Results

RESULTS

The results are summarized in tables 1-1 . Tables 1-8 are descriptive tables. Each table number corresponds to a group numb r given in this work.

Table 9 is a comparative table between th : male groups.

Table 10 is a comparative table between t ıe female groups.

Table 11 is a collective comparative table between all the groups.

Table 12 is a comparative table between ; re- and post-menopausal females.

Tables from 13-27 show the statistical d ferences between all the groups as regards every parameter. They include Anova tal les and Duncan analysis.

Also tables from 28-53 show the statis ical differences between pre- and post-menopausal females as regards some im ortant parameters which may be affected by female sex hormones. They, as wel include Anova tables and Duncan analysis, the interpretation of which has been c scussed, previously, in the chapter of statistical analysis.

Figure from 1-20 are histograms sho ing the mean and SEM of each parameter of this work in all groups.

Figure 21: is a model for linear regressio plot.

Figure 22-47 are linear regression plot f · some important variants and other in the groups of this work.

No other regression correlations could be detected.

Figures 48-60 show the mean and SE for some parameters in pre- and post-menopausal females.

The results of this work showed that, t ıe mean of age in male reference group (Group 1) was 44.92 ± 3.74 years, for the female reference, group (Group 2) was 37.04 ± 2.65 years, for IDD males group (G oup 3) was 27.76 ± 3.02 years, for IDD females group (Group 4) was 28.8 ± 3.36 ; ears, for NIDD males uncontrolled group (Group 5) was 51.08 ± 1.9 years, for NID) males controlled group (Group 6) was 51.16 ± 1.94 years, for NIDD females uncon olled group (Group 7) was 49.36 ± 2.01 years and lastly in NIDD females controlled group (Group 8) the mean for age was 50.84 ± 1.76 years.

Figure 1 showed the mean and SEM of a; ; in different groups.

We calculated the obesity index (weight n Kg/square the height in meters) W/H (Ruffer, 1970). The mean of this index or group 1 was 24.06 ± 1.12, for group 2 it was 26.26 ± 0.98, for group 3 it wa 20.42 ± 0.45, for group 4 it was 20.82 ± 0.62, for group 5 it was 25.25 ± 0.69, fc group 6, it was 26.03 ± 0.43, for group 7 it was 28.87 ± 1.14 and for group 8, the obesity index was 26.99 ± 0.65.

Figure 2 showed the mean and SEM of W H index in the 8 groups.

The mean of the duration of the disease i ı group 3 was 4.95 ± 1.03 years, in group 4 it was 7.22 ± 1.43 years, in group 5 it as 6.11 ± 0.71 years, in group 6 it was 5.08 ± 0.89 years, in group 7 it was 4.92 ± .02 years and in group 8 the mean for the disease duration was 5.02 ± 0.82 years.

The mean of the fasting blood sugar evel in group 1 was 5.26 ± 0.14 mmol/l, in group 2 it was 5.33 ± 0.13 mmol/ , in group 3 it was 17.07 ± 1.33 mmol/l, in group 4 it was 14.99 ± 1.08 mmol l, in group 5 it was 11.71 ± 0.6 mmol/l, in group 6, it was 7.25 ± 0.25 mmol/l, i group 7 it was 11.47 ± 0.9 mmol/l and lastly, in group 8 it was 7.96 ± 0.41 mmol/l/

Figure 3 showed the mean and SEM of fasting blood sugar in the 8 groups.

Table 13 showed that there is no statistical significant difference between the mean values of fasting blood sugar level of group 3 and group 4 but each mean, by itself showed a high statistical significance between it on one hand and the mean of each group of the others, on the other hand. This, also, applied on the mean of group 5 and group 7. This is also true as regards groups 1, 2, 6 and 8. $P< 0.01$.

