INTRODUCTION

Polycystic ovary syndrome (PCOS) is the most common typical endocrinopathy in women with fruitful age with a prevalence of up to 5–10%. This syndrome is characterised by menstrual disturbances, clinical and biochemical manifestations of hyperandrogenism and blubber. About 50% of PCOS ladies are overweight or obese and many of them have the abdominal blubber phenotype.

Presence and pathogenesis of lipid abnormalities in PCOS have remained controversial. Some studies have shown that the lipid disturbances in PCOS girls are higher than healthy girls. Thus, these women would be prone to be at vascular risk even in younger age. In the other words, lipid disturbances in PCOS girls may be a risk issue of early hardening of the arteries and consequently cardiovascular risk.

Based on the importance of lipid abnormalities and its association with cardiovascular risk especially in PCOS girls, the aim of this study was to compare the lipid profiles and its sub groups in ladies with and without PCOS.

METHODS

This study was designed as descriptive, analytical cross-sectional study, conducted at different fertility centres in Khartoum state from February to April 2016.

The study included 40 PCOS women with age ranged between 16 and 40 years based on Rotterdam criteria 2003, and 40 ovulatory normal non-PCOs, healthy and age-matched women as control. The lipid profiles (total cholesterol, LDL-C, HDL-C and triglyceride [TG]) were measured by an enzymatic colorimetric method using biosystem reagents. The data management and analysis were done with SPSS version 22.

RESULTS

There was no significant difference between the two groups in terms of age and body mass index except TG in PCOS ladies with BMI more than 25 was significantly higher in comparison with non-PCOs.

CONCLUSION

This study does not guide the belief that PCOS affects serum lipid ranges, besides in the term of TG in PCOS girls with BMI >25. It is far advised to do this study in ladies with PCOS suffers from insulin resistance.
an hour and then centrifuged at 3,000 rpm for 10 min to get the serum till analysis.

Lipid profile (total cholesterol [TC], TGs, high-density lipoprotein-cholesterol [HDL-C] and low-density lipoprotein-cholesterol [LDL-C]) levels were measured by an enzymatic colorimetric method using biosystem reagents. All these parameters were investigated and recorded, and then, a comparison regarding to PCOS and non-PCOS groups as well as two BMI groups (≤25 and over 25). The data were analysed by SPSS, version 22 (IBM).

RESULTS

In this study, the mean ± SD of age in the study group was 27.20 ± 7.090 years compared to 25.73 ± 6.824 in the control group (P value = 0.346).

No significant difference was observed between the two groups (with or without PCOS) for the above variables.

Table 1 shows the biochemical findings of subjects with and without PCOS.

All parameters did not show any significant difference between the two groups.

When the findings were compared between the two groups with and without PCOS sorted by their BMI (Table 2) is a significant difference is observed for LDL. Otherwise, the TG levels in PCOs women with BMI ≤25 (P = 0.003).

The ladies without PCOS did not show any differences between all parameters.

DISCUSSION

In this study, we did not find any significant differences between the two groups in levels of TC, LDL, HDL and TG.

Also Amini et al. and Bickerton et al. found no significant differences between PCOS and non-PCOS women.\(^8,9\)

Bahceci et al.’s findings suggest that the level of TG in women with and without PCOS did not show any significant differences.\(^15\)

Valkenburg et al. showed that when lipid changes occur in PCOS women, this may get affected by obesity and hyperandrogenism.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>With PCOS group N = 40</th>
<th>Without PCOS group N = 40</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (mg/dL)</td>
<td>157.89 ± 25.664</td>
<td>157.08 ± 32.187</td>
<td>0.901</td>
</tr>
<tr>
<td>LDL (mg/dL)</td>
<td>113.8 ± 29.098</td>
<td>109.20 ± 32.205</td>
<td>0.545</td>
</tr>
<tr>
<td>HDL (mg/dL)</td>
<td>48.875 ± 8.6504</td>
<td>52.475 ± 9.7533</td>
<td>0.085</td>
</tr>
<tr>
<td>TG (mg/dL)</td>
<td>92.80 ± 46.113</td>
<td>82.54 ± 28.537</td>
<td>0.235</td>
</tr>
</tbody>
</table>

P ≤ 0.05 is significant, PCOS: polycystic ovary syndrome, SD: standard deviation, TC: total cholesterol, LDL: low-density lipoprotein, HDL: high-density lipoprotein, TG: triglyceride.

