DISCUSSION
Hormone replacement therapy reduces many of distressing post menopausal symptoms and increases the quality of life style of post menopausal women and causes changes in lipid profile.

The lipid profile changes can be used as a tool in predicting cardiovascular risk. However, long term studies are required to come to definite confirmation. Basal lipid levels in normal females are as follows (Harrison).

**Serum total cholesterol (STC)**
- Basal: 200 mg/dl
- Border line: 7200 - 239 mg/dl
- High: 7240 mg/dl

**Serum Triglycerides (STG)**
- Basal: 40-172 mg/dl

**Low density lipoprotein (LDL)**
- Basal: ≤ 130 mg/dl
- Border line: 130-159 mg/dl
- High levels: 7160 mg/dl

**High density lipoproteins (HDL)**
- 30-80 mg/dl

In the present work "The effect of hormone replacement therapy (HRT) on lipid profile of menopausal females who have achieved menopause naturally or
surgically" was studied. STC, STG and HDL levels were estimated by chemical kits while LDL, VLDL and LDL/HDL ratio were calculated by standard formulae with the help of values of STC, STG and HDL cholesterol.

In addition to lipid profile in predicting cardiovascular risk, other parameters for cardiovascular problem like blood pressure and E.C.G. were taken before starting HRT and after withdrawal of HRT.

**BLOOD PRESSURE**

All the patients in group A and B had blood pressure in normal range. Mean blood pressure of at least readings in supine and resting period were taken in every visit. Blood pressure being dependent upon psychological, environmental, physical activities. There was a need for constant monitoring of the patients. The constant monitoring was not possible in this present study as the work was done in out patient department.

A further study involving larger number of patients and for longer period is needed to come to conclusion that HRT definitely causes changes in blood pressure of post menopausal females.

**SERUM LIPID LIPOPROTEIN PROFILE**

**Serum Total Cholesterol**

**Group A**

This group consisted of 25 patients who had
menopause naturally. Their age ranged from 45-55 years. Mean duration of menopause ranged from 6 to 18 months. It was found that in majority of subjects, the level of STC was near to the upper limit of normal range. The STC levels reduced after HRT for 3 months. The STC again raised after withdrawal of HRT. Our results are comparable with the results obtained by Boyd (1973), Larson (1976), Rauramo (1976) and Hirvonen (1976).

Group B

In this group, out of 25 patients, 7 had basal value of STC near to upper limit of normal range (200 mg/dl) whereas in group A majority (19) of the patients had their STC levels near to 200 mg/dl. The reason of this difference is that the group A patients had sufficient time for hormonal stabilization. Samples from patients of group A were withdrawn after an adequate duration for circulating hormone to waive off. The mean duration of menopause was 9 months. Whereas in group B the samples were collected just after artificial menopause. So the duration of menopause was lesser and mean duration was 2 months. The circulating hormone had lesser time to waive off. The value of STC showed reduction after HRT as in group A. HRT reduced hot flushes, palpitation, backache, insomnia. They gave a sense of well being. Urinary problems - increased frequency of micturition.
urinary tract infection, and incontinence were decreased with HRT. There was an improvement in several activities in menopausal women with HRT. Our findings were similar with Rauramo and Punnonen (1976), Marck and Sha (1972), Fedan-Freyberg (1977), Smith (1977), Sarreb (1982) and Hammarback et al (1985).

The values of STC raised after withdrawal of hormonal replacement therapy.

**Serum Triglycerides (STG)**

The patients of this group A had higher basal values of STG than the patients of group B with similar height and weight. The reason behind this is that there were still circulating hormones in group B as their duration of menopause was lesser. In both the groups, the level of STG showed reduction with HRT and again it raised after withdrawal of HRT for 3 months. Our findings are similar with studies done by Welletin Larson Cohn (1977).

**Serum LDL and VLDL Cholesterol**

The majority of the patients of group A had basal LDL levels near to 130 mg/dl whereas in group B, only 7 patients had LDL basal levels near to 130 mg/dl. This clearly indicated that a certain duration (1-1½ years)
is required for the circulating hormone to disappear in menopausal women.

The levels of LDL and VLDL showed reduction with HRT and raised after withdrawal of HRT for 3 months.

**High Density Lipoproteins (HDL)**

In both the groups the level of HDL increased after HRT and decreased after withdrawal of hormonal replacement therapy for 3 months.

**E.C.G.**

In group A: Electrocardiogram was taken in 10 patients before starting HRT. All the E.C.G. recordings were within normal limit. E.C.G. was recorded in four patients after hormonal replacement therapy for 3 months and were normal limit.

In group B: All the patients were undergone electrocardiogram before starting HRT as a pre-operative assessment. All of them were normal. Eight patients were subjected for E.C.G. after taking HRT for 3 months. All of them were normal.

**VAGINAL CYTOLOGY**

In women who had achieved naturally menopause the percentage of white discharge per vaginum decreased
from 20 to 8 percent with HRT. Their vaginal smear showed dominance of basal cells indicating low oestrogenic influence.

After withdrawal of HRT, the percentage of patients with vaginal discharge due to vaginitis increased from 8 to 20 percent. This shows oestrogenic effect of HRT on vaginal mucosa.

In surgically induced menopausal women, 80% of patients (20) had white discharge per vaginum. But only 2 patients showed low oestrogenic influence in their vaginal smear. The discrepancy between vaginal smear and symptoms might be because of some amount of white discharge from vaginal vault seen normally in post hysterectomy patients.

After taking HRT for 3 months, 3 patients complained of white discharge per vaginum. They showed dominance of basal cells in their vaginal smear.

However, the percentage of patients with low oestrogenic influence raised to 20% after withdrawal of HRT for 3 months.

POST MENOPAUSAL SYMPTOMS

The psychogenic symptoms were commonly seen in surgically induced menopausal women while symptoms due to low oestrogenic influence are more commonly encountered in women who has achieved menopause naturally
(Group A). This difference might be explained by the fact that surgically induced menopause had shorter duration of menopause and they had still circulating level of hormones though lesser in amount. So the symptoms associated with low oestrogens viz. headache, vaginitis and prolapse of genital organs are seen in surgically induced menopausal women in lesser percentage.