The mean of postprandial blood sugar level in group 1 was 6.02 ± 0.14 mmol/l, in group 2, it was 6.08 ± 0.15 mmol/l, in group 3, it was 20.4 ± 1.22 mmol/l, in group 4 it was 19.8 ± 1.08 mmol/l, in group 5, it was 17.47 ± 0.8 mmol/l, in group 6, it was 9.55 ± 0.53 mmol/l, in group 7 it was 16.02 ± 1.1 mmol/l and in group 8 the mean of post-prandial blood sugar level was 11.2 ± 0.62 mmol/l.

Figure 4 showed the mean values and SEM of postprandial blood sugar level in the 8 groups.

Table 14 showed that there was no statistical significant difference between the mean values of postprandial blood sugar level of groups 3 and 4 but there was a high statistical significant difference ($P< 0.01$) between the mean values of each of these groups and the rest of the 8 groups. This, also, applied to the following pairs of groups (groups 5 and 7, groups 8 and 6, and groups 1 and 2).

The mean values of serum cholesterol level in group 1 was 5.09 ± 0.1 mmol/l, group 2 it was 4.84 ± 0.07 mmol/l, group 3 it was 5.28 ± 0.19 mmol/l, in group 4 it was 5.02 ± 0.12 mmol/l, group 5 it was 5.6 ± 0.18 mmol/l, in group 6 it was 5.39 ± 0.18 mmol/l, in group 7 it was 5.45 ± 0.25 mmol/l and lastly in group 8 the mean value of serum cholesterol level was 5.2 ± 0.16 mmol/l.

Figure 5 showed the mean values and SE M of serum cholesterol level in all the 8 groups.

Table 15 showed that there was a statisti al significant difference ($P < 0.05$) between the mean values of serum cholesterol evel in group 2 on one hand and groups 5, 7 and 6 on the other hand. This is tr e as regards group 4 and group 5. No other statistical significant relations were det cted between the other groups and each other.

The mean value of serum triglyceride lev l in group 1 was found to be 1.18 ± 0.09 mmol/l, in group 2 it was 0.99 ± 0.08 m ol/l, in group 3 it was 2.53 ± 0.13 mmol/l, in group 4, it was 3.03 ± 0.31 mmol l, in group 5 it was 1.81 ± 0.14 mmol/l, in group 6, it was 1.71 ± 0.13 mmol/l in group 7, it was 2.12 ± 0.24 mmol/l and in group 8 the mean value of serum triglycer de level was 1.96 ± 0.16 mmol/l.

Figure 6 showed the mean values and SE M of serum triglyceride level in all the 8 groups.

Table 16 showed that there was a hig statistical significant difference ($P< 0.01$) of the mean values of serum triglyce ide level between group 4 and all other groups. There was statisical relations be ween group 3, on one hand and groups 8, 5 , 6, 1 and 2, on the other hand. There was no statistical significant difference between NIDD diabetic groups but th re was a high statistical significant difference ($P < 0.01$) between each of them and he reference groups. There was no statistical significant difference in between the re erence groups.

The mean value of glycosylated haemoglo bin in group 1 was 4.36 ± 0.21 %, in group 2 it was 4.17 ± 0.21 %, in group 3 it wa 12.92 ± 0.95 %, in group 4 it was 13.48 ± 0.55 %, in group 5 it was 12.4 ± 0.75 %, n group 6 it was 6.32 ± 0.11 %, in

group 7 it was 13.02 ± 1.05 % and in group 8 th level of glycosylated haemoglobin was 6.19 ± 0.16 %.

Figure 7 showed the mean value and SEI in glycosylated haemoglobin level in all the 8 groups.

Table 17 showed that there was no statis ical significant difference between the mean values of glycosylated haemoglobin % n groups 4, 7, 3 and 5 but a high statistical significant difference P< 0.01 existed between each of these groups and groups other than those. This also applied to grou ps 6 and 8, and in groups 1 and 2.

