



Climacteric symptoms in middle-aged women with chronic somatic diseases



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ARTICLE INFO

Article history:

Received 9 December 2015

Received in revised form 11 January 2016

Accepted 12 January 2016

Keywords:

Menopausal symptoms

Quality of life

Menopause

Climacteric

Middle-age

Medical condition

ABSTRACT

Objectives: Chronic diseases may aggravate or simulate climacteric symptoms. Although acknowledged in clinical practice, there is a lack of research systematically analysing the association between chronic diseases and climacteric symptoms.

Study design and main outcome measures: Our study was a cross-sectional population-based study, which included 3421 women, aged 41–54 years. Climacteric symptoms were evaluated using the Women's Health Questionnaire (WHQ), of which we included seven symptom domains (vasomotor, sleep, depressive, anxiety/fears, cognitive, sexual, and menstrual) and a question concerning whether the women were worried about growing old. The occurrence of various diseases (cardiovascular, neurological, sensory organ, bronchopulmonary, musculoskeletal, gastrointestinal, urological, dermatological, and thyroid disease, diabetes, and cancer) was recorded. The associations between the diseases and symptoms were defined with multivariable analyses, adjusting for various confounding factors.

Results: The women with the diseases had more symptoms. Vasomotor symptoms and sleep problems were associated only with gastrointestinal diseases, and lower sexual functioning only with diabetes. The remaining symptoms were associated with several diseases, except being worried about growing old, which was not associated with any.

Conclusions: Many symptoms connected to the climacteric may manifest also due to chronic diseases. Thus, health-care professionals should consider the origin of the symptoms when treating middle-aged women with chronic diseases.

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1. Introduction

Various climacteric symptoms and complaints compromise quality of life (QoL) in middle-aged women. These include hot flashes, night sweats, sleep problems, impaired memory/concentration, vaginal dryness, lowered libido, and diverse mental symptoms [1–3]. The most specific symptoms of the climacteric are vasomotor symptoms (VMS); yet, their origin is not fully understood [4]. They are related to oestrogen withdrawal, but oestrogen levels do not differ between symptomatic and asymptomatic women [4,5]. The aetiology of the other climacteric

symptoms is even more controversial and probably multifactorial [1,2,6–12].

Besides causing climacteric symptoms, the decrease in oestrogen levels also increases or even initiates risks for chronic diseases [3,13,14]. Several chronic diseases or their medications may aggravate and/or simulate climacteric symptoms [1,5–11,15–26]. Thus a clinician is challenged to determine whether various symptoms in middle-aged women are due to the climacteric, chronic diseases, or both.

Previous literature agrees that mental health problems are linked to various symptoms, both physical and psychological [15,27]. Furthermore, age as well as various socioeconomic and lifestyle factors contribute to the symptomatology [2,12]. Therefore, while investigating the associations between climacteric symptoms and chronic diseases, we performed analyses also adjusting for confounding factors, including age, mental health problems, and several socioeconomic and lifestyle factors. Our

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hypothesis was that all the various symptoms are not specific to climacteric, but are also connected to chronic somatic diseases.

2. Material and methods

2.1. Subjects

Subjects for this cross-sectional study were enrolled among women who were called for a population based municipal screening mammography in Turku, Finland. The participation in the screening program was 87%. All of the women, a total of 6408, received a postal questionnaire concerning their health-related issues; 3421 women (53.4%) returned the questionnaire. The return of the questionnaire implied the consent, and The Ethics Committees of the University of Turku, Turku University Hospital, and the City of Turku approved the study. The characteristics of the women are shown in Table 1.

2.2. Questionnaires

To evaluate the climacteric symptoms we used the Women's Health Questionnaire (WHQ), which has been validated in the Finnish language [28,29]. The WHQ contained 36 questions rated on a four-step scale (yes, definitely; yes, sometimes; no, not much; no, not at all). Higher scores indicated more symptoms. Questions were grouped into nine symptom domains: VMS (two questions), sleep problems (three questions), depressive symptoms (seven questions), anxiety/fears (four questions), cognitive difficulties (three questions), sexual functioning (three questions), menstrual symptoms (four questions), somatic symptoms (seven questions), and one's experienced attractiveness (two questions). A question "worry about growing old" (one question) was analysed separately. As we focused on symptoms conventionally related to the climacteric, the domains of somatic symptoms and attractiveness were excluded from the analyses. The scores of the WHQ were summed and divided by the number of the items in each domain to obtain major factor scale scores. The scoring was reversed for certain

Table 1
Basic characteristics.

