

Chapter five

Discussion

Conclusion ,Recommendations

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5.1 Discussion

Obesity is one of the most important causes of death all over the world because of its adverse effects on cardiovascular system and is one of the important factors that may influence metabolic status(**Maria and Evagelia 2009**)

Concerning gender, the study showed that ratio of gender was one to two third male to female, that indicated obesity in females higher than males, Possible explanation for this result is that males are more physically active compared to females. women also tend to have a higher percentage of body fat and have less lean tissue than men of the same BMI and this is thought to be due to biological differences because men typically deposit more lean tissue than fat tissue when they gain weight (**James et al., 2001**).

The present study results showed significant increase in means of total cholesterol, triglyceride and LDL-C level and decrease level of HDL-C in obese and overweight group when compared to control group , these result agree with (**Bhatti et al,2001**) because the Increased levels of free fatty acids leads to increased total cholesterol ,triglyceride (TG) and very-low-density lipoprotein (VLDL) production in the liver as well as inhibition of lipoprotein lipase in adipose tissue and skeletal muscle and decrease of high density lipoprotein cholesterol (**klob et al .,2012**).

The study also showed that 'there was insignificant association between serum cholesterol concentrations and BMI in overweight group and significant positive correlation of cholesterol and BMI in obese also show a significant association with obesity measured by the WHR ratio this association shows a highly significant increase in obese group only this leads to the conclusion that body shape, or fat distribution, is an indicator of cholesterol levels, whereas total weight or body fat is not. The results are in agreement with previous research, which found that fat distribution is a strong indicator for body weight and its relation to health (**Visscher et al., 2001; Marti et al., 2001**).

Also study showed that there were positive correlation between BMI and serum triglyceride, BMI and serum LDL-C ,WHR and serum triglyceride, WHR and serum LDL-C and WHR , The levels are significantly higher in obese group than overweight group , This result can be explained by the effect of the central obesity on the lipid metabolism. When the very low-density lipoprotein (VLDL) synthesis increases in the liver, the Triglyceride synthesis will increase and the HDL synthesis will decrease This findings was agreed with study (**Aguilera, Gil-Campos and Canete, 2008**).

The study showed that there were significant negative correlation between BMI with serum HDL-C also between WHR and serum HDL-C in both overweight and obese group , this evidence confirmed by(Heseker and Schmid ,2000;**Marti et al., 2001**).

The present study revealed that, there was insignificant difference between mean concentrations of CRP in males in comparison with females with This findings was agreed with study performed in Japan, there were no significant difference (**Huffman et al., 2010;Ataru et al., 2002**).

Also, the finding of a significant strong correlation between CRP and both the BMI and WHR ratio in obese group that explain the high prevalence of inflammation in the obese and supports the classification of obesity as an inflammatory disease (**Das, 2001; Davi et al., 2002; Ferrante, 2007; Heilbronn and Clifton, 2002; Kelley, 2001**). The increase of the adipose tissue mass could be related to its increasing content of interleukin-6 (IL-6), which is related to and could explain The increase of the CRP levels in obese individuals and its dangerous because of the strong correlation between heart disease and elevated levels of CRP (**Das, 2001**).

the present study provide experimental evidence that, there was significant positive correlation between CRP level and total serum cholesterol ,serum triglyceride and LDL cholesterol in obese group reported by previous studies (**Dilip Kumar et al,2012**) this abnormal amount of lipid are associated with increased levels of IL-which has been associated with higher serum CRP levels in obese subjects.(**Nappo et al ;2002**).

The present study show that there was significant negative correlation between CRP and HDL-C in obese group this findings was agreed with study(**Hanyu et al ;2007&Ridker et al;2003**) the Possible explanation for this that the pro-inflammatory cytokines, such as TNF- α , IL-6 and IL-1, also reduces expression of apo A1 in hepatic cells and plasma which it's the major protein component of HDL in plasma, and low concentrations of apoA1 are independent predictors for presence and severity of cardiovascular disease (**Saez et al;2012**).

also result showed that there was significant negative correlation between CRP and serum magnesium this result agree with study which showed that magnesium deficient rats showed a significant increase in the acute-phase reactants , and concluded that inflammatory response is an early consequence of magnesium deficiency (**Malpuech et al;2000**).

5.2 Conclusion

The study concludes that obesity is more common in female than male and serum CRP, Total cholesterol, triglyceride, LDL-C are higher in both obese and overweight whereas serum magnesium ,HDL-C are low in both obese and overweight subject

5.3 Recommendations:

From finding of this study it is recommended that

1/Monitoring of C-reactive protein, serum lipid profile and magnesium among obese individual for prevent early predictive cardio vascular disease and metabolic syndrome

2/ More focus be placed on the maintenance of healthy weight and achieving a healthy body fat distribution .

3/ farther research is needed with large sample size to study other related parameters .