The mean value and of apolipoprotein B in group 1 was 1.14 ± 0.04 g/l, in group 2 was 1.07 ± 0.04 g/l, in group 3 it was 1.38 ± 0.05 g/l, in group 4 it was 1.29 ± 0.05 g/l., in group 5 it was 1.30 ± 0.05 g/ , in group 6 it was 1.28 ± 0.04 g/l in group 7 it was 1.26 ± 0.05 g/l and lastly in roup 8 the mean value was 1.20 ± 0.03 g/l.

Figure 8 showed the mean value and SEM of apolipoprotein B (g/l) in the 8 groups.

Table 18 showed that there was a hig statistical significant difference (P < 0.01) between the mean values of male c iabetic groups and their reference group, also between the mean values of female liabetic groups and their reference group. There was no statistical difference betwee the mean values of male diabetic groups and each other, and between the mean va ues the female diabetic groups and each other and between the male and female reference groups. Other statistical relations could be deducted from table 18.

The mean values of anti-insulin antibodi s (serum dilution) in group 1 was 2.88 ± 0.49, group 2 it was 2.88 ± 0.59 in group 3 it was 160 ± 18.38, in group 4 it

was 153.28 ± 19.8, in group 5 it was 8.16 ± 2.53, group 6 it was 4.96 ± 0.77, group 7 it was 14.48 ± 3.51 and in group 8 the anti-insu in antibodies (serum dilution) level was 5.36 ± 0.93.

Figure 9 showed the mean values and SI M of anti-insulin antibodies serum dilation level in the 8 groups.

Table 19 showed that there was no statis ical significant difference between the mean values of IDD groups but a hig statistical significant difference ($P < 0.01$) between the mean values of these gr ups and all other groups.

There was no statistical significant differ nce between the mean values of all the groups other than IDD ones.

The mean value of α-lipoprotein % for g oup 1 was 28.09 ± 1.58 %, in group 2 it was 32.96 ± 1.34 %, in group 3 it was 23.35 ± 1.48 %, in group 4 it was 24.62 ± 1.28 %, in group 5 it was 24.02 ± 1.45 % in gro p 6 it was 24.61 ± 1.05, in group 7 it was 25.81 ± 1.44 % and in group 8 the mean value of α-lipoprotein was 25.55 ± 1.32 %.

Figure 10 showed the mean values and S EM of α-lipoprotein % of all the 8 groups.

Table 20 showed that there was hig statistical significant difference ($P < 0.01$) between the mean value of group 2 and the mean values of all other groups. Also between the mean value groups 1 a id 3. No other statistical significant differences could be detected.

The mean values of the pre β-lipoprotei % in group 1 was 18.91 ± 1.14 %, in group 2, it was 16.9 ± 0.79 %, in group 3, it was 24.63 ± 1.3 %, in group 4 it was 25.44 ± 0.99 %, in group 5 it was 20.58 ± 0.64 %, in group 6 it was 19.92 ± 1.08 %

in group 7 it was 21.29 ± 1.2 % and lastly in group 8 the mean values of pre-β-lipoprotein % was 20.84 ± 1.02.

Figure 11 showed the mean values and SEM of pre-β-lipoprotein % in all the 8 groups.

Table 21 showed that there is no statistical significant difference between the mean values of groups 3 and 4, but there was a high statistical significant differences ($P < 0.01$) between the mean value of each of these two groups and the mean values of the remaining groups. Also there was a high statistical significant difference ($P < 0.01$) between the mean values of groups 7, 8 and 5 on one hand and group 2 on the other.

No other statistical significant differences could be detected.

The mean values of β-lipoprotein % in group 1 was 52.75 ± 1.35 %, group 2 it was 50.13 ± 1.18 %, in group 3 it was 52.01 ± 1.19 %, group 4 it was 50.66 ± 1.28 %, in group 5 it was 55.36 ± 1.47 %, group 6 it was 54.88 ± 1.00 %, in group it was 52.69 ± 1.61 % and in group 8 the mean value of β-lipoprotein % was 53.43 ± 0.91.

Figure 12 showed the mean values and SEM of β-lipoprotein % of all the 8 groups.