Characteristic	Median (SD, range)
Age (years)	48.9 (4.2, 41–54)
Body mass index (kg/m ²)	25.7 (4.5, 15.2–59.5)
	%
Marital status	
Married or cohabiting	69.4
Single	8.9
Divorced	18.7
Widowed	3.0
Education	
High	17.0
Intermediate	34.3
Low	48.7
Employment	
Employed	85.9
Unemployed	9.1
Retired	5.0
Smoking	
Never/occasionally	58.0
Stopped	19.5
Less than 10 daily	8.5
More than 10 daily	14.0
Use of hormone therapy	
Current user	32.0
Former user	4.6
Non-user	63.4

items, since some items in the original questionnaire were phrased positively and some were phrased negatively [29]. The original scale is from 0 to 1. However, to gain more dynamics to the results, we used a scale 1–4. Missing data was handled as disclosed in the user manual of the questionnaire [29]. Women were instructed to reply to the questions of sexual functioning only if they were sexually active. For the analyses of the menstrual symptoms domain, the women with a previous hysterectomy were excluded.

To establish the women's medical history we asked if women had been diagnosed with cardiovascular disease (CVD); diabetes; neurological disease; a disease of the sensory organs, for example diseases of the eye or ear; bronchopulmonary disease; musculoskeletal disease, for example rheumatoid arthritis or arthrosis; serious liver disease; gastrointestinal disease, for example oesophageal, gastric, or bowel disease; urological disease; dermatological disease; hypothyroidism; hyperthyroidism; a mental health problem, or any cancer. Hypothyroidism (in 205 women, 6.4%) and hyperthyroidism (in 53 women, 1.7%) were combined to form a group "thyroid disease", and serious liver disease (in 19 women, 0.6%) was included in gastrointestinal diseases. Thus, the diseases in the multivariable models included CVD, diabetes, neurological, sensory organ, bronchopulmonary, musculoskeletal, gastrointestinal, urological, dermatological, and thyroid disease, and cancer.

2.3. Statistical analysis

Our study aimed to assess, which of the climacteric symptoms were associated with chronic somatic diseases. Statistical analyses were carried out using the SAS system for Windows, release 9.2. Different symptom domains in WHQ (dependent variables) and chronic somatic diseases (independent variables) were submitted first for a descriptive analysis. Data on symptom domains were described as means and standard deviations (SD) and the occurrence of the diseases was calculated. Multivariable analyses (linear model with categorical independents) were conducted to assess associations between dependent and independent variables. Independent variables were selected with a stepwise method using *p*-values; independent variables that were significantly associated (*p* < 0.05) with the dependent variables were included in the analyses. To confirm the results, multivariable analyses including all the diseases were also performed (data not shown). The results in both analyses were essentially the same. Only women who had data in all the questions concerning their diseases were included.

Since we have previously shown the association between the different symptom domains in the WHQ, and age, education, employment, the body mass index (BMI), smoking, and use of hormone therapy (HT) [12], the multivariable analysis was repeated adjusting for these factors. The adjusted multivariable analysis included also adjustment with the occurrence of mental health problems, since they are known to be connected to several symptoms [6,15,21,27]. All the confounding factors were categorical; according to the age women were divided into five age groups: 41–42, 45–46, 49–50, 51–52, and 53–54 years; the education level was recorded as low (no education or vocational training), intermediate, or high (university); and employment status as employed, unemployed, or retired; BMI was divided into three categories (less than 25 kg/m², 25–30 kg/m², and over 30 kg/m²); smoking into four groups (never/occasionally, stopped, smoking fewer than 10 cigarettes daily, or smoking more than 10 cigarettes daily); and the use of HT into three categories (non-users, current HT users, and former HT users).

The associations were quantified using the differences of means (95%CI) between categories of independents. Regarding the categorical worry about growing old, the associations were measured with odds ratios (OR, 95%CI). Since the results on scale 1–4 and on

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