

Original Research Article

Prognostic importance of some hormones in menopausal women in Babylon City-Iraq

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Abstract

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Estimation of hormone concentrations TSH, T3, T4, and testosterone in menopausal women in Babylon CITY were carried out in this study. There was no significant difference in body mass index (BMI) and age group distribution between cases and controls $P>0.05$, while there was a statistical differences in fertility status between two studied groups $P<0.05$. According to statistical analysis could be concluded that the level of T3, T4, TSH and testosterone were decreased in menopausal women in comparison with healthy control group and there are a differences between patient and control group $P<0.05$. While in the study of levels of TSH it has been found that there are no significant differences between various period times. $P>0.05$

Keywords: TSH, T3, T4 and Testosterone, menopausal women

INTRODUCTION

Menopause usually occurs between ages 48 and 52. The onset of hot flashes, extreme mood swings, insomnia, hair loss, uncontrollable weight gain, skin changes, vaginal dryness, decreased sex drive, the fear of osteoporosis, breast cancer and heart disease all are a part of American women's experience (Maki et al., 2002). Menopausal symptoms are more common in women in industrialized nations or with specific diets and lifestyles. Women in the United States and Europe complain more of menopausal symptoms than Asian women or women from less industrialized nations. Women in Asia have no word in their language for hot flash because they are non-existent in their culture. However, if an Asian woman moves to America or Europe and adapts the diet and lifestyle the likelihood of menopausal symptoms is equal to an American woman (Sherwin, 2005). This phenomenon tells us that menopausal symptoms are not genetic and unavoidable. Diet, lifestyle and the environment play a role in the difficulties experienced during menopause (Roberts et al., 2006).

Menopause occurs when a woman permanently stops ovulating or producing an egg that can be fertilized and used for reproduction. Menopause is diagnosed when a

woman no longer has a monthly cycle for a year and has an elevated blood level of FSH (follicular stimulating hormone). FSH is elevated when a woman stops ovulating or producing an egg. FSH is not an indicator of estrogen deficiency. Unfortunately, FSH levels are what most doctors use to diagnose menopause. Estrogen is made from a variety of sources (Sherwin, 2005; Sundermann et al., 2006). The ovary is only one of many sources. Estrogen is available because hormones that are made by the adrenal gland can be converted into estrogen in fat, muscle and skin cells. Estrogen is also available through food sources such as soy, and flax seed. We are exposed to many chemical substances in the environment that behave like powerful estrogens. With the abundance of sources of estrogen available in the environment and the other sources available in the body, it seems unlikely that estrogen deficiency is the problem. When estrogen levels are obtained from saliva testing, most menopausal women have normal or elevated levels of estrogen (Burger et al., 1999; Hudelist et al., 2007).

Menopause cannot be simply explained by lack of estrogen. While estrogen deficiency may play a role in

some women's experience in most cases it does not. Most women in America are over their ideal body weight (Rizner, 2009). It is well documented that overweight women produce too much estrogen. Estrone, an estrogen, is made in fat cells. It is a relatively strong estrogen when compared to estrogens made by the body. Women who are overweight are at an increased risk of diseases that are known to be caused by elevated estrone levels. Uterine cancer and breast cancer are more common in women who are overweight (Ishikawa et al., 2009). Women that are overweight are more likely to be diabetic. Women who are diabetic are more sensitive to estrogen than women who are not diabetic. Estrogen also increases weight gain and makes it more difficult to lose weight. Women who are overweight should not take standard synthetic estrogen replacement (Hogervorst and Bandelow). Women who are not at high risk for osteoporosis should avoid estrogen replacement. Estrogen has two FDA approved indications. One is the relief of hot flashes the other is the prevention of osteoporosis in high risk women (Moore et al., 1984). Women that have a thin frame, and of North European descent with extremely fair skin, sedentary lifestyle, history of smoking and prolonged steroid use are at risk for osteoporosis (Czajka-Oraniec et al., 2008). Women that are not in a high risk group do not need estrogen to maintain normal bone health. African-American women and other people of color are at very low risk for osteoporosis and should not take estrogen for osteoporosis prevention. Although very thin fair skinned African American women may be at risk (Sherwin, 2005; Burger et al., 1999). Overweight women do not have to worry about osteoporosis. Osteoporosis is very uncommon in women over their ideal body weight especially if they have no other risk factors.

Symptoms of Menopause Totally, women face 34 different symptoms of menopause. They are classified as physiological and psychological in nature. All are frustrating and debilitating. To better understand how these symptoms affect women, here is a categorical breakdown (Shabsigh et al., 2005; Barba et al., 2009; Rajkumar et al., 1997).

