

Study on the Correlation between Serum Androgens and Sexual Function in Post-menopausal Women

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Objectives:

Menopause is a normal event in women's lives that is of utmost importance as one of health issues in the range of reproductive health. This period of time forms a complex stage of women's life due to physical and mental changes. After menopause, the ovaries stop the producing of considerable amounts of estrogen. Sexual dysfunction could be under the influence of menopause and the changes it causes in hormone levels. The purpose of this study is to examine the correlation between serum levels of androgens and sexual function in post-menopausal women.

Methods:

This is a community-based, descriptive-analytical study involving 405 post-menopausal women, aged 40 to 65 years, who had reached menopause up to three years prior to the study. A multi-stage, randomized sampling was conducted in the city of Chalous and Nowshahr, two cities located in north of Tehran, Iran. The study began in October, 2013, and ended in May, 2014.

The data was collected using the Female Sexual Function Index (FSFI) questionnaire, a researcher-made questionnaire, and blood sampling to study the serum levels of androgens [testosterone, dehydroepiandrosterone sulphate (DHEAS)], sex hormone-binding globulin (SHBG) and estradiol in the laboratory. The acquired data was analyzed statistically using SPSS.

Table 1 The sexual function of the post-menopausal women

FSFI domains	Main scores		In the range of 0-100	
	Mean	SD	Mean	SD
Desire	3.80	0.93	54.20	19.41
Arousal	2.85	1.10	47.53	18.31
Lubrication	4.39	1.38	73.26	23.04
Orgasm	4.13	1.33	68.90	22.12
Satisfaction	4.54	1.22	75.69	20.32
Pain	4.39	2.64	73.18	27.28
Total score (six domains)	24.11	6.04	65.85	17.36

Table 2 The correlation between Female Sexual Function Index (FSFI) and the Hormonal levels

Hormonal Levels	Unit	Dependent variable: FSFI (six domains and total scores). Test: Pearson correlation coefficient						
		Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Total score
Total testosterone	ng/ml	-0.108*	0.023	-0.015	-0.022	-0.035	0.029	-0.020
DHEAS	µg/dl	-0.012	0.012	0.019	0.029	0.076	0.113*	0.057
SHBG	nmol/l	0.020	-0.012	0.012	-0.008	-0.027	-0.041	-0.015
Estradiol	pg/ml	0.046	0.045	0.055	0.052	0.035	0.084	0.069
FAI	-	-0.097	0.029	-0.036	-0.027	-0.045	0.057	-0.018
FEI	-	0.044	0.020	0.035	0.037	0.056	0.115*	0.069

DHEAS: dehydroepiandrosterone sulfate
SHBG: Sex hormone-binding globulin
FAI: free androgen index
FEI: free estradiol index
*Significant (P<0.05)

Results:

Among the subjects, 61% of the subjects were suffering from female sexual dysfunction (FSD). Total testosterone levels had a negative correlation with scores in the domain of desire ($r=-0.108$, $P=0.029$), DHEAS levels were positively correlated with scores in the domain of pain ($r=0.113$, $P=0.022$), and the free estradiol index (FEI) was positively correlated with scores in the domain of pain ($r=0.115$, $P=0.020$). Satisfaction with marital relationship had a significant positive correlation with total testosterone levels ($r=0.131$, $P=0.008$) and the free androgen index (FAI) ($r=0.100$, $P=0.044$). In examining the correlation between FSFI scores and hormone levels, multiple regression analysis showed that serum levels of total testosterone and free androgen index were predicting factors in, respectively, the domain of lubrication ($P=0.042$) and satisfaction ($P=0.021$).

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Conclusions:

Androgenic hormones can affect certain aspects of sexual function in post-menopausal women. This subject area, however, requires further investigation. Thus these hormones need to be taken into consideration in implementing women's health initiatives regarding sexual function.

