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Frequency Of Metabolic Syndrome In Post-Menopausal Patients: Differences Between Natural And Surgical Menopause.

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Abstract

Background Metabolic syndrome (MS) is accompanying many factors, one of four adults had metabolic syndrome, but studies showed also up to 60% of postmenopausal women had MS.

Method This study was completed in Rİze State Hospital between the period of 2014-2015. All patients fulfill the questionnaire and recorded with the other parameters for metabolic syndrome diagnosis.

Results In this study, there were 81 post-menopausal patients, with mean age 57. The mean menopausal age was 47 years. Our hospital had an 8% of C-Section rate. Fifty-five (68%) of patient had natural menopause, 26 of the remaining had surgical menopause. The metabolic syndrome frequency was 36% in the whole study population, they had 20% of diabetes mellitus, and 57% of them had hypertension. Metabolic syndrome was significantly higher in patients who had surgical menopause than natural menopause (42% vs 32%, P=0.001)

Conclusion We found surgical menopause patients have a higher frequency of metabolic syndrome than natural menopause. If can we demonstrate the reason of this result, we can advise surgery without ovariectomy in patients who underwent hysterectomy.

Keywords Metabolic syndrome, menopause, surgery and natural menopause.

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Introduction

Metabolic syndrome (MS) is accompanying many factors such as hypertension, insulin resistance, obesity and lipid abnormalities and all these factors cause cardiovascular disease and diabetes [1]. Criteria's for diagnosis are obesity and an additional two of any other factors; elevated triglyceride or decreased HDL, increased blood glucose or hypertension [2]. About one of four adults had metabolic syndrome, but studies showed also up to 60% of postmenopausal women had MS [3-5]. In addition, the prevalence of MS in postmenopausal women can change by the region or populations. Metabolic syndrome on ovarian functions is not well known, in a study it has been investigated, 67 patients with MS and 69 healthy controls, and the authors found that ovarian reserve function is significantly lower in MS patients than in healthy controls [6]. In this study, we investigated metabolic syndrome prevalence in our population and relation between the type of menopause.

Method

This study was completed in Rİze State Hospital between the period of 2014-2015. All patients fulfill the questionnaire and recorded with the other parameters for metabolic syndrome diagnosis. For metabolic syndrome diagnosis criteria's, Turkish Endocrinology and Metabolism association guidelines was used [7]. Per this guideline, body mass index, waist circumference, lipid parameters (HDL, LDL, triglyceride, total cholesterol levels) and hormone level for the diagnosis for menopause such as FSH, LH and estradiol.

Statically analyses

All data analyzed by using Statistical Package for Social Sciences (SPSS) version 21 software (SPSS Inc., Chicago, IL, USA). For the continuous variables, parametric test conditions were first tested. The Shapiro–Wilk test was used to determine whether the continuous variables were normally distributed. Descriptive statistics were shown as mean/standard deviation or median + IR (minimum– maximum) where appropriate. Degrees of association between continuous variables were calculated by Spearman's analysis, categorical variables were analyzed by Chi-squared test. Parameters were considered to be significant if p value was less than 0.05.

Results

In this study, there were 81 post-menopausal patients, with mean age 57. The mean menopausal age was 47 years. The median gravida number was 4 and parity was [4]. The most common delivery type was vaginal delivery, our hospital had an 8% of C-Section rate. Fifty-five (68%) of patient had natural menopause, 26 of the remaining had surgical menopause. The metabolic syndrome frequency was 36% in the whole study population, they had 20% of diabetes mellitus, and 57% of them had hypertension. General characteristics of patients were shown in table 1. Metabolic syndrome was significantly higher in patients who had surgical menopause than natural menopause (42% vs 32%, P=0.001)

Table 1: Comparison of general characteristics of patients.

Characteristic	Natural Menopause (n 55)	Surgical Menopause (n 26)	P value
Age, years	56	58	0.35
Gravida	5	4	0.16
Aborts	1	1	0.4
TSH	1.3	1.5	0.4
FSH	58	63	0.34
LH	41	44	0.6
E2	13.8	13.2	0.4
LDL	150	139	0.17
HDL	53	52	0.6
T.Cholesterol	242	226	0.14
Triglyceride	166	168	0.88
Glucose	108	107	0.8
Creatinine	0.9	0.85	0.15
Waist circumference	107	104	0.48
Body mass index	33	32	0.7

Discussion

Rize is a state which locates in North Western part of Turkey. The prevalence of MS in postmenopausal population was 36%. Hypertension was diagnosed in 57% and diabetes was at 20% of our population. When we compared to MS prevalence according to ovarian status, surgical menopause patients who do not have ovaries, MS had been diagnosed in 42%, despite that, natural menopause patients had 32%, there was a significant difference.