Table 22 showed that there was no statistical significant difference between the mean values of groups 5, 6, 8, 1, 7 and 3 Also between the mean values of groups 8, 1, 7, 3, 4 and 2. But there was a statistical significant difference ($P< 0.05$) between the mean values of groups 5 and 2, and between the mean values of groups 5 and 4. This also applied between the mean values of groups 6 and 2, also between 6 and 4.

The mean values of HDL cholesterol in nmol/l in group 1 was 1.24 ± 0.07 mmol/l, in group 2 it was 1.32 ± 0.08 mmol/l, in group 3 it was 0.87 ± 0.08 mmol/l in group 4 it was 1.06 ± 0.09 mmol/l, in group 5 it was 0.76 ± 0.07 mmol/l, in group 6 it was 0.89 ± 0.08 mmol/l, in group 7 it was 1.13 ± 0.11 mmol/l and in group 8 the mean values of HDL cholesterol level in mmol/l was 1.10 ± 0.09 mmol/l.

Figure 13 showed the mean values and SEM of HDL cholesterol level in mmol/l in the 8 groups.

The mean values of VLDL cholesterol level in mmol/l in group 1 was 0.36 ± 0.05 mmol/l, group 2 it was 0.19 ± 0.04 mmol/l, in group 3 it was 0.5 ± 0.09 mmol/l, in group 4 it was 0.43 ± 0.08 mmol/l, in group 5 it was 0.43 ± 0.1 mmol/l, in group 6 it was 0.33 ± 0.07 mmol/l, in group 7 it was 0.43 ± 0.08 mmol/l and in group 8 the mean value of VLDL cholesterol level in mmol/l was 0.23 ± 0.05.

Figure 14 showed the mean values and SEM of VLDL cholesterol level in mmol/l in the 8 groups.

The mean values of LDL cholesterol level in mmol/l in group 1 was 3.48 ± 0.09 mmol/l, in group 2 it was 3.28 ± 0.1 mmol/l, in group 3 it was 3.9 ± 0.17 mmol/l, in group 4 it was 3.48 ± 0.16 mmol/l, in group 5 it was 4.39 ± 0.11 mmol/l, in group 6 it was 4.05 ± 0.2 mmol/l, in group 7 it was 3.92 ± 0.21 mmol/l, and in group 8 the mean values of LDL cholesterol level in mmol/l was 3.9 ± 0.15.

Figure 15 showed the mean values and SEM of LDL cholesterol level in mmol/l in the 8 groups.

The mean values of HDL cholesterol perc entage level in group 1 was 24.27 ± 1.29%, in group 2 it was 27.60 ± 1.49%, in grou 3 it was 16.48 ± 1.29%, in group 4 it was 22.12 ± 1.94%, in group 5, it was 14.4 1.15%, in group 6 it was 16.82 ± 1.52%, in group 7 it was 20.73 ± 1.51%, and n group 8 the percentage of HDL cholesterol level was 21.07 ± 1.44%.

Figure 16 showed the mean values and S EM of HDL cholesterol percentage level in the 8 groups.

Table 23 showed that there was a high statistical significant difference P< 0.01 between the mean values of males diabetic groups and their reference group, also there was a high statistical significant dif erence P< 0.01 between the mean value of female diabetic groups and their refer nce group. There was no statistical significant difference between the mean value r ference groups. Also there was no statistical significant difference between the mea n value male diabetic groups. This, also applied between female diabetic groups.

Other statistical relations between the grc ups were described in table 23.

The mean values of VLDL cholesterol pe centage level in group 1 was 7.08 ± 1.06%, in group 2 it was 4.17 ± 0.81%, in group 3 it was 9.6 ± 1.51%, in group 4 it was 8.95 ± 1.68%, in group 5 it was 7.13 ± 1.45% , in group 6 it was 6.11 ± 1.44%, in group 7 it was 7.77 ± 1.24%, and in group 8 th VLDL cholesterol percentage was 4.41 ± 0.87%.

