MATERIAL AND METHODS
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Present study was carried out in the Department of Obstetrics and Gynaecology and Department of Medicine, M.L.B. Medical College, Hospital, Jhansi during a period of twelve months.

SELECTION OF CASES

The menopausal women selected from our patient department coming with symptoms pertaining to menopause and the women on whom menopause was induced surgically by bilateral salpingoophorectomy due to various disease. Total number of 50 subjects were studied. All the selected subjects were completely investigated by taking detailed history and physical examination. Special attention was paid to their past and family history to exclude risk factors before prescribing the hormones. The patients were excluded as per the following criteria:

1. Patients with liver disease, ischaemic heart disease, hyperlipidemia, diabetes, renal disease, hypertension, acute or recurrent vascular thrombosis.

2. Patients who had already taken hormones prior to commencement of hormone therapy.

3. Patients suspected of having breast tumour.

4. Patients on drugs that are liable to interfere with lipid metabolism and therapy influencing lipoprotein levels in the blood.
All the patients selected were of average built. They were divided into two groups:

**Group A**

This group consisted of patients having natural menopause of 6-18 months with mean duration of 9 months.

**Group B**

This group consisted of surgically induced menopause with age range of 45-50 years with mean age of 48 years.

**METHODS**

All the selected patients were given oral or written information about the trial and consent was taken from all of them. They were examined in details as regards to their name, age, detailed history of present illness, past history, family history, dietary history and history of intake of any hormonal preparation prior to commencement of therapy. A detailed general and systemic examination with special reference to height, weight, blood pressure was done.

The patients of the study group were followed for 1 year as given below:

1. Initial 3 months without any drug.
2. 9 months with the drugs of hormonal replacement therapy.
3. 3 months after withdrawal of HRT.

During the study period patients were followed monthly. In every visit they were asked for the following:

- Hot flushes
- Nausea
- Headache
- Insomnia
- Dyspepsia
- Discharge P/V
- Heavyness in the lower abdomen.
- Palpitation
- Night sweats
- Dizziness
- Intestinal distension
- Constipation
- Burning micturition
- Dyspareunia
- Backache
- Diaphoresis

**EXAMINATION**

<table>
<thead>
<tr>
<th>General condition</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Pulse &amp; B.P. (Two mean values were taken after a resting interval of 30 minutes)</td>
<td>Per speculum examination to see vaginitis.</td>
</tr>
<tr>
<td>P/V discharge</td>
<td>P/V examination</td>
</tr>
<tr>
<td>Any genital prolapse.</td>
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**C.V.S. Examination:**

Following laboratory investigations were done on every 3 monthly intervals.

a. Echocardiography (E.C.G.)

b. Glucose tolerance test (GTT)
c. Serum total Cholesterol (STC)
d. Serum triglycerides (STG).
e. High density lipoprotein (HDL).

Method of collection of blood

5 ml of blood was withdrawn from antecubital vein of the female in recumbent posture with all aseptic precautions, without producing venous stasis after 12-14 hours of fasting and after 10 minutes of supine rest.

Thus blood sample was allowed to settle down for half an hour and centrifuged and serum was preserved with standard precautions. Blood samples were collected during the following periods.

1. Within 3 months of surgically induced menopause.
2. After taking HRT for 3 months in group A.
3. After stopping HRT for 3 months in group B.
4. In patients with natural menopause who came to out patient department for 1st time with distressing menopausal symptoms.

Estimation of Lipid Factors

Serum total cholesterol, serum triglycerides and high density lipoprotein were estimated by diagnostic kits and VLDL & LDL were calculated by the
standard formula with the help of values of STC, STG and HDL cholesterol.

1. Serum Total Cholesterol: Serum total cholesterol was estimated by commercial kits supplied by Ethnor. The basic principle is that cholesterol reacts with ferric percolate ethyle acetate and sulphonic acid and gives a lavender coloured complex which is measured colorimetrically.

2. Serum triglycerides (STG): It was estimated by acetyl acetone method. Principle behind this is that triglycerides are determined by measuring glycerol after the liberation from fatty acids by saponification. Glycerol is oxidized by sodium metaperiodate to formaldehyde which is directly proportional to the amount of triglycerides.

3. High Density Lipoprotein Cholesterol (HDL-c): HDL-c was estimated by utilizing commercial kits supplied by Ethnor. Basic principle is that the HDL-c fraction is separated by using a precipitating reagent. The precipitate contains chylomicrons, VLDL, and LDL which are removed by centrifugation. The supernatant contains HDL-c which is estimated by HDL-c colour reagent which gives purple coloured complex. This is measured colorimetrically at 560 nm. The
intensity of colour developed is proportional to the concentration of HDL-c in the specimen under test.

5. Very Low Density Lipoproteins (VLDL) : It was calculated by the following formula given by Friedwald et al (1972). This formula is valid upto STG values of less than 400 mg/dl.

\[
\text{VLDL (mg/dl)} = \frac{\text{STG}}{5}. 
\]

5. Low Density Lipoprotein (LDL) : It was calculated by the following formula given by Fredrickson DA (1972) :

\[
\text{LDL (mg/dl)} = \text{STC} - (\frac{\text{STG}}{5} + \text{HDL}) \\
= \text{STC} - (\text{VLDL} + \text{HDL})
\]

6. Estimation of LDL : HDL ratio was done with the help of values of LDL and HDL.

Thus, the values obtained were statistically analysed by using 't' test.

**VAGINAL CYTOLOGY.**

The lateral wall of the upper third of vagina was lightly scrapped. This part of vagina is most sensitive to hormonal influence. The semen is stained with Shoir Stain.
OESTROGENIC EFFECTS

Oestrogen produces a cytological picture where mature epithelial cells are large eosinophillic cells with pyknotic nuclei. The background is clear containing a few bacteria and leukocytes. The number of mature eosinophillic cells/100 cells counted is expressed as the karyopyknotic index. The squamous epithelium of vagina is divided into 3 layers—superficial, middle and deep. Vaginal smear where the basal cell predominates are typical of low oestrogen content e.g. menopausal. The presence of parabasal cells in vaginal smear indicates a low but not absent oestrogenic influence as seen in the normal menopause or in the normal vagina after menopause.

Hormonal preparation used: Conjugated oestrogen 0.625 mg once daily come in name of premarin.