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Effect Of Postmenopausal On Some Liver Enzymes in Kirkuk Women's

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Effect of postmenopausal on some liver enzymes in Kirkuk women's

<p>Authors Names Noori M. Aziz</p> <p>Article History Received on: 19/7 /2020 Revised on: 20 /12/2020 Accepted on: 14 /1/ 2021</p> <p>Keywords: Postmenopausal, liver enzymes</p> <p>DOI: https://doi.org/10.29350/jops.2021.26.1.1177</p>	<p>ABSTRACT</p> <p>The menopause correlate with changes in psychological and biochemical characterized, and also body mass index. The study was analyzed the level of glutamic pyruvic transaminase activity (GPT), glutamic oxaloacetic transaminase activity (GOT), alkaline phosphatase activity (ALP) and estimation of body mass index (BMI) in postmenopausal women (n=20) (50-70) years old and premenopausal women (n=20) (30-40) years old. In postmenopausal women the activity of glutamic pyruvic transaminase (GPT) , glutamic oxaloacetic transaminase activity (GOT) , alkaline phosphatase activity (ALP) and body mass index (BMI) was elevated significantly as compared to premenopausal women ($p<0.05$) , ($P<0.004$) , ($P<0.002$) and ($p<0.016$) respectively .</p>
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1. Introduction

Postmenopausal, the period during which menstruation stops and the female sex hormones rapidly shrinking. It occurs between the ages of 45-55 years. It is characterized by various hormonal, psychological, and biochemical changes [8]. Postmenopausal may lead to a pathological condition of the liver which is a non-alcoholic fatty liver and give signs of aging and usually contributes in accompanying metabolic disorders and reduce the ability of the liver to oxidize fatty acids and thus increase the fat accumulation and increased inflammation [11] For women, issues related to liver disease are Unique in the influence of hormonal factors and age evolution and development of the liver Diseases, this has been proven Factors interact negatively on a course Liver-related health in postmenopausal women. The Average age of normal menopause in the world is 51 years old depended of region, nutrition, environmental and other factors , and increasingly larger numbers of women approaching menopause [12] Global estimates It proved that in 1998, more than 477 million Women were estimated after menopause That after 2025, 1.1 billion women will be around the world After menopause [7] Number of changes of morphologic characters occur within the liver with ages, These features are expected to develop within the liver during menopause. These changes include a decrease in blood flow and volume in the liver, as well as changes in the ability to regenerate the liver. Data showed that the function, size and blood flow decrease approximately 1% annually after the ages of 40 to 50 years, liver size decreases by 20% to 40% by the time people reach old age, it's more showed in women, blood flow decreases by 35% to 50% in the old ages and may contribute to a decrease in liver size that show with increasing age [2] menopause leads to a loss of the liver to its defensive function, vital transportation, toxins removal and reduce the fat accumulation from

drugs, food and toxins coming from the surrounding environment and the loss of these functions lead to a high level of liver enzymes [6] Glutamic pyruvic transaminase (GPT)(E.C.2.6.1.2), glutamic oxaloacetic transaminase (GOT) (E.C.2.6.1.1) are enzymes found generally in the liver, but likewise found in red blood cells, cardiac cells, muscle tissue, and many organs. (GPT, GOT) also called (ALT, AST) (alanine aminotransferase, aspartate aminotransferase) respectively and alkaline phosphatase (ALP) [E.C.3.1.3.1]. GOT or GPT and ALP level are respected assistance mainly in the identification of a liver disease or liver damaged are released into the bloodstream, the amount of GPT and GOT in the blood is directly linked to the level of the tissue damage [1] Many studies showed evaluated of hepatic enzymes GPT, GOT and ALP of postmenopausal cases compared premenopausal in the southeast Asia tropics area [10] Studies have also indicated an increase in body mass index (BMI) in postmenopausal women relative to premenopausal as a result of the fat accumulation in different parts of the body resulting from the associated metabolic disorders [3]

Aim of study: This study showed with age advances liver becomes injured and gets abnormal liver functions and liver damage due to postmenopausal compared with premenopausal in Iraq's women Kirkuk government.

Materials and methods

This study included (20) blood samples of nonsmokers women's (premenopausal) ages categories between (30-40) years, and (20) blood samples of nonsmokers women's (postmenopausal), ages ranged between (50-75) years also. Five milliliters (mL) of venous blood were collected into plain tubes from each cases. The blood samples were allowed to stand for 15 minutes (min) then centrifuged at 4000g for 10 min. Serum was frozen at -20°C till used for the estimation of GPT, GOT and ALP.

