DISCUSSION
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SERUM TOTAL CHOLESTEROL IN GROUP A-

Table 1 shows serum total cholesterol of group A patients.

In our study the average basal STC in GR.A was 183.67 ± 19.2 mg%. After one month of therapy average STC was 175.75 ± 17.90 mg%, which showed significant decrease by 4.31% from basal value. After three month of therapy average STC was 166.83 ± 16.77 mg%, which showed significant decrease by 9.71% from basal value.

SERUM TRIGLYCERIDES IN GROUP A-

Table 2 shows serum Triglycerides of group A patients.

In our study the average basal STG in GR.A was 128.25 ± 50.25 mg%. After one month of therapy average STG was 130.33 ± 47.26 mg%, which showed insignificant increase by 1.62% from basal value.
After three month of therapy average STG was 129.25 ± 48.96 mg%, which showed insignificant increase by 0.78% from basal value.

**LDL IN GROUP A**

Table 3 shows serum LDL of group A patients.

In our study the average basal LDL in GR.A was 117.58 ± 22.86 mg%. After one month of therapy average LDL was 106.50 ± 21.58 mg%, which showed significant decrease by 9.42% from basal value. After three month of therapy average LDL was 96.00 ± 16.84 mg%, which showed significant decrease by 18.35% from basal value.

**HDL IN GROUP A**

Table 4 shows serum HDL of group A patients.

In our study the average basal HDL in GR.A was 40.42 ± 3.75 mg%. After one month of therapy average HDL was 43.25 ± 3.77 mg%, which showed significant increase by 7.00% from basal value. After three month of therapy average HDL was 46.83 ± 3.86 mg%, which showed significant increase by 15.86% from basal value.
**VLDL IN GROUP A**

Table 5 shows serum VLDL of group A patients.

In our study the average basal VLDL in GR.A was 25.67 ± 10.06 mg%. After one month of therapy average VLDL was 26.00 ± 9.43 mg%, which showed insignificant increase by 1.29% from basal value. After three month of therapy average VLDL was 25.33 ± 9.53 mg%, which showed insignificant decrease by 1.32% from basal value.

**APO A₁ IN GROUP A**

Table 6 shows serum APO A₁ of group A patients.

In our study the average basal APO A₁ in GR.A was 120.67 ± 19.01 mg%. After one month of therapy average APO A₁ was 125.00 ± 19.68 mg%, which showed significant increase by 3.59 % from basal value. After three month of therapy average APO A₁ was 130.67 ± 19.00 mg%, which showed significant increase by 8.29 % from basal value.

**APO B IN GROUP A**

Table 7 shows APO B of group A patients.

In our study the average basal APO B in GR.A was 92.00 ± 11.76 mg%. After one month of therapy
average APO B was 87.33 ± 10.89 mg%, which showed significant decrease by 5.07 % from basal value. After three month of therapy average APO B was 84.17 ± 9.99 mg%, which showed significant decrease by 8.51 % from basal value.

**LP(a) IN GROUP A**

Table 8 shows LP(a) of group A patients.

In our study the average basal LP(a) in GR.A was 15.23 ± 3.14 mg%. After one month of therapy average LP(a) was 13.32 ± 3.32 mg%, which showed significant decrease by 12.54 % from basal value. After three month of therapy average LP(a) was 12.03 ± 3.27 mg%, which showed significant decrease by 21.01 % from basal value.

**BLOOD PRESSURE IN GROUP A**

Table 9 shows BLOOD PRESSURE of group A patients.

In our study the average basal SYSTOLIC BLOOD PRESSURE in GR.A was 133.17 ± 11.71 mm of Hg. After one month of therapy average SYSTOLIC BLOOD PRESSURE was 130.83 ± 9.93 mm of Hg, which showed insignificant decrease by 2.16 % from basal value. After three month of therapy average
SYSTOLIC BLOOD PRESSURE was 131.83 ± 10.94 mm of Hg, which showed insignificant decrease by 1.00 % from basal value.

In our study the average basal DIASTOLIC BLOOD PRESSURE in GR.A was 86.67 ± 6.68 mm of Hg. After one month of therapy average DIASTOLIC BLOOD PRESSURE was 84.17 ± 4.93 mm of Hg, which showed insignificant decrease by 2.88 % from basal value. After three month of therapy average DIASTOLIC BLOOD PRESSURE was 84.58 ± 5.78 mm of Hg, which showed insignificant decrease by 2.41 % from basal value.

ENDOMETRIAL BIOPSY IN GROUP A-

All patient showed atrophic changes in biopsy at 1 month and even on after 3 month of therapy. There is no patient develop hyperplasia.

SERUM TOTAL CHOLESTEROL IN GROUP B-

Table 11 shows serum total cholesterol of group B patients.

In our study the average basal STC in GR.B was 206.36 ± 27.66 mg%. After one month of therapy average STC was 199.73 ± 26.98 mg%, which showed significant decrease by 3.21 % from basal value.
After three months of therapy average STC was 190.09 ± 27.05 mg%, which showed significant decrease by 7.88 % from basal value.

