

Postmenopausal osteoporosis and celiac disease

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Summary

Individualizing risk factors is the most important tool to prevent late consequences of menopause. Celiac disease is a predisposing condition not very considered for some postmenopausal diseases, such as postmenopausal osteoporosis.

In this review the authors examine climacteric conditions that could be heightened by a celiac status especially if disregarded and untreated.

Key words: Postmenopausal osteoporosis; Celiac disease; Menopause.

Introduction

Celiac disease is a genetically based intolerance to gluten. Considered a rare disease in the past, it is now recognized as a relatively frequent disorder with an overall prevalence of 1:300 in Western Europe.

Celiac disease is not a disease typical of infancy and can have a clinical onset in later life and even during pregnancy [1]. Characterized by chronic diarrhea and delayed growth in infancy, it shows other forms later in life; target organs are not limited to the gut, but include the liver, thyroid, skin and the reproductive tract. In fact it may be manifested clinically with an array of non-gastrointestinal symptoms such as dermatitis herpetiformis, dementia, depression, various neurological symptoms, osteoporosis, osteomalacia, dental enamel defects, and anaemia of various types. Known effects of the disease in women concern the impairment of reproductive function eliciting some causes of infertility [2-5] and a review of the literature reveals that patients with untreated celiac disease sustain significantly delayed menarche, earlier menopause and an increased prevalence of secondary amenorrhoea [6].

Instead not much is known about the possible effects of the disease on menopausal symptoms. The purpose of our study was to investigate if celiac disease is a condition predisposing to a higher risk for the long-term effects of menopause. Studies and review relating to celiac disease and menopause were identified with MEDLINE (1966-2001) by searching with the subject headings celiac and menopause or climacteric, as well as the text words celiac and osteoporosis, which resulted in the identification of 138 citations. Studies were limited to the English language.

Celiac disease and menopause

Menopause is a condition predisposing to some diseases appearing later in life, such as osteoporosis, cardiovascular diseases, and Alzheimer-like dementia.

Osteoporosis is today an epidemic disease [7] because of the increase of the aging population and changes in lifestyle, such as smoking, less physical activity and

parity [8]. In postmenopausal women bone loss is caused by estrogenic deficiency [9, 10].

Calcium is an important factor for the postmenopausal osteoporosis because of the scant absorption in postmenopausal women [11, 12] and improves the effects of the hormone replacement therapy [13].

Sex hormones are important protective factors against cardiovascular diseases [14] because of their effects on lipids [15, 16] and blood vessels which contain receptors for estrogen and progesterone [17]. It is now known that the loss of ovarian hormones is related to cognitive function alterations and that estrogens play an important role in maintaining short-term memory and cognitive function [18, 19]. Epidemiological studies show a higher incidence of dementia of Alzheimer's type in women than in age-matched men with a reduction in women who have long exposure to endogenous estrogens [20, 21].

Some concern arises about the possible effects of menopause on patients with celiac disease; above all it is important to determine if these patients have a higher risk of long-term effects of menopause. Menopause seems to occur earlier in women with celiac disease women with a mean age of 47.6 years compared to 50.1 years in the controls [22]. Early menopause is a condition at risk for long-term effects of menopause. Osteoporosis is frequent in celiac patients [23-29] because of a calcium deficiency [30] due to both primary and secondary calcium malabsorption caused by villous atrophy [31]. Since the lack of the estrogens typical of the menopausal period is the major risk factor in determining postmenopausal osteoporosis [32, 33], celiac disease could be an adjunctive condition for this pathology, where some preventive treatments such as calcium and vitamin D are inefficient [34]. Patients with celiac disease may present with calcium malabsorption with a higher risk of osteopenia [35] and high incidence (47%) of osteoporosis, defined as a bone mineral density (BMD) ≤ 2 SD [36]. A diet treatment with gluten avoidance is efficacious in increasing bone mineral density with no necessity to add calcium or vitamin D [34].

The possibility that menopause can increase the incidence of Alzheimer's disease has been considered. An increased prevalence of neurological disorders is likely due to the immune changes occurring in celiac disease and the results are not enviable [37].

Conclusion

Celiac disease is a predisposing condition not very considered in postmenopausal diseases. The greatest problem seems to be osteoporosis because celiac disease could increase bone loss caused by menopause. Later menarche, secondary amenorrhoea, earlier menopause and calcium malabsorption are the main risk factors for postmenopausal osteoporosis, and thus, celiac disease should be added to the list of medical conditions which constitute an indication for bone densitometry. Celiac disease can act on postmenopausal osteoporosis either by directly affecting bone metabolism and decreasing bone density or indirectly determining an earlier onset of menopause.

We think that early diagnosis and treatment of the disease are very important to avoid late postmenopausal consequences and to permit adequate follow-up. A preventive intervention is also suitable with initiation and maintenance of a gluten-free diet to avoid adjunctive risks to the predisposing effects of postmenopausal osteoporosis.

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