Liver enzymes estimation

1. Estimation of SGOT (AST): GOT activity in the premenopausal and postmenopausal serum estimated by using Biolabo Kits manufactured by Biolabo SAS, Maizy (France) company based on the principle of Karmen and Al, optimized by Henry and Al, according to modified IFCC recommendations [5]
2. Estimation of SGPT (ALT): GPT activity in the premenopausal and postmenopausal serum estimated by using Biolabo Kits manufactured by Biolabo SAS, Maizy (France) company based on the principle of Wroblewski and LaDue optimized by Henry and Bergmeyer, according to modified IFCC recommendations[4]
3. Estimation of (ALP): ALP activity in the premenopausal and postmenopausal serum estimated by using Biolabo Kits manufactured by Biolabo SAS, Maizy (France) company based on the principle DGKC (German society of clinical chemistry)and SCE (Scandinavian society of clinical chemistry)[13]
4. BMI is believed as a predictor of obesity and generally regarded as a tool for measuring obesity. (BMI) was calculated according to the equation.

$$BMI = \frac{Weight (kg)}{Height (m)^2}$$

Depending on World Health Organization, the body mass index falls into the following criteria for (adults older than 20 years), as follows (less than 18.5 kg / m² underweight), (18.5-25 kg / m² normal), (25-30 kg / m² overweight) and (more than 30 kg / m² obesity) [14] and in this study followed same criteria.

Statistical analysis

The mean and standard error were found for clinical parameters studied with the (t-test) to compare two groups. The relationship between the studied parameters was also found by finding the value of the correlation coefficient by using the statistical analysis program (SPSS 20).

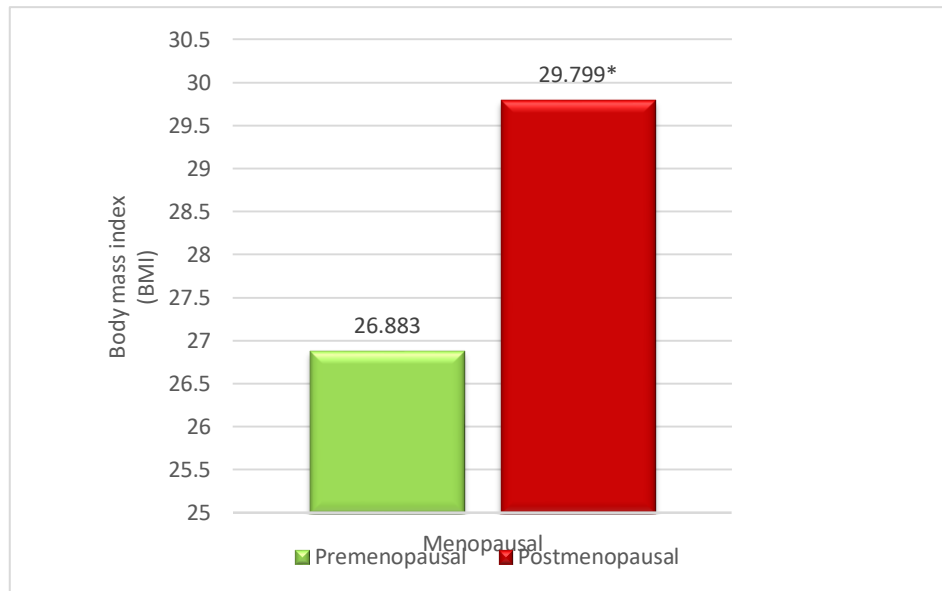
Results and discussion

Liver markers are an indication of liver health and normal functioning [9]. It is found in Table (1) below.

