ORIGINAL RESEARCH

HORMONES AND SEXUAL FUNCTIONING IN MENOPAUSAL TRANSITION

Emine Coşar[1], Mithat Erenus[2]

[1]Afyon Kocatepe Üniversitesi, Tıp Fakültesi, Kadın Hastalıkları ve Doğum Anabilim Dalı, Afyonkarahisar, Türkiye [2] Marmara Üniversitesi, Tıp Fakültesi, Kadın Hastalıkları ve Doğum Anabilim Dalı, İstanbul, Türkiye

ABSTRACT

Objective: The relative contribution of hormones (androgens and estrogen) to female sexuality and psychosocial status is controversial in menopausal transition.

Materials and Methods: We compare the changes of hormonal and psychosocial factors in perimenopausal women with the changes of sexual function.

Results: Among DHEAS, FSH, LH, estradiol and free Testesterone (T), free T is the only variable that is significantly associated ($P<0.05$) with sexual satisfaction.

Conclusion: Sexual functioning declines with the menopausal transition. Endogenous hormone levels except androgens do not seem to explain this decline.

Keywords: Hormones, Sexuality, Menopausal transition

MENOPOZAL GEÇİŞ DÖNEMİNDE HORMONLAR VE SEKSÜEL FONKSİYONLAR

ÖZET

Amaç: Menopozal geçiş döneminde hormonların (androjen ve östrojenler) kadın seksüalitesine ve psikososyal durumuna etkisi tartışmalıdır.

Yöntem: Bu çalışmamızda perimenopozal hastalarda hormonal değişimlerin seksüel fonksiyonlar üzerine değişimini inceledik.

Bulgular: DHEAS, FSH, LH, östradiol ve serbest testesteron arasında yalnızca serbest testesteronun anlamlı olarak etki ettiğini gördük ($P<0.05$).

Sonuçlar: Menopazal geçiş döneminde seksüel fonksiyonlarda bir miktar azalma olmuştur, bu azalmayı androjenler dışında diğer endojen hormonlarla açıklamak zordur.

Anahtar Kelimeler: Hormonlar, Seksüel fonksiyonlar, Menopozal geçiş dönemi

INTRODUCTION

Women attending gynecology clinics often complain of increasing sexual and psychosocial problems[1]. The relative contribution of hormones (androgens and estrogen) to female sexuality and psychosocial status is controversial. In menopausal transition, low libido, blunted motivation, decreased well-being, and fatigue are symptoms due to female androgen deficiency[2]. Studies so far show that testesterone levels reach an appearent level in the early reproductive years (third decade of life) and then decrease with age. Women in their forties have approximately half the level of circulating total testosterone as that of women in their twenties[3]. Dehydroepiandrosterone sulfate (DHEAS) shows similar changes to those described for testesterone but has an even more pronounced age–related decrease[4]. On the longitidunal analyses low (estradiol) E2 levels significantly adversely affect women's sexual interest and responsiveness but not sexual activity[5]. A significant and negative association between E2 level and dyspareunia has also been found[5,6].

Rosen reported three randomized controlled studies that suggest the importance of (testesterone) T in postmenopausal women[7].

İletişim Bilgileri:
Emine Coşar, M.D.
Afyon Kocatepe Üniversitesi, Tıp Fakültesi, Kadın Hastalıkları ve Doğum Anabilim Dalı, Afyonkarahisar, Türkiye
e-mail: dremineay@hotmail.com

Marmara Medical Journal 2007;20(2);150-153

Lobo found that sexual desire increased in postmenopausal women treated with estrogen and T over estrogen alone[8]. The Melbourne Women's Midlife Health Project showed T levels in women naturally undergoing the menopausal transition are more related to age than to the final menstrual period[9].

Hormonal changes during the menopausal transition occur in a period. In these years dense psychosocial factors affect women's sexuality. Dennerstein et al. reported that some of the social transitions like losing or gaining a partner in midlife, age-related health problems had adverse or positive effects on women's sexual function[10].

The aim of this study is to compare changes of hormonal factors in perimenopausal women with the changes of sexual function.

MATERIAL AND METHOD

From January to April 2001, a total of 85 Turkish women aged 40-54 were recruited to participate in this study at Marmara University Hospital. Premenopausal status was defined as having an FSH level of no higher than 30 m IU/ml, three consecutive menstrual cycles in 3 months preceding baseline visit, absence of surgical menopause, no hormonal therapy, and a BMI between 22 and 27. Exclusion criteria were pregnancy, having serious medical problems that could affect menopausal transition time or their variables, or having a history of drug or alcohol abuse. All participants gave a written informed consent form for their participation in the study.

