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Research Article

ASSOCIATION BETWEEN MENARCHE AGE AND MENOPAUSAL SYMPTOMS

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ABSTRACT

Objective: The objective of this study was to assess the association between menarche age and menopausal symptoms.

Methods: A cross-sectional study with 100 perimenopause subjects. Every subject was assessed of their menopausal symptoms with validated menopause rating scale (MRS) questionnaire. Menopause symptoms were classified into somato-vegetative, psychological, and urogenital symptoms. Statistical analysis was used to assess menarche age and menopause symptoms associations.

Results: Out of 100 subjects, somato-vegetative, psychological, and urogenital symptoms were found in 46%, 68%, and 74% cases, respectively. Menarche age was varied between 10 and 17-year-old. There was a significant correlation between menarche age and psychological symptoms (p=0.034). However, there was no significant correlation between menarche age and somato-vegetative as well as urogenital symptoms (p=0.257; p=0.093).

Conclusion: There was a significant association between menarche age and psychological symptoms in perimenopause women. However, there was no association between menarche age and somato-vegetative as well as urogenital symptoms in perimenopause women.

Keywords: Menopause, Symptoms, Menarche age, Menopause rating scale.

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INTRODUCTION

Menopause is defined as the permanent cessation of menstruation that results from the loss of ovarian follicular activity and it marks the end of a woman's reproductive capacity. Its retrospective diagnosis is usually made after 12 months of amenorrhea and may be determined genetically [1,2].

The median age of menopause has been fairly consistent over centuries and across modern epidemiologic studies, generally falls between 50 and 52 years of age. There is striking consistency in the age of menopause across geographic and cultural groups despite significant disparities in other measures of reproductive health such as age of menarche and childbirth [3]. Several factors - including parity, oral contraceptive use, socioeconomic status, and smoking - have been identified to be correlated with the timing of natural menopause [4].

The onset of menopause is a significant life event for women, carrying with its medical, psychosocial, and cultural significance. More broadly, the perimenopausal transition, defined as the time between the onset of menstrual irregularity and the menopause, is a transition phase from fertile ovulatory cycles with well-characterized hormonal profiles to the postmenopause with low estrogen and progesterone and high gonadotrophin levels. Those hormonal imbalances may bring the complaint of menopausal symptoms [5].

In general, menopausal symptoms are divided into somatic, urogenital, and psychological symptoms which influence various aspects of women's health including bone loss, urogenital atrophy, urinary tract infections and incontinence, increased cardiovascular risk, sexual dysfunction, and loss of skin elasticity [6]. The prevalence of menopausal symptoms may reach more than 50% and its severity may vary among peri- and postmenopausal women in different racial groups [7,8].

Many menopausal symptoms including somatic, urogenital, and psychological symptoms may be influenced by various factors. Lower socioeconomic, overweight and obesity, and higher parity had been linked to increased severity of symptoms [9].

Early menarche age may associate with longer reproductive years representing extended exposure to gonadal hormones in women. Recent publication had numerous finding regarding the age of menarche and menopause with depression. The results seem to be more consistent in association between them [10]. However, estrogen exposure may impact other menopausal symptoms as well. Thus, it is important to conduct this research to investigate whether menarche age would affect menopausal symptoms.

METHODS

This is a cross-sectional study to assess the association between menarche age and menopausal symptoms in perimenopause women. We collected data consecutively on 100 participants starting from January until March 2016. This study was conducted in Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia.

The inclusion criteria were women age 45-55 years old and willing to participate. The exclusion criteria were women with a history of gynecological diseases that caused earlier menopause; having mentally-ill condition; or having any illness that may affect menopausal symptoms.

The data collected in this study was primary data. Every respondent had been informed of the purposes of this study, the procedures, and data collected. Informed consents have been obtained from the participants. Every participant had agreed to share data collected regarding the publication of this study. This study had been approved by the Ethical Committee of Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia.

Data collection was done via a questionnaire that was filled by participant. Baseline data about participant including menarche

age and menopause rating scale (MRS) were obtained from every participant.

The MRS was developed and validated some years ago aiming at establishing an instrument to measure health-related quality of life that can easily complete by women. The aims of the MRS were to enable comparisons of the symptoms of aging between groups of women under different conditions and to compare the severity of symptoms. Three dimensions of symptoms/complaints were identified using this questionnaire including somato-vegetative, psychological, and urogenital factors [11].

The scoring scheme is simple; the score increases point by point with increasing severity of subjectively perceived symptoms in each of the 11 items. The participant provides her personal perception by checking one of 5 possible boxes of severity (0 [no complaints] to 4 [very severe]) for each of the items. The German original MRS scale was initially translated and culturally adapted into English, and now also available in Indonesian version [11].

In this study, we categorized women who had somato-vegetative symptoms score 3 or more; psychological symptoms score 2 or more, and urogenital symptoms score 1 or more as having positive menopausal symptoms. Based on somato-vegetative domain, participants were divided into no/little symptoms (0-2), mild symptoms (3-4), moderate symptoms (5-8), and severe symptoms (≥9). Based on psychological domain, participants were divided into no/little symptoms (0-1), mild symptoms (2-3), moderate symptoms (4-6), and severe symptoms (≥7). Last, based on urogenital domain, participants were divided into no symptom (0), mild symptoms (1), moderate symptoms (2-3), and severe symptoms (≥4).

All data analysis was processed with SPSS software for Windows version 22. Data were analyzed descriptively and analytically using Spearmen test to exhibit correlation.