Table (1) compared between liver markers and (BMI) in studied groups

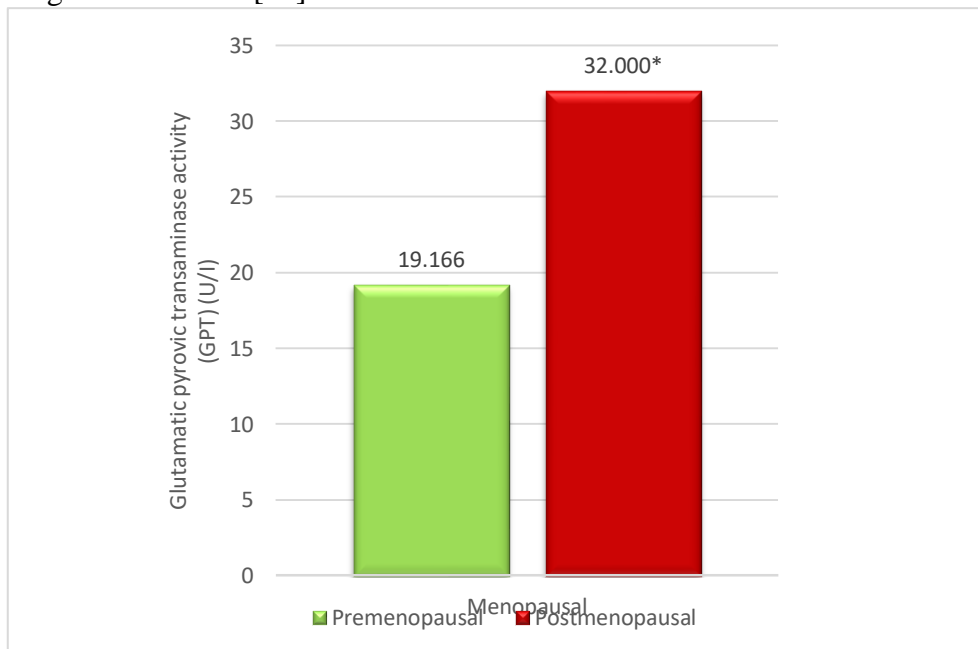
Details Parameters	Menopausal	N	Mean±SE	P-Value
BMI	Premenopausal	20	26.883±0.370	0.016
	Postmenopausal	20	29.799±1.166	
GPT(U/I)	Premenopausal	20	19.166±1.922	0.05
	Postmenopausal	20	32.000±6.024	
GOT(U/I)	Premenopausal	20	24.888±3.421	0.004
	Postmenopausal	20	35.750±7.254	
ALP (U/I)	Premenopausal	20	56.142±7.004	0.002
	Postmenopausal	20	158.857±29.914	

The results showed significant increase in the body mass index (BMI) for postmenopausal women compared with premenopausal women, as shown in the table (1) and figure (1), this is an agreement with the results gained by researchers, perhaps the reason for this is the accumulation of fat in different areas of the body as a result of menopause and reducing the efficiency of the liver in dealing with fats [3].



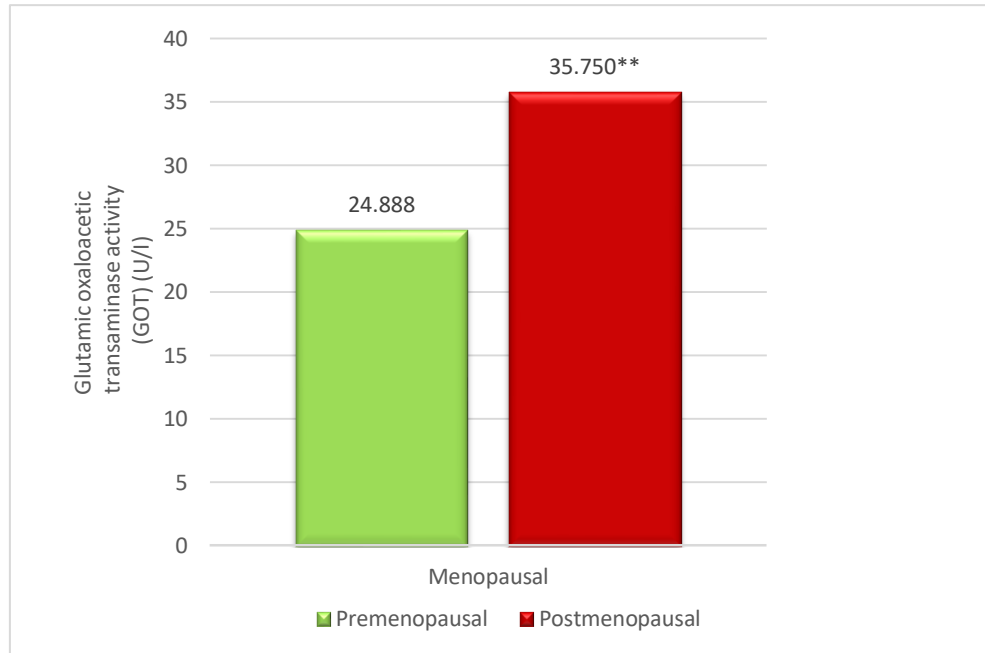
(Figure 1) Compared between body mass index (BMI).

