DISCUSSION/CONCLUSION

Psoriasis is the most common skin disease. A number of studies have demonstrated an increase prevalence of hypertension, hyperlipoproteinamia and diabetes mellitus in psoriasis. Particular interest has been focused on hyperlipoproteinaemia and free radical generation because it tends to an increased incidence of coronary heart disease or thromboembolic disorder. The aim of the study is to evaluate the lipid profile, Apolipoprotein, total Protein and antioxidant enzymes such as superoxide dismutase, glutathione peroxidase and catalase in psoriasis and to correlate these factors with the disease activity.

In the present study we included 80 psoriatic Patients and 80 healthy controls Age ranges between 21-80 yrs. We estimated. Serum lipid profile, Apolipoprotein, total protein antioxidant enzymes (superoxide dismutase, glutathione peroxidase and Catalase)

**Serum Lipid Profile**

The serum lipid profile includes total cholesterol, triglycerides, HDL cholesterol, LDL cholesterol, VLDL Cholesterol and HDL cholesterol.

**Total Cholesterol**

The Serum total cholesterol level of 80 psoriatic patients were ranged (231.83 ± 18.6) mg/dl and control (80) healthy person were ranged. (186.77 ± 20.12) mg/dl.

Statistically significant P > 0.0001 increase of total cholesterol was observed. Psoriatic patients in comparison to controls our results are in accordance with

**Triglycerides**

The Serum triglyceride levels of 80 psoriatic patients were ranged (115 ± 23.79) mg/dl and control 80 healthy persons were ranged (73.90 ± 6.01) mg/dl statistically significant P > 0.0001 increase of triglyceride was observed in comparison to control similar findings have been reported by Runne et al (1975); or fanos (1980); Alborg et al (1985); Lyonas et al (1982) Elias et al (1982); Marsden et al (1986) vahal quest et al (1988); Ballantye et al (1989) mroweitz et al (1991); Meffart et al 1997, Uyanik et al (2002), Piskins, 2003 vanizor kural B (2003) and Torkho Vaskaia T.T. (2003)

**LDL Cholesterol**

The Serum LDL levels of 80 psoriatic patients were ranged (141.17 ± 2.16) mg/dl and 80 controls normal healthy person were ranged (127.475 ± 3.70) Statistically significant P > 0.0001 increase in LDL level was observed in Psoriatic Patients in Comparison to control.


**VLDL Cholesterol**

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The Serum VLDL levels of 80 psoriatic patients were ranged (40.50 ± 2.47) mg/dl and 80 controls normal healthy persons were ranged (20.8 ± 1.81)

Statistically significant P > 0.0001 increase in VLDL level was observed in Psoriatic Patients in comparison to control.


**HDL cholesterol**

The serum HDL levels of 80 psoriatic patients were ranged (31.75 ± 1.37) mg/dl and 80 control normal healthy persons were ranged (47.56 ± 5.3)

Statistically significant > 0.0001 decrease in HDL level was observed in comparison to control.


**Serum Apolipoprotein A-1**

The Apolipoprotein A-1 of 80 psoriatic patients was compared with 80 healthy controls. The Apolipoprotein A-1 level is psoriatic patients ranged (171.95 ± 0.526) mg/dl. The Apolipoprotein A-1 (level) of controls ranged (171.81 ± 0.527) mg/dl. The psoriatic patients group not show any statically significant (P >
0.05) difference from control group. Our results are in accordance with Alberts, Carbana and Hazzord (1975); Vahlquist (1985); Martínez (1989); Simonetti et al (1992) Seckin et al (1994) and Uyanik et al (2002)

**Serum Apolipoprotein B**

The Apolipoprotein B level of 80 psoriatic patients were compared with 80 normal healthy controls. The apolipoproteins level of psoriatic patients (89.03 ± 2.42) mg/dl. The apolipoprotein B in control ranged (89.68 ± 2.7) mg/dl. Statistically in significant P > 0.05 difference was observed in comparison to control similar findings have been reported by Albert et al (1975); Martínez et al (1987); Simonetti et al (1992); Seckin et al (1994) and Uyanik et al 2002.

**Serum Total Protein**

The total serum protein levels of 80 psoriatic patients were ranged (4.791 ± 0.29) g/dl while the total protein level of 80 healthy control range (6.91 ± 0.38) g/dl. Statistically significant P > 0.0001 decrease of total protein was observed in Psoriatic Patients in comparison to control our finding are accordance with Postborg Tickner et al, (1960); level, Schultz. And Hurley (1951); Kalz Ousastel Telner Schafar and Macintyre (1958). Schneider et al. (1955), Tickner et al (1960) and Kanthraj et al (1999).
Antioxidant enzymes (superoxide dismutase, SOD, glutathione peroxidase, GSH-Px) and catalase.

Though the much literature was not available for antioxidant enzymes (SOD, GSH-Px, Catalase) Studies in psoriatic patients the results of present study revealed the following findings.