**SERUM TRIGLYCERIDES IN GROUP B**

Table 12 shows serum Triglycerides of group B patients.

In our study the average basal STG in GR.B was 173.73 ± 50.25 mg%. After one month of therapy average STG was 172.09 ± 64.26 mg%, which showed insignificant decrease by 0.94 % from basal value. After three months of therapy average STG was 174.36 ± 61.97 mg%, which showed insignificant decrease by 0.36% from basal value.

**LDL IN GROUP B**

Table 13 shows serum LDL of group B patients.

In our study the average basal LDL in GR.B was 129.64 ± 20.48 mg%. After one month of therapy average LDL was 120.00 ± 19.64 mg%, which showed significant decrease by 7.44 % from basal value. After three months of therapy average LDL was 107.55 ± 19.09 mg%, which showed significant decrease by 17.04 % from basal value.
HDL IN GROUP B-

Table 14 shows serum HDL of group B patients.

In our study the average basal HDL in GR.B was 41.82 ± 5.91 mg%. After one month of therapy average HDL was 44.64 ± 5.55 mg%, which showed significant increase by 6.70% from basal value. After three month of therapy average HDL was 45.36 ± 9.64 mg%, which showed significant increase by 8.46 % from basal value.

VLDL IN GROUP B-

Table 15 shows serum VLDL of group B patients.

In our study the average basal VLDL in GR.B was 34.91 ± 13.57 mg%. After one month of therapy average VLDL was 35.09 ± 13.69 mg%, which showed insignificant increase by 0.52% from basal value. After three month of therapy average VLDL was 35.18 ± 13.54 mg%, which showed insignificant decrease by 0.77 % from basal value.

APO A₁ IN GROUP B-

Table 16 shows serum APO A₁ of group B patients.
In our study the average basal APO A₁ in GR.B was 117.80 ± 19.37 mg%. After one month of therapy average APO A₁ was 122.60 ± 20.06 mg%, which showed significant increase by 4.07 % from basal value. After three month of therapy average APO A₁ was 127.60 ± 19.05 mg%, which showed significant increase by 8.32 % from basal value.

APO B IN GROUP B-

Table 17 shows APO B of group B patients.

In our study the average basal APO B in GR.B was 99.60 ± 8.62 mg%. After one month of therapy average APO B was 94.20 ± 7.60 mg%, which showed significant decrease by 5.42 % from basal value. After three month of therapy average APO B was 89.20 ± 7.12 mg%, which showed significant decrease by 10.44 % from basal value.

LP(a) IN GROUP B-

Table 18 shows LP(a) of group B patients.

In our study the average basal LP(a) in GR.B was 23.58 ± 7.89 mg%. After one month of therapy average LP(a) was 21.40 ± 7.50 mg%, which showed significant decrease by 9.25 % from basal value. After three month of therapy average LP(a) was
19.66 ± 7.37 mg%, which showed significant decrease by 16.62 % from basal value.

**BLOOD PRESSURE IN GROUP B-**

Table 19 shows BLOOD PRESSURE of group B patients.

In our study the average basal SYSTOLIC BLOOD PRESSURE in GR.B was 127.45 ± 6.39 mm of Hg. After one month of therapy average SYSTOLIC BLOOD PRESSURE was 126.55 ± 6.70 mm of Hg, which showed insignificant decrease by 0.71 % from basal value. After three month of therapy average SYSTOLIC BLOOD PRESSURE was 128.18 ± 6.03 mm of Hg, which showed insignificant increase by 0.57 % from basal value.

In our study the average basal DIASTOLIC BLOOD PRESSURE in GR.B was 83.82 ± 3.40 mm of Hg. After one month of therapy average DIASTOLIC BLOOD PRESSURE was 83.09 ± 3.73 mm of Hg, which showed insignificant decrease by 0.87 % from basal value. After three month of therapy average DIASTOLIC BLOOD PRESSURE was 84.18 ± 3.74 mm of Hg, which showed insignificant increase by 2.41 % from basal value.
In our study postmenopausal women showed basal extended lipid lipoprotein profile which is not significantly different in both group A (natural menopause) and group B (Surgical menopause).

After 1 month of giving premarin 0.625 mg/day profile showed that there was significant decrease in Serum total cholesterol and LDL while HDL significantly increased. There was increase in serum triglycerides level in group A but decrease in group B however these values are not significant. VLDL also increased in both groups but not significantly. APO A1 levels showed significant rise while APO B and Lipoprotein(a) decreased significantly. Blood pressure did not change significantly.

After 3 month of giving premarin therapy lipid profile showed that there was significant decrease in Serum total cholesterol and LDL while HDL significantly increased. There was increase in serum triglycerides level in group A but decrease in group B however these values are not significant. VLDL decreased in group A and increase in group B but not significantly. APO A1 levels showed significant rise while APO B and Lipoprotein(a) decrease significantly. there was no significant change in Blood pressure.
Endometrial biopsy showed that there was no hyperplasia in uterine lining at 1 month and also after 3 month of therapy.