RESULTS

In the beginning of the study, 107 participants were enrolled in the study. Seven participants were excluded and the rest 100 participants were included into the analysis. Every participant was 45-55 years old, fulfilling inclusion criteria and failing exclusion criteria. Characteristics observed were participants' age, menarche age, menopause age, smoking history, occupation, marital status, education background, and cumulative income. Participants' characteristics can be viewed on Table 1.

Most of the participants had menarche at 14-year-old, still not menopause, working as employee, married, had moderate income, well-educated, and have 2 children. Menopausal symptoms were assessed by MRSs and classified based on the severity. Distribution of menopausal symptoms can be seen in Table 2.

Nearly 46% participants were having somato-vegetative symptoms, 68% participants were having psychological symptoms, and 74% participants were having urogenital symptoms. Most of the symptomatic participants had mild somato-vegetative complaints, mild psychological complaints, and severe urogenital complaints.

Somato-vegetative complaints in MRS consist of hot flushes, heart discomfort, sleep problems, joint and muscular discomfort. Psychological complaints asked were depressive mood, irritability, anxiety, physical and mental exhaustion. Urogenital complaints reported were sexual problems, bladder problems, and dryness of vagina.

We correlate menarche age and menopausal symptoms using Spearman correlation test. There was a significant weak positive correlation between menarche age and psychological symptoms (p=0.034; r=0.183). However, there was no significant correlation between menarche age and somato-vegetative as well as urogenital symptoms (p=0.257; p=0.093).

Table 1: Distribution of participants characteristics

Characteristics	Frequency n (%)
Age (years)	
45-50	64 (64)
51-55	36 (36)
Menarche age (years)	
10	2 (2)
11	2 (2)
12	17 (17)
13	29 (29)
14	34 (34)
15	11 (11)
16	3 (3)
17	2 (2)
Menopause age	
Not yet	63 (63)
45-50	27 (27)
50-55	10 (10)
Smoking history	
Active smoker	9 (9)
Passive smoker	42 (42)
Occupation	
Housewife	27 (27)
Employee	65 (65)
Entrepreneur	8 (8)
Marital status	
Married	94 (94)
Single	1 (1)
Widow	5 (5)
Cumulative income	
<3 million	12 (12)
3-5 million	42 (42)
5-20 million	41 (41)
>20 million	5 (5)
Educational background	
Elementary	1 (1)
Junior high school	4 (4)
Senior high school	42 (42)
Diploma/bachelor	46 (46)
Master/doctor	7 (7)
Number of biological child	
0	3 (3)
1	13 (13)
2	37 (37)
3	35 (35)
>3	12 (12)
Total	100 (100)

Table 2: Distribution of menopausal symptoms based on MRS

Menopausal symptoms	Frequency n (%)
Somato-vegetative	
No/little	54 (54)
Mild	29 (29)
Moderate	16 (16)
Severe	1 (1)
Psychological	
No/little	32 (32)
Mild	30 (30)
Moderate	25 (25)
Severe	13 (13)
Urogenital	
No symptoms	26 (26)
Mild	22 (22)
Moderate	24 (24)
Severe	28 (28)
Total	100 (100)

MRS: Menopause rating scale

DISCUSSION

This study was conducted to assess the association between menarche age and menopausal symptoms in perimenopausal women. To study the prevalence of menopausal symptoms, the MRS scale is subdivided into three domains. Out of a sample of 107 women who filled the MRS and baseline questionnaire, 100 women fulfilled the inclusion/exclusion criteria and were selected for the study.

Menopause has been considered as a major transition point in women's reproductive and hormonal life. As hormone production by the ovaries gradually decreases, there is a length of time, when the levels of estrogen and progesterone in a woman's body are unpredictable. However, many use it to cover the entire time during which the production of hormones by the ovaries gradually decreases and eventually stops. This is frequently called the perimenopausal period. For women, this is a gradual process rather than a sudden event and contributing to menopausal symptoms [12].

In this study, we collected baseline data including participants' age, menarche age, menopause age, smoking history, occupation, marital status, education background, and cumulative income. Most of the participants were not menopause, had a job, married, and well-educated.

We found the association between menarche age and psychological symptoms despite its weak correlation (p=0.034; r=0.183). This finding was similar to studies conducted earlier. Later menarche and earlier menopause were both associated with depression [13]. A study conducted in Finland reported that there was increased odd ratio of depression in women who had menarche at age 16 or older. Similarly, a study conducted in the US found an association between later menarche and increased depressive symptoms [14,15].

The hypothesis underlying the mechanisms is estrogen deficiency. Estrogen deficiency might decrease serotonergic activity with alteration of mood like depression [12]. It is known that the change in circulating estrogen during puberty is also related to the disturbances in mood and the estrogen in puberty affects adolescent brain in mice [16]. Estrogen is known to interact with the serotonergic system and processes related to norepinephrine in menopausal women. Among the receptors for estrogen, the beta-receptor plays a major role in emotional processes associated with the serotonergic system. As estrogen lessens monoamine oxidase, the level of serotonin increases [17].

In addition, evidence showed that hormonal imbalance in women during pregnancy also contributed to mood disorder. The study showed that depression is one of the most common mood disorders seen in pregnant women [18]. Postpartum period is also a vulnerable time for women to develop depressive symptoms. Postpartum depression is the most common in the first 6 months and correlates with hormonal imbalance [19]. This hormonal imbalance may similar to menopause transition phase that contributes to psychological symptoms.

CONCLUSION

There was a significant weak association between menarche age and psychological symptoms in perimenopause women. However, there was no association between menarche age and somato-vegetative as well as urogenital symptoms in perimenopause women.

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