The study participants completed a three-part psychosocial questionnaire designated by the primary investigator. The first part included psychosocial information such as education level, marital status, financial and career satisfaction, number and ages of children. Then we tabulated the current number of psychosocial factors. The second part included 18 questions on sexual satisfaction. The questionnaire included these items: feelings for partner, passionate love for partner, satisfied with partner, sexual responsivity-arousal/orgasm during sexual activities and enjoyment of sexual activities, frequency of sexual activities, libido-sexual thoughts or fantasies-, partner difficulties in sexual performance. The third part was about menopausal symptoms and ability to control disturbing symptoms. The scores on the sexual satisfaction scale ranged from 8 to 40 (little sexual satisfaction – high sexual satisfaction). Chronbach's alpha for this scale was 0.70 for data collected in 1 year indicating acceptable reliability[11]. FSH was measured by automated Microparticulate Enzyme Immunoassay (Abbott Diagnostics IMX Analyser; Abbott Laboratories, Abbott Park,IL). Correlation coefficents were 0.98. Estradiol was measured by using a double-antibody RIA kit purchased from Diagnostic Products Corp. (Diagnostic Products Corporation, Los Angeles, CA). DHEAS were measured with an automated chemiluminescent enzyme immunoassay (DPC) using the Immulite Automated Analyser (Immulite; Diagnostic Products Corporation, Los Angeles, CA). Serum free testesterone level was measured by using double-antibody RIA, the between assay coefficient of variation at a testosterone level of 2 nmol /L was 10%.

Statistical analyses were performed SPSS, version 13 (Chicago,IL). Student's t-test and linear regression analyses were used where appropriate.

RESULTS

The mean age of the women was 45.9 ± 1.9 years. The median parity was 2 (range, 0 to 3). Free testesrone levels changed minimally during the1 year period decreasing 3.26 ± 0.47 U, sexual satisfaction scores also decreased from a mean score of 25.43 ± 6.27 to 24.91 ± 5.91 ; these were all significant ($P<0.05$). The results of the other hormones, shown in Table I, suggest that free T was the only variable that is significantly associated ($P<0.05$) with sexual satisfaction. All the parameters of the questionnare, libido, sexual responsivity, frequency of sexual activities, partner's problems did not show association with blood hormone levels except free T.

Table I: Association of hormone levels with sexual functioning at the beginning and year 1

	Basal		Year1	
Hormone levels	R^2	P	R^2	P
Free T	0.099	0.003	0.087	0.006
DHEAS (µmol/l)	0.014	0.282	0.007	0.459
FSH (mlU/l)	0.018	0.225	0.004	0.564
LH (mIU/l)	0.002	0.709	0.01	0.360
Estradiol (pg/ml)	0.014	0.275	0.001	0.731

DISCUSSION

In this study, the level of free T was corralated with sexual satisfaction in perimenopausal women.

We found a minimal, but significant decrease in free T levels in the one year period. Sexual satisfaction scores also minimally decreased. The evidence from double-blind placebo-controlled clinical trials suggests androgens affect sexual functioning. It was found that testerone had significant positive effects over that of estrogen alone on mood and on sexual functioning[12,13]. Burger et al. demonstrated no change in T levels after menopause, and Gerber et al. found a nonsignificant decrease in free T during 5 years[14,15].

Our study does not show a relationship between low sexual satisfaction scores and low estradiol, DHEAS levels (P>0.05) in menopausal transition. Dennerstein et al. also found no direct relationship between mood scores and hormone levels in the early or late menopausal transition phases[5]. They found no direct effect of hormones or menopausal status on mood but they found that the menopausal transition had an indirect effect on negative mood scores[16]. In another randomized double-blind study Dennerstein et al. showed significant positive effects of estrogen on mood and sexuality. 49 oophorectomized women received 0.05 µm ethinyl estradiol; 250 µm levonorgestrel; ethinyl estradiol plus norgestrel; and placebo in random order for 3 months each daily. No androgen comparison was included in the study design, but the powerful effects of ethinyl estradiol on mood[17] and sexuality[18] were shown.

In conclusion, sexual functioning declines with the menopausal transition. Endogenous hormone levels except androgens do not seem to explain this decline. Nonhormonal factors – like psychological, physical, racial and relational- on sexual functioning in middle-aged women have also been investigated in further studies.

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