The enzyme superoxide dismutase of 80 psoriatic patients were range (363.23 ± 10.64) μ/g while enzyme superoxide dismutase level of 80 control range as (1108.85 ± 68.90) statistically significant decrease P > 0.0001 was observed on comparison to control.

The enzyme glutathione peroxidase (GSH-Px) of 80 psoriatic patients ranged as (16.56 ± 0.939) μ/g and the enzyme GSH-Px levels in healthy control range as (78.32 ± 2.504) μ/g.

Statistically significant decrease (P > 0.0001) was observed in level of GSH-Px in psoriatic patients in comparison to control.

The Catalase of 80 psoriatic patients ranged as (6.1 × 10^4 ± 0.586 × 10^4) IU/gHb and the level of catalase in normal healthy persons. (control) ranged as (15.56 × 10^4 ± 0.99 × 10^4)

Statistically significant (P > 0.0001) decreased were observed in catalase level of psoriatic patients in comparison to healthy control.

Our findings are accordance with kural BV et al (2003) and forsters et al (1983)
It is concluded from the result of study that significant increase in total cholesterol, TG, LDL, VLDL, decrease in total protein, HDL and antioxidant enzymes (SOD, GSH-Px and catalase) and no significant changes in apolipoprotein A-I and B.

These changes are associated with the abnormalities of lipid metabolism. Skin is one of the most active lipid synthesizing tissue sterols, ceramide and fatty acids are major lipids found in stratum coneum cells of skin. In psoriasis there is epidermal hypeproliperation, defective keratinization an inflammatory changes in both epidermis and dermis. The increased cholesterol biosynthesis by hyperproliferating epidermal cells are responsible for the increase serum cholesterol in psoriatic patients increased levels of cholesterol activates thrombocytes. The activated thromocytes release platelet activating factor with inturn activates phospholipase A2. The increased activity of phospholipase A2 leads decreased turnover of fatty acid into phospholipid molecular especially phosphatidylcholine and these fatty acids are used in synthesis of triglycerol in psoriatic epidermis. These metabolic alterations might be responsible for increase in lipid profile and decreased total protein may be due to malfunctioning of lever or loss of protein through scale.

As in any inflammatory diseases psoriatic patients will have raised WBCS mainly and degradation generate ROS (Reactive Oxygen Species). Antioxidant enzymes SOD GSH-Px and catalase promote detoxification of ROS species. The up-regulation of antioxidant enzyme triggered by continuous skin
inflammatory process in psoriasis may lead to a decrease in antioxidant capacity ultimately developing oxidative stress condition.

Altered lipid profile and development of an oxidative stress condition observed in psoriatic patients are major risk factors for atherogenic process. Therefore it is suggested that psoriatic patients must be considered as a group at risk for cardiovascular complications. The study of lipid profile, total protein and antioxidant enzyme are useful.

- To monitor active/inactive psoriasis
- To identify risk factor in psoriasis
- To identify the risk factor in psoriasis
- To initiate appropriate treatment
- To prevent the cardiovascular complications associated with psoriasis

Therefore there is a routine need for monitoring the parameters as suggested in present study.
MASTER CHART

Mean values of Lipids Profile, Total protein, Apolipoprotein and antioxidant Enzymes in Psoriatic Patients and normal healthy control group.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Particulars</th>
<th>Control Group (80) Age (24-80)</th>
<th>Psoriatic Patients (80) Age(21-80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total Cholesterol</td>
<td>186.77</td>
<td>231.83</td>
</tr>
<tr>
<td>2.</td>
<td>Triglyceride</td>
<td>73.90</td>
<td>115.08</td>
</tr>
<tr>
<td>3.</td>
<td>LDL</td>
<td>127.47</td>
<td>141.177</td>
</tr>
<tr>
<td>4.</td>
<td>VLDL</td>
<td>20.8</td>
<td>40.50</td>
</tr>
<tr>
<td>5.</td>
<td>HDL</td>
<td>47.56</td>
<td>31.75</td>
</tr>
<tr>
<td>6.</td>
<td>Apolipoprotein A-2</td>
<td>171.81</td>
<td>171.95</td>
</tr>
<tr>
<td>7.</td>
<td>Apolipoprotein B</td>
<td>89.68</td>
<td>89.034</td>
</tr>
<tr>
<td>8.</td>
<td>Total Protein</td>
<td>6.91</td>
<td>4.79</td>
</tr>
<tr>
<td>9.</td>
<td>Superoxide dismutase (SOD)</td>
<td>1108.85</td>
<td>363.23</td>
</tr>
<tr>
<td>10.</td>
<td>Glutathione Peroxidase (GSH-Px)</td>
<td>78.325</td>
<td>16.562</td>
</tr>
<tr>
<td>11.</td>
<td>Catalase</td>
<td>15.56</td>
<td>6.1</td>
</tr>
</tbody>
</table>