The results showed significant increase in activity of the glutamic pyruvic transaminase enzyme (GPT) in postmenopausal women compared to premenopausal women as shown in Table (1) and Figure (2). This results agreed with researchers, possibly the reason for this is the accumulation of toxins in the liver as a result of menopause and the reduced efficiency of the liver in dealing with toxins and damage of liver cells [10].



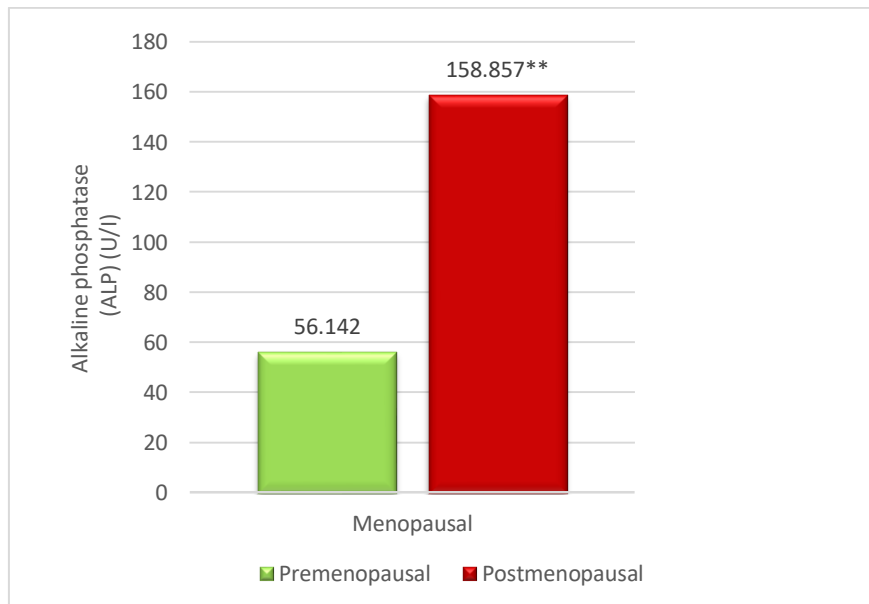
(Figure 2) Compared between glutamic pyruvic transaminase activity (GPT)

The results showed significant increase in activity of the glutamic oxaloacetic transaminase enzyme (GOT) in postmenopausal women compared to premenopausal women as shown in Table (1) and Figure (3). This results agreed with researchers, perhaps the reason for this is the accumulation of harmful substances in the liver and the reduction of its efficacy as a result of menopause and damage of liver cells [10].



(Figure 3) Compared between glutamic oxaloacetic transaminase activity (GOT)

The results showed significant increase in activity of the alkaline phosphatase enzyme (ALP) in postmenopausal women compared to premenopausal women as shown in Table (1) and Figure (4). This results agreed with researchers, perhaps the reason that liver damage and reduced efficacy due to menopause [3].



(Figure 4) Compared between alkaline phosphatase activity (GOT)

Table (2) indicates the correlations between studied parameters with each other. The table below indicates the existence of a positive correlation between each of the glutamic pyruvic transaminase (GPT), glutamic oxaloactic transaminase (GOT), alkaline phosphatase (ALP) and body mass index (BMI) with each other, but this relationship was non-significance, except (GOT) with (BMI) correlation which it was significant statically, these results refer to the effects of (Postmenopausal) that's generally affected towards increasing the amounts of studied parameters.

(Table 2) correlation between the studied parameters

BMI			
0.338 N.S	GPT		
0.738 <i>P</i> ≤0.05	0.093 N.S	GOT	
0.235 N.S	0.336 N.S	0.236 N.S	ALP

Conclusion: Through our study, it is possible old age for women (postmenopausal) leads to liver damage and obesity, and thus leads to a deterioration of the health condition.

Conflict of Interest: The authors declare that they have no conflict of interest.

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