Figure 17 showed the mean values and S EM of VLDL cholesterol percentage level in the 8 groups.

Table 24 showed that there was no stati tical significant difference between the mean value of diabetic male groups and the reference. There was no statistical

significant difference between the mean values of NIDD female groups and their reference group but there was a statistical signifi ant difference P< 0.05 between the mean values of IDD females and their female reference group. Other statistical relations between the 8 groups is shown in table 24.

The mean values of LDL cholesterol perc ntage level in group 1 was 68.55 ± 1.39%, in group 2 it was 66.23 ± 2.62%, in grou 3 it was 73.91 ± 1.66%, in group 4 it was 68.88 ± 2.14%, in group 5 it was 79.23 ± 1.84%, in group 6 it was 77.04 ± 2.07%, in group 7 it was 71.81 ± 1.68%, and fin lly in group 8 the LDL cholesterol percentage level was 74.49 ± 1.60%.

Figure 18 showed the mean values a d SEM of the LDL cholesterol percentage level in the 8 groups.

Table 25 showed that there was a hig h statistical significant difference (P < 0.01) between the mean values of NIDD ma e groups and their reference group. There was no statistical significant difference between the mean values of IDD males and their reference group. There was a h gh statistical significant difference (P < 0.01) between the mean values of NID D females (controlled) and their reference female group. This relation was abs nt between other diabetic female groups and their reference group. Other relations could be seen in table 25.

The mean values of total cholesterol /HD cholesterol (T/H) ratio in group 1 was 4.42 ± 0.29, in group 2 it was 3.89 ± 0.18, in group 3 it was 6.95 ± 0.52, in group 4 it was 6.12 ± 1.14, in group 5 it was 8.4 ± 0.72, in group 6 it was 7.3 ± 0.69, in group 7 it was 5.73 ± 0.68 and lastly in group 8 the T/H ratio was 5.22 ± 0.32.

Figure 19 showed the mean values and SE M of T/H ratio in the 8 groups.

Table 26 showed that there was a hi h statistical significant difference ($P < 0.01$) between the mean values of male c iabetic groups and their reference group. A similar relation existed between the m an values of IDD female group and its reference group. No statistical significant dif erence between the mean values of NIDD female groups and their reference group. Other statistical relationships could be seen in table 26.

The mean values of LDL cholesterol /H DL cholesterol ratio (L/H) in group 1 was 3.08 ± 0.24, in group 2 it was 2.73 ± 0.1 , in group 3 it was 5.26 ± 0.47, in group 4 it was 4.35 ± 0.76, in group 5 it was 6 59 ± 0.63, in group 6 it was 5.85 ± 0.66, in group 7 it was 4.27 ± 0.67 and lastly i group 8 the L/H ratio was 3.99 ± 0.31.

Figure 20 showed the mean values and S M of L/H ratio in the 8 groups.

Table 27 showed that there was a high s atistical difference ($P< 0.01$) in the mean values of this risk ratio between the diab tic male groups and their reference groups. No similar statistical significant diff rence existed between the female diabetic groups and their reference group. Other statistical relations could be seen in table 27.

The linear regression results showed tha in female reference group (group 2), there was a positive correlation betwe n the obesity index and serum triglycerides level as shown in figure 22. Als , there was a positive correlation between the fasting blood sugar level (which did not exceed the known normal values) and the HDL cholesterol percentage. Thi is shown in figure 23.

A negative correlation between the fasti g blood sugar level and T/H ratio existed. This is seen in figure 24. In IDD m les (group 3) there was a positive correlation between the obesity index and apoli poprotein B as shown in figure 25.

Also a positive correlation between age and apol poprotein B as shown in figure 26. In the same group there was a positive correlatic n between age, L/H ratio, and T/H ratio as shown in figure 27 and 28 respectively.

