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POSTMENOPAUSAL OVARIAN VOLUME IN TURKISH WOMEN

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ABSTRACT

The ovarian volume of 47 normal postmenopausal Turkish women (91 ovaries) without any pathology were measured using two dimensional ultrasonography. The ovarian volumes were similar, being 3.203 ± 1.001 (SD) cm^3 for the left and 3.16 ± 1.02 (SD) cm^3 for the right ovary ($p>0.05$). Parity and the body mass index did not affect the volume. There was no correlation between either right or left ovarian volume and years since menopause. The volumes of 91 postmenopausal ovaries with no evidence of pathology range from 1,3 cm^3 to 6.5 cm^3 with a mean of 3.186 ± 0.999 (SD) cm^3. These normal values in postmenopausal Turkish women provide a useful indicator for detection of postmenopausal palpable ovary syndrome.

Key words : *Menopause, Ovary, Ultrasound*

INTRODUCTION

Ultrasound has become a routine diagnostic tool in gynecologic examination particularly in old women. Due to higher ovarian cancer risk in postmenopausal women, measurement of ovarian volume is of great importance in this group. Barber and Graber (1) defined the postmenopausal palpable ovary syndrome (PPOS) an important criterion for the early diagnosis of ovarian cancer. Basically in the postmenopausal period this syndrome suggests an ovarian tumour, although for a premenopausal woman this ovary size is normal. Besides the shrinkage of the ovary during menopause ethnic differences also affect ovary volume. In this study detection of postmenopausal ovarian volumes in Turkish women was thought to be a useful indicator for detection of PPOS.

MATERIAL and METHODS

The ovarian volume of 47 postmenopausal women aged between 42-71 years old were measured by abdominal ultrasonography. None of the women were under estrogen therapy and all were in menopause. They never had any gynecologic operation, malignancy or any pelvic disease in their history. Clinical features of the study group were shown in table 1. To minimize the errors in measurements two biggest diameters at transverse section and three biggest diameters at longitudinal section were measured by 3.5 mHZ probe (Kretz Combinson 111). So longitudinal (LOD), transverse (TOD) and anteroposterior (APOD) diameters were measured. The ovarian volume was calculated using a simplified formula for a sphere (OV)=0.52333 x LOD x TOD

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x APOD). The body mass index (BMI) was found for each woman with the BMI=weight (kg)/ height^2(m^2) formula.

"Paired t-test" was used to evaluate the difference between the mean ovarian volumes of right and left ovaries and each group's ovarian volumes which was divided according to BMI. Left and right ovary volumes and other parameters (including BMI) were evaluate individually by correlation test.

RESULTS

The mean age was 57.378 ± 7.362 (SD) (min 42 max 71). The menopause periods of the women varied from 1 to 19 years and the average was 4.2 ± 0.08 years. In one woman the left-side ovary and in another woman both ovaries couldn't be imaged. Average ovary volume was found to be 3.203 ± 1.001 (SD) cm^3 for the right ovary and 3.16 ± 1.02 (SD) cm^3 for the left ovary. The overall ovarian volumes ranged from 1.3 cm^3 to 6.5 cm^3 with a mean of 3.186 ± 0.999 (SD). Statistically the difference between the left and right ovarian volumes was not significant. Parity did not affect ovary volume. According to their body mass index the women were divided into two groups, (1) BMI $< 25 kg/m^2$ and (2) BMI > 25 kg/m^2. The mean ovarian volume was calculated to be 3.239 ± 0.905 for the first group and 3.179 ± 1.076 for the second group. Statistically there was no difference between two groups ($p>0.05$).

Also no correlation was observed between the period ofter menopause and the left or right ovarian volume. Statistical comparison of many parameters were shown in table 2.

DISCUSSION

Because of cultural factors abdominal ultrasonography is prevalent in our country. We would like to stress that this study was conducted by using abdominal ultrasound. With a careful examination and technic, ovaries in postmenopausal woman can be imaged by ultrasonography. The measurement of the ovary volume is specially important in the screening for ovary cancer (2). The possibility of diagnosing ovary cancer during such a screening will enable us to obtain better results from treatment since the cancer will be at an early stage. Unfortunately in researches undertaken showed that only 1 woman in every 10,000 asymptomatic women could be diagnosed to have an ovarian cancer at routine gynecologic examination. As another means of screening test, Barber and Graber (1) described PPOS which can be used in early diagnosis of ovarian cancer. Campbell et al. (3) compared the ovarian dimensions obtained by ultrasonography and laparatomy respectively, and reported that the ovarian volume was not the same ; the mean ovarian volume should be investigated carefully. Also many other authors showed the superiority of ultrasonography to clinical examination.Sensitivity in clinical examination was found to be 67% and 83%in ultrasonography (4). To detect the abnormal enlargement in postmenopausal woman the normal ovarian volume must be known.The ovarian volumes show differences in different populations (5). Studies of postmenopausal ovary volumes carried in various countries have yielded different values. In a study performed in Israel the ovarian volume was 1.3 + 0.7 cm^3. In another study performed in England the volumes of ovaries ranged from 1.47 cm^3 to 10.43 cm^3 with a mean of 4.33 ± 1.91 (SD) cm^3. It was reported that the ovarian sectional area was 1.41 ± 0.63 cm^2 in Japanese women and 3.3 ± 1.9 cm^2 for Swedish women (3,4,6,7).

The values which were detected seperately in different countries indicate the necessity of every population should find out it's own standard.

In this study the mean ovarian volume for postmenopausal Turkish women was 3.186 ± 0.999 (SD) cm^3. It was concluded that this value is a useful indicator in the diagnosis of PPOS ultrasonographically.

TABLE 1 : Clinical characteristics of the study group.

	X + SD	min - max
Age (year)	57.37±7.362	42 – 71
Menopause period (year)	4.2 ±0.08	1 – 19
Parity	3.6 ±0.07	1 – 9
Weight (kg)	59.31±6.47	47 – 92
Height (m)	1.57±0.02	1.49 – 1.68

TABLE 2 : Comparison of many parameters.

	Age	Menopause	BMI	Parity	Left ovary
Left ovary	R=0.08	R=0.10	R=0.01	R=0.03	
	p>0.05	p>0.05	p>0.05	p>0.05	
Right ovary	R=0.14	R=0.08	R=0.04	R=0.04	R=0.08
	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05

BMI : Body mass index

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