There are some evidences suggest that higher ovarian reserve is associated with good cardiometabolic status [8]. Balkan et al. showed that MS had lower ovarian reserve compared to healthy subjects, but this study investigated the premenopausal population. According to our knowledge, there is not satisfactory data investigated is there any relation between menopause type and MS prevalence. Menopausal transformation in women causes many changing, increased of body mass with adipose tissue, deterioration of the lipid profile, and higher frequency of MS [9-11]. However, there is no consensus about this changing as a result of menopause with hormones or just an impact of aging [12,13]. Suliga et al. investigated metabolic and behavioral differences between pre-and postmenopausal status. They found that, after menopause, there was a worse lipid profile in current smokers, parous women, compared to nulliparous had a lower HDL, glucose concentration was higher in women with poorer education as well as higher blood pressure, higher prevalence of MS women who had 2 or more children compared to nullipar [13]. In our study, we did not find any significant differences between the parity, lipid profile, BMI and menopause type. Most of the studies researched the pre- and post-menopausal differences of metabolic parameters, none of them investigated the differences of menopause type. The first study investigated this topic had completed by Farahmand et al., they found that MS was observed in 28.7% and 32.5% of the natural menopause and surgically menopausal women, respectively [14]. There were no significant differences between the MS frequency, but they found metabolic parameters of these two groups of women were different. They found a higher waist circumference for natural menopause than surgical menopause but, another study found opposite [15]. Natural menopause patients had higher children than surgical menopause. Another study found fertility, number of pregnancies, childbirth and abortion did not differ significantly between the groups as our study 16. Studies usually found the differences between the menopause types, but what was causing this differences is not known well. We can speculate that with surgery, we remove the ovaries and prevent the release of residual hormones with this process. In patients with natural menopause, they have ovarian residues, so residual ovaries release hormones such as estradiol, progesterone and androgens.

Our study has some limitations; we could not investigate the all ovarian hormones. Also, we had a small number of patients, but this is the first study in Turkish population.

In conclusion, we found surgical menopause patients have a higher frequency of metabolic syndrome than natural menopause. If can we demonstrate the reason of this result, we can advise surgery without ovariectomy in patients who underwent hysterectomy.

References

1. Karakurt O, Oztekin S, Yazıhan N, Akdemir R. Impaired right ventricular functions in metabolic syndrome patients with preserved left ventricular ejection fraction. Turk Kardiyol Dern Ars 2011; 39: 549-56.
2. Zahra Jouyandeh, Farnaz Nayebzadeh, Mostafa Qorbani, and Mojgan Asadicorresponding. Metabolic syndrome and menopause. J Diabetes Metab Disord 2013; 12: 1-4.
3. Chedraui P, Hidalgo L, Chavez D, Morocho N, Alvarado M, Huc A: Quality of life among postmenopausal Ecuadorian women participating in a metabolic syndrome screening program. Maturitas 2007; 56: 45–53.
4. Park YW, Zhu S, Palaniappan L, Heshka S, Carnethon MR, Heymsfield SB. The metabolic syndrome: prevalence and associated risk factor findings in the US population from the Third National Health and Nutrition Examination Survey, 1988–1994. Archives Internal Med 2003; 163: 427.
5. Sarrafzadegan N, Kelishadi R, Baghaei A, Hussein Sadri G, Malekafzali H, Mohammadifard N, et al. Metabolic syndrome: an emerging public health problem in Iranian women: Isfahan Healthy Heart Program. Int J Cardiology 2008; 131: 90–96.
6. Balkan F, Cetin N, Usluogullari CA, Unal OK, Usluogullari B. Evaluation of the ovarian reserve function in patients with metabolic syndrome in relation to healthy controls and different age groups. J Ovarian Res 2014; 10; 7:63.
7. Akalın S. Metabolik sendrom kilavuzu; Türkiye Endokrinoloji ve Metabolizma Derneği 2009; 1-16.
8. Bleil ME, Gregorich SE, McConnell D, Rosen MP, Cedars MI. Does accelerated reproductive aging underlie premenopausal risk for cardiovascular disease? Menopause 2013; 20: 1139–1146.
9. Phan BA, Toth PP. Dyslipidemia in women: etiology and management. Int J Womens Health. 2014; 6: 185–94.
10. Eshtiaghi R, Esteghamati A, Nakhjavani M. Menopause is an independent predictor of metabolic syndrome in Iranian women. Maturitas 2010; 65: 262–66.
11. Ben Ali S, Belfki-Benali H, Aounallah-Skhiri H, et al. Menopause and metabolic syndrome in tunisian women. Biomed Res Int 2014; 2014: 457131.
12. Trikudanathan S, Pedley A, Massaro JM, Hoffmann U, Seely EW, Murabito JM, et al. Association of female reproductive factors with body composition: the Framingham Heart Study. J Clin Endocrinol Metab. 2013; 98(1):236–44.
13. Suliga E, Kozie D, Cie la E, R bak D, G uszek S. Factors Associated with Adiposity, Lipid Profile Disorders and the Metabolic Syndrome Occurrence in Premenopausal and Postmenopausal Women. PLoS One. 2016; 11: e0154511.
14. Farahmand M, Ramezani Tehrani F, Simbar M, Mehrabi Y, Khalili D, Azizi F. Does metabolic syndrome or its components differ in naturally and surgically menopausal women? Climacteric. 2014; 17: 348-55.
15. Dorum A , Tonstad S , Liavaag AH , Michelsen TM , Hildrum B , Dahl AA . Bilateral oophorectomy before 50 years of age is signifi cantly associated with the metabolic syndrome and Framingham risk score: a controlled, population-based study (HUNT-2). Gynecol Oncol 2008; 109 : 377 – 83.
16. Tuna V , Alkis I , Safi ye AS , Imamoglu N , Bayram N , Ali Ismet T . Variations in blood lipid profi le, thrombotic system, arterial elasticity and psychosexual parameters in the cases of surgical and natural menopause . Aust N Z J Obstet Gynaecol 2010 ; 50 : 194 – 9.