In IDD female group (group 4) there wa a positive correlation between the duration of the disease and apolipoprotein B, as shown in figure 29. Figure 30 showed a negative correlation between the c uration of the disease and HDL cholesterol percentage. Figure 31, 32, and 33, showed that there was a positive correlation between the duration of the diseas and LDL cholesterol percentage, T/H ratio and L/H ratio respectively.

Figures 34, 36 and 37 showed that there vas positive correlation between the age and apolipoprotein B, T/H ratio and L/H ra io respectively.

Figure 35 showed that there was a negat ve correlation between the age and HDL cholesterol percentage in the same group.

In NIDD male, uncontrolled (group 5), f gures 38 and 39 showed a positive correlation between glycosylated haemoglobin ar d T/H and L/H ratios respectively. In NIDD female group uncontrolled (group 7), figures 40, 44 and 47 showed that there was a positive correlation between the luration of the disease, and LDL cholesterol percentage, T/H and L/H ratios resp ectively. In the same group figures 41, 43, 45 and 46 showed that there was a posi ive correlation between the fasting blood sugar level and LDL cholesterol percenta e, apolipoprotein B, T/H and L/H ratios. Figure 42 showed a negative correlation between fasting blood sugar level and HDL cholesterol percentage in the same grou p.

The statistical study of premenopausal a d post-menopausal females was as follows: (table 12)

The mean values of total serum cho esterol level in mmol/l in pre-menopausal females in group 2 was 4.81 ± 0.08 in group 4 it was 5.01 ± 0.13, in group 7 it was 5.61 ± 0.4 and in group 8 it was 5 18 ± 0.28 mmol/l.

Table 28 showed that there was a stati tical significant relation (P< 0.05) between the mean values of total serum cho esterol level in mmol/l in NIDD uncontrolled premenopausal females and their reference group. More statistical relations should be seen in table 28.

The mean values of total serum cholesterol level in mmol/l in postmenopausal females in group 2 was 4.95 ± 0 16, in group 4 it was 5.09 ± 0.4, in group 7 it was 5.36 ± 0.32 and in group 8 it was 5.24 ± 0.19.

Table 29 showed that there was no statis ical significant difference between the groups means.

Figure 48 showed the mean values and S EM of total serum cholesterol level in mmol/l in both pre-, and post-menopausal fe nales.

The mean values of serum triglycerides evel in mmol/l in pre-menopausal females in group 2 was 0.91 ± 0.07, in group 4 i was 2.73 ± 0.13, in group 7 it was 1.75 ± 0.37 and in group 8 it was 1.77 ± 0.21 mn ol/l.

Table 30 showed that there was a high statistical statistical difference (P< 0.01) between the mean values of diabetic grou s and their reference group. There are more statistical relations seen in table 30.

The mean values of serum triglycerides evel in mmol/l in post-menopausal females in group 2 was 1.28 ± 0.26, in group 4 i was 5.21 ± 0.37, in group 7 it was 2.32 ± 0.31 and in group 8 it was 2.06 ± 0.22 mn ol/l.

Table 31 showed that there was a high statistical statistical difference (P< 0.01) between IDD post-menopausal female gr(up and the reference group. More statistical relations are shown in table 31.

Figure 49 showed the mean values and EM of serum triglyceride level in mmol/l in the 4 female groups.

The mean values of glycosylated haer oglobin in premenopausal female groups in group 2 was 4.28 ± 0.25%, in group 4 it was 13.59 ± 0.55%, in group 7 it was 13.26 ± 2.19% and in group 8 it was 5.94 ± (29%.

Table 32 showed that there was a hig significant difference (P < 0.01) between the mean values of groups 4, 7, an their reference. More statistical relations could be seen in table 32.

The mean values of glycosylated haemog bin percentage in post-menopausal female groups in group 2 it was 3.72 ± 0.33%, group 4 it was 12.69 ± 2.44%, in group 7 it was 12.88 ± 1.14% and in group 8 it v as 6.32 ± 0.19%.