1. Vascular Instability – Most of the women suffer a lot based on this kind of symptom because the hormonal imbalances caused by menopause create vascular instability, which means your body struggles to regulate its own internal temperature. The most common symptoms associated with vascular instability are hot flashes and night sweats.

2. Urogenital Atrophy – These symptoms are most commonly associated with dryness in private parts, it can lead to bleeding, itchiness and incontinence.

3. Skeletal Pain – Normally women suffering from menopause claim to have back or joint problems, and it's widely recognized that menopause can lead to osteoporosis.

4. Psychological Damage – Arguably the worst side effect of menopause is the depression, mental fatigue, memory loss, insomnia, etc. that can debilitate one's personal and professional life.

5. Sexual Stagnation – In addition to dryness in private parts, menopause has been known to cause loss of libido. It's worth reiterating that while there are 34 recognized symptoms of menopause, not every woman reacts to aging the same way. Some may experience more symptoms than others and some more severely than others. It usually comes down to your personal habits and heritage.

AIMS

The aims of the study are to study the concentrated levels of some hormones in such as TSH, T3, T4, and testosterone in menopausal women in Babylon city

MATERIAL AND METHODS

Patients Groups

A total of 50 menopausal women who were admitted to the various hospitals in Babylon city were investigated biochemically from March 2018 to December 2018. And women age over than 50 years.

Control Groups

The control groups included 50 healthy women with no signs of menopausal status or other diseases, and the ages below than 40 years.

Collection of Blood Samples

For each patient (patient groups and control groups) 2-3 ml of blood were aspiration by syringe 5ml, serum was separated by centrifugation at 3000rpm/10 minutes, and kept in 10°C until used and thawing of each frozen sample

Hormone kits

The kits used in this study for estimation of TSH, T3, T4 and Testosterone concentrations were supplied by Spectrum Co., Netherlands, and the determination of hormone concentrations were done according to supplied company. Body mass index (BMI) was calculated as follows: weight (kilograms)/height² (meters).

Table 1. Basic Subjects Characteristics

	Cases (No=50)	Controls (No = 50)	p value
Age (years) Mean \pm S.D.	57.7 \pm 5.8	59.4 \pm 5.7	0.082
BMI(Kg/m ²) Mean \pm S.D.	27.0 \pm 3.4	26.0 \pm 3.3	0.060
History of infertility: No (%)	40(80%)	45(90%)	0.0

Statistical Analysis

Results were analyzed using the test T. test use of less significant difference (least significant differences) (LSD) at the level of significance ($P \leq 0.05$, $P \leq 0.01$ and $P \leq 0.001$) to show statistically differences.

RESULTS AND DISCUSSION

Basic Subject Characteristics

This is a case control study involved 50 menopausal women. These were compared with age matched 50 apparently healthy controls.

The basic characteristics of menopausal women and control groups are shown in Table (1). There was no significant difference in BMI and age group distribution between cases and controls.

Tables 2-5 and fig 1 illustrate the levels of various hormones in menopausal women. According to statistical analysis could be concluded that the level of T3, T4 and testosterone were decreased in comparison with healthy control group and there are a differences between patient and control group $P < 0.05$.

Menopause is the irreversible end of the reproductive stage in a woman's life. This usually occurs around the age of 50 with menstrual cycles becoming less frequent. Menopause is caused primarily by ovarian failure when the ovaries fail to respond to the gonadotropins (sex hormones) mainly because the follicles and eggs have disappeared through atresia (Hudelist et al., 2007). Although small amounts of estrogen are still secreted into the plasma, largely from the alteration of adrenal androgens to estrogen, menopause is associated with a precipitous fall in plasma estrogen levels. Menopause is associated with osteoporosis (decrease in bone mass and strength), hot flashes, night sweats, vaginal dryness, and increase in cardiovascular disease (Chuni, 2011; Forouhari, 2010). Menopause cannot be simply explained by lack of estrogen. While estrogen deficiency may play a role in some women's experience in most cases it does not. Most women in America are over their ideal body weight. It is well documented that overweight women produce too much estrogen (Rees, 2009). Estrone, an

estrogen, is made in fat cells. It is a relatively strong estrogen when compared to estrogens made by the body. Women who are overweight are at an increased risk of diseases that are known to be caused by elevated estrone levels. Uterine cancer and breast cancer are more common in women who are overweight (Bhalerao, 2009).