According to *Fertil Steril*, 2001 May;75:898-915 they analyze the studies published from 1974-2000 and said that 248 studies provided information on the effect of 42 different HRT regimens. All estrogen alone regimes raised HDL and lowered LDL & total cholesterol. Oral estrogens raised triglycerides. Transdermal estradiol 17-beta lowered triglycerides. Progesterone had little effect on estrogen-induced reductions in LDL & total cholesterol. Estrogen induced increase in HDL and triglycerides were opposed according to type of progesterone, in the order from least to greatest effect: dydrogesterone and medrogestone, progestogen, cyproterone acetate, MPA, transdermal norethidrone acetate, norgestrel, and oral norethindrone acetate. In 41 studies of 20 different formulations, HRT generally lowered lipoprotein(a).

Sacks et al, Arch intern Med 1994 May 23; 154(10): 1106-1033, Espeland and Mark A et al, Circulation 1998 Mar 1739; 97(10) 979-986 and many other studies(9,11,16,21,26,28,30) showed on estrogen replacement therapy significantly lowers the Lipoprotein (a) by 14% to even 50% depending on dose and individual's basal level.

Most observational studies23 have shown lower rates of endometrial cancer in women on combined HRT. However, some studies have shown increased rates, despite the use of cyclic progestins. The rates of hyperplasia with short-term use of both continuous and cyclic progestins have been similarly low (one to two percent), but the effects of continuous progestin on long term cancer risk are unknown. A Swedish population-based case-control study found a 60 percent increased cancer risk after five or more years of combined estrogen and progestin use.

Our study showed no significant rise of serum Triglycerides after 3 months of 0.625 mg/day of Premarin (conjugated equine estrogen) therapy. A study done by Schelgel W et34, Department of Obs. & Gynae, Wesffalische Wilhelms-University, Munster, Germany & published in Clin Endocrinol(Oxf) 1999 Nov; 51(5):643-5134
concluded that 6 months of treatment with 0.3 mg/day of conjugated equine estrogen significantly lowers serum levels of total cholesterol and LDL cholesterol without causing the adverse increase of triglycerides, which were observed at higher doses. However, this low dose treatment did not yield the maximal LDL-cholesterol lowering effect. Moreover, the positive of HRT on HDL, APO A1, Lipoprotein (a) required at least the medium dose of 0.6 mg/day.

Our study showed that estrogen replacement therapy of 0.625mg/day dose for 3 months not affect blood pressure which is accordance with Jerome L. Fleg, MD, Ann Intern Med Vol. 135, pp. 229-238, August 21, 200122.

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### BASAL VALUES & RESPONSE OF ERT ON EXTENDED LIPID PROFILE

<table>
<thead>
<tr>
<th>SERIAL No.</th>
<th>TEST (In mg %)</th>
<th>GROUP A</th>
<th>GROUP B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASAL</td>
<td>AFTER 1 MONTH</td>
<td>AFTER 3 MONTH</td>
</tr>
<tr>
<td>1</td>
<td>STC</td>
<td>183.67±19.2</td>
<td>175.75±17.90</td>
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<tr>
<td>2</td>
<td>STG</td>
<td>128.25±50.25</td>
<td>130.33±47.26</td>
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<tr>
<td>3</td>
<td>LDL</td>
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<td>HDL</td>
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<td>APO A₁</td>
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<td>APO B</td>
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<td>8</td>
<td>LP(a)</td>
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<td>9</td>
<td>BP systolic (mm of Hg)</td>
<td>133.17±11.71</td>
<td>130.83±9.93</td>
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<tr>
<td>10</td>
<td>BP diastolic (mm of Hg)</td>
<td>86.67±6.68</td>
<td>84.17±4.93</td>
</tr>
</tbody>
</table>

STC- Serum Total cholesterol, STG- Serum Triglycerides, LDL – Low density lipoprotein, HDL – High density lipoprotein, VLDL – Very low density lipoprotein, LP(a) – Lipoprotein (a), APO A₁- Apolipoprotein A1, APO B – Apolipoprotein B, BP – Blood Pressure.
AVERAGE CHANGES IN VALUES OF GROUP A

STC - Serum Total cholesterol, STG - Serum Triglycerides, LDL - Low density lipoprotein, HDL - High density lipoprotein, VLDL - Very low density lipoprotein, LP (a) - Lipoprotein (a), APO A1 - Apolipoprotein A1, APO B - Apolipoprotein B.
AVERAGE CHANGES IN VALUES OF GROUP B

STC - Serum Total cholesterol, STG - Serum Triglycerides, LDL - Low density lipoprotein, HDL - High density lipoprotein, VLDL - Very low density lipoprotein, LP(a) - Lipoprotein (a), APO A1 - Apolipoprotein A1, APO B - Apolipoprotein B.