<table>
<thead>
<tr>
<th>Groups</th>
<th>BMI ≤25</th>
<th>BMI &gt;25</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
</tr>
<tr>
<td>Without PCOS</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TC (mg/dL)</td>
<td>162.71 ± 36.619</td>
<td>152.91 ± 28.613</td>
<td>0.612</td>
</tr>
<tr>
<td>LDL (mg/dL)</td>
<td>116.76 ± 34.99</td>
<td>103.61 ± 29.511</td>
<td>0.711</td>
</tr>
<tr>
<td>HDL (mg/dL)</td>
<td>49.471 ± 8.5156</td>
<td>50.087 ± 10.1866</td>
<td>0.578</td>
</tr>
<tr>
<td>TG (mg/dL)</td>
<td>95.85 ± 30.133</td>
<td>72.70 ± 23.346</td>
<td>0.323</td>
</tr>
<tr>
<td>With PCOS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI ≤25</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>P-value</td>
</tr>
<tr>
<td>TC (mg/dL)</td>
<td>107.18 ± 45.287</td>
<td>75.22 ± 41.831</td>
<td>0.337</td>
</tr>
<tr>
<td>LDL (mg/dL)</td>
<td>45.227 ± 7.7455</td>
<td>48.778 ± 14.0527</td>
<td>0.141</td>
</tr>
<tr>
<td>HDL (mg/dL)</td>
<td>48.500 ± 8.4445</td>
<td>49.333 ± 9.1201</td>
<td>0.474</td>
</tr>
<tr>
<td>TG (mg/dL)</td>
<td>152.11 ± 29.146</td>
<td>162.61 ± 21.989</td>
<td>0.003*</td>
</tr>
</tbody>
</table>

*P ≤ 0.05 is significant, PCOS: polycystic ovary syndrome, SD: standard deviation, TC: total cholesterol, LDL: low-density lipoprotein, HDL: high-density lipoprotein, TG: triglyceride, BMI: body mass index.
In other phrases, weight problems with PCOS ladies would be the most vital factor for metabolic abnormalities and cardiovascular dangers. In this study, we observed this effect on TG, when groups were sorted according to their BMI (≤25 and higher than 25 kg/m²); the higher serum level was observed in PCOS women (P = 0.003).

According to Sneatha et al., higher TC, TGs, LDL-C and very LDL-C in PCOS ladies in comparison with control may confirm a positive association between glucose and BMI with dyslipidaemia in PCOS women.

The increase in triglycerides may be due to the buildup of TGs, which may arise to the improved lipogenesis, decreased clearance or reduced oxidation of fatty acids.

Besides, this process can cause increased intermediate-density and LDLs.

Silfen et al. and Savic et al. also confirmed that the LDL and HDL degrees in ladies with PCOS are laid low with their weight, so that, overweight women had higher LDL and lower HDL ranges than lean ladies.

In conclusion, although multiple studies tried to assess the impact of PCOS on serum lipids, a few of them demonstrate a better level of dyslipidaemia, mainly in PCOS ladies with higher BMI and levels of insulin. In our observation, we did not discover many differences in PCOS ladies’ lipid profile in comparing with controls; however, this results advocate high serum levels of TG amongst PCOS cases with BMI higher than 25 kg/m² as compared with BMI ≤25 kg/m². Similarly, studies with larger sample size are warranted to affirm those outcomes. It is recommended to repeat this within PCOS ladies who are insulin resistant.

Ethical approval: The study was approved by the ethics committee Faculty of medical laboratory Sciences, University of Khartoum, Sudan.

REFERENCES