Women that are overweight are more likely to be diabetic. Women who are diabetic are more sensitive to estrogen than women who are not diabetic. Estrogen also increases weight gain and makes it more difficult to lose weight. Women who are overweight should not take standard synthetic estrogen replacement (Liu, 2007).

Women who are not at high risk for osteoporosis should avoid estrogen replacement. Estrogen has two FDA approved indications. One is the relief of hot flashes the other is the prevention of osteoporosis in high risk women (Wong, 2007).

Women that have a thin frame, and of North European decent with extremely fair skin, sedentary lifestyle, history of smoking and prolonged steroid use are at risk for osteoporosis (Leon, 2007).

Women that are not in a high risk group do not need estrogen to maintain normal bone health. African-American women and other people of color are at very low risk for osteoporosis and should not take estrogen for osteoporosis prevention. Although very thin fair skinned African American women may be at risk. Overweight women do not have to worry about osteoporosis. Osteoporosis is very uncommon in women over their ideal body weight especially if they have no other risk factors (JL, 2006).

It is well renowned that menopausal symptoms experienced by women affect their quality of life. Studies show that when compared with peri and post-menopausal, premenopausal women have less menopausal complaints. They seem to complain significantly more of severe physiological, somatic and psychological symptoms like bladder infections, urinary infections etc. when compared to premenopausal women. During menopause, women often experience some symptoms which may affect their daily activities. In recent years, studies have shown that menopausal symptoms may affect health related quality of life (Towey, 2006). The knowledge, approach and menopausal symptoms observed in were quite similar to other studies

Table 2. The concentration of T3 in menopausal women and control group. P<0.05

T3		
P VALUE	Control	Menopausal women
0.05	2.467	0.720

Table 3. The concentration of T4 in menopausal women and control group. P<0.001

T4		
P VALUE	Control	Menopausal women
0.001	19.840	5.086

Table 4. The concentration of TSH in menopausal women and control group. P>0.001

TSH		
P VALUE	Control	Menopausal women
0.001	11.658	2.577

NS: NOT SIGNIFICANT P>0.05

Table 5. The concentration of Testosterone in menopausal women and control group. P<0.001

Testosterone		
P VALUE	Control	Menopausal women
0.001	15.78	6.342

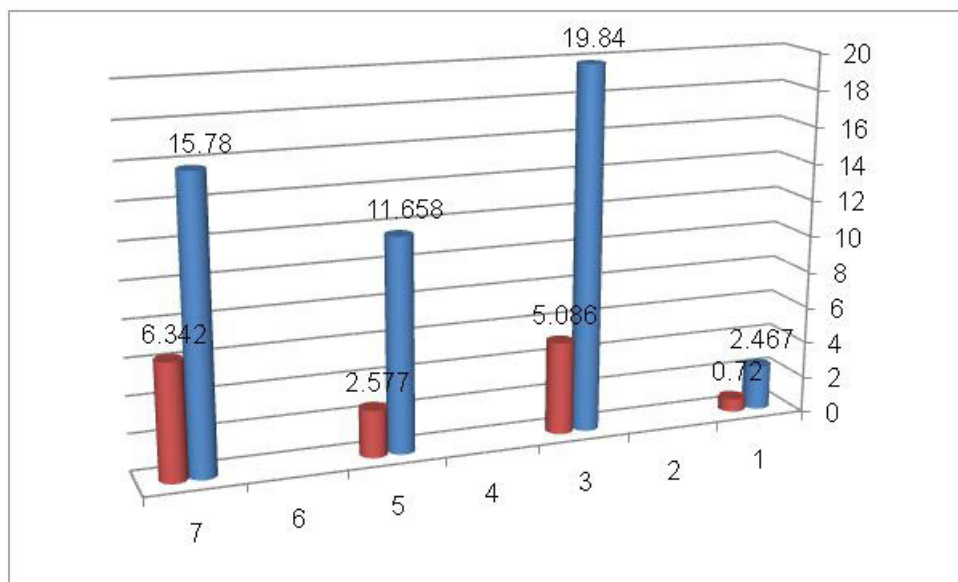


Figure 1. Illustrate comparison between various studied hormones in menopausal women and control.

that are reported within the country and abroad. Menopausal women experience significant implications on historical and social construction. Persistent stereotypes imply that menopause is a time associated with loss of youth and sexuality. Further, menopause is perceived, understood, and defined largely as a negative experience filled with a variety of undesirable physical and emotional symptoms in terms of medical discipline. Unlike menstruation or conception, menopause has not been a major topic of discussion among the public. Very little information has been circulated to the public to increase knowledge on the subject (Sundermann et al., 2006; Fakhshsheena Anjum, 2013; Liu, 2007).

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