and C4 10). Erythrocyte sedimentation rate (ESR) was 74 mm/1st hour. A C-reactive protein 8.7 mg/dL (nr: < 5mg/dL). The lactose tolerance test was positive. The lipid profile and glucose were normal. Serology for infectious diseases, such as HIV 1 and 2, syphilis, rubella, mononucleosis, hepatitis B and C virus, cytomegalovirus, herpes type 1 and 2, toxoplasmosis were all negative. We suspended the corticoid injection and calcium supplement, increased vitamin D3 for 20,000IU/day, and added omega-3 2g/day, vitamin C 500mg/day, N-acetyl cysteine 400mg/day, 5-hydroxytryptamine 300mg/day, thiamine 100mg/day, and pyridoxine 100mg/day. For dysbiosis, were prescribed albendazole 400mg once and an additional dose after 15 days; glutamine 5g/day, quercetin 250mg/day, and vitamin A 25,000 IU/day for 2 months. A gluten-milk-sugar-free diet and low salt intake were suggested. After 3 months, she returned feeling much better, AVS well-being of 8.0, and diffuse AVS pain of 3.0; she reduced weight to 81kg, a reduction of 18kg in the period, BMI of 32.8kg/m², and blood cells and biochemistry continued normal, complement levels and autoantibodies stable. She stopped by herself, the propranolol, and blood pressure continued normal. We started to taper prednisolone to 5 mg/day. BAI was 12, and BDI was 13, and BSFS normalized to 4. Vitamin D increased to 61.2 ng/mL, ESR of 8mm/1st hour, and CRP of 1 mg/dL. Prednisolone was tapered off, and trazodone was also reduced and excluded, BDI of 5 and BAI of 3. Currently, two years after, the patient is asymptomatic, SLEDAI=0, using only hydroxychloroquine and vitamin D 10,000IU/day, she keeps a gluten-milk-sugar-free diet, and her weight is 63kg and BMI of 25.5 kg/m².

DISCUSSION

This article reports a patient who suffered from lupus and obesity secondary to corticotherapy and was successfully treated with a combination of some nutraceuticals and a gluten-milk-free diet.

A blend of strategies was used in our patient. Indeed, we supplemented the patient with vitamin D, and vitamin C since her serum levels of vitamin D were low, and there is evidence in the literature about these deficiencies in SLE [4]. The use of vitamin D supplementation in lupus was already studied. Its efficacy was supported by a meta-analysis, including 3 randomized controlled trials with 490 lupus patients, and a significant reduction in anti-dsDNA serum levels was observed and in the improvement of

fatigue [5]. Furthermore, a metanalysis showed that serum levels of vitamin D are inversely correlated with abdominal obesity [6]. Furthermore, regarding treatment, an additional metanalysis demonstrated that cholecalciferol supplementation decreases the BMI by -0.32 kg/m² and the waist circumference by -1.42 cm, although no effect on weight loss was seen [7].

Regarding vitamin C, a study has shown that vitamin c in SLE patients is low [8]. Vitamin C supplementation can improve lipidic peroxidation indexes in SLE [9]. A systematic review of observational studies has revealed that vitamin c is inversely associated with adiposity [10]. Supplements with this vitamin in obese subjects were performed in a study with 20 obese subjects, and the authors found a piece of preliminary evidence that vitamin C may improve fatigue, heart rate, and also the perceptions of exertion during moderate exercise in these individuals [11].

Omega-3 supplementation in SLE was evaluated in a trial, and the authors verified that the weight excess was associated with increased disease activity and the presence of deficiencies in some essential nutrients ingested, including omega-3 [12].

A gluten-milk-free diet in lupus was not already studied in clinical trials. A case report of a lupus patient associated with celiac disease showed partial improvement of lupus after a gluten-free-diet [13]. Studies show that children with persistent milk allergy frequently develop eczema, asthma, and rhinitis [11]. Our patient was lactose intolerant, and this abnormality is prevalent and described in a large part of the normal population since only 25% to 33% maintain the lactase synthesis in adult age [14]. However, no study of this disaccharide intolerance in lupus was described; we herein described a lupus patient with this alteration for the first time. Regarding obesity, it is clear the relationship between sugar intake and adiposity [15].

5-hydroxytryptamine was offered to the patient to improve anxiety, depression, and fibromyalgia symptoms, and this good result was observed in our case. In fact, in a Cochrane review, 5-HTP had a good effect on depressive patients compared to control [16]. Furthermore, a study including 50 patients with fibromyalgia, 5-HTP had an excellent result with mild side effects [17]. Besides, a randomized control trial evaluated 900mg of 5-HTP per day compared to placebo and verified a significant weight loss [18].

A scheme for dysbiosis was used in the patient, albendazole, to kill pathogenic intestinal parasites. In lupus patients, parasites are described, mainly giardia and amoeba [19]. Glutamine associated with quercetin and vitamin A has an essential role in the intestinal epithelization process [20,21].

Pyridoxine and thiamine supplementations were implemented in our patient to improve fibromyalgia symptoms. In fact, a case report gave a high dose of thiamine and obtained a marked clinical response of a patient with fibromyalgia [22]. Moreover, pyridoxine as also used together with other nutrients with good outcomes [23].

In our patient, a rapid improvement of fibromyalgia symptoms, a marked weight loss was noted. Lupus manifestations were already in remission when the patient came to us, and we only tapered medications.

Future randomized and controlled studies with the combined use of vitamin D, vitamin C, and omega-3 as complementary therapeutics for lupus are desired to confirm the efficacy and quick response observed in our patient. As obesity is a frequent comorbidity in SLE, present in 17 % of the cases [3], we also suggest evaluating the combination of diet plus nutraceuticals in these SLE patients with increased adiposity.

CONCLUSION

In conclusion, our present obese lupus patient used some nutraceuticals, changed her food for a gluten-milk-sugar-free diet, and obtained a marked clinical response to this therapeutic combination.

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Ethical statement

The author declares that he followed the World Medical Association Declaration of Helsinki in this study. An informed consent was obtained from the patient for publication of her case. No image of her is used.

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