Table 33 showed that there was a high tatistical significant difference (P< 0.01) between the mean values of group 7 an 4, and group 2. More statistical relations could be seen in table 33.

Figure 50 showed the mean values and S EM of glycosylated haemoglobin in the 4 female groups.

The mean values of serum apolipopro ein B in g/l in pre-menopausal females in group 2 was 1.07 ± 0.04, in group 4 i was 1.26 ± 0.05, in group 7 it was 1.18 ± 0.08 and in group 8 it was 1.22 ± 0.06 g/l.

Table 34 showed there was a no statistic l significant difference between the mean values of the 4 groups.

The mean values of serum apolipopro ein B in g/l in post-menopausal females group 2 it was 1.08 ± 0.02, in group 4 i was 1.49 ± 0.17, in group 7 it was 1.31 ± 0.06 and group 8 it was 1.19 ± 0.04 g/l.

Table 35 showed that there was a statist cal significant difference ($P < 0.05$) between the mean values of group 4, 7 and gro p 2. More statistical relations could be seen in table 35.

Figure 51 showed the mean values and S M of serum apolipoprotein B level in g/l in the 4 female groups.

The mean values of anti-insulin ant bodies (serum dilution) in pre-menopausal female group 2 was 2.4 ± 0.61, in group 4 it was 145.09 ± 21.42, in group 7 it was 20.44 ± 8.83 and in group 8 it wa 5.33 ± 1.63 serum dilution.

Table 36 showed that there was a hi h statistical difference ($P< 0.01$) between the mean values of group 4 and all othe groups.

The mean values of anti-insulin anti odies (serum dilution) in post-menopausal females in group 2 was 4.8 ± 1.5, i group 4 it was 213.33 ± 42.6, in group 7 it was 11.12 ± 2.31, and in group 8 it wa 5.37 ± 1.16 serum dilution.

Table 37 showed that there was a high tatistical significant difference ($P< 0.01$) between the mean values of group 4 and al other groups.

Figure 52 showed the mean values an SEM of anti-insulin antibodies (serum dilutions) between the 4 female groups.

The mean values of α-lipoprotein perce tage in pre-menopausal females in group 2 was 32.68 ± 1.49, in group 4 it was 24 52 ± 1.45, in group 7 it was 29.8 ± 2.21 and in group 8 it was 26.23 ± 2.31%.

Table 38 showed that there was a high tatistical significant difference (P< 0.01) and the mean values of group 2 on on hand and groups 4 and 8. More statistical relations were shown in table 38.

The mean values of α-lipoprotein perce tage in post-menopausal female in group 2 was 34.09 ± 3.31, in group 4 was 25.4 ± 1.46, in group 7 it was 23.57 ± 1.66 and in group 8 it was 25.17 ± 1.65.

Table 39 showed that there was a hi h statistical significant difference (P < 0.01) between the mean values in group 2 n one hand and groups 7 and 8 on the other hand. More statistical relations could b seen in table 39.

Figure 53 showed the mean values and S EM in α-lipoprotein percengate in all the 4 female groups.

The mean values of pre β-lipoprotein pe entage in pre-menopausal females group 2 was 16.32 ± 0.79, in group 4 it was 26.0 ± 0.96, in group 7 it was 19.15 ± 1.59 and in group 8 it was 21.54 ± 1.29%.

Table 40 showed that there was a high tatistical significant difference (P< 0.01) between the mean values of group and all the other groups. More τυαυιτυιγαμ relations could be seen in table 40.

The mean values of pre-β lipoprotein perc ntage in post-menopausal females in group 2 was 19.21 ± 2.33, in group 4 it was 20 77 ± 3.74, in group 7 it was 22.49 ± 1.61 and in group 8 it was 20.45 ± 1.43%.

Table 41 showed that there was no statistical significant relations between the mean values of the groups.

Figure 54 showed the mean values and SEM of the pre-β-lipoprotein percentage in all the 4 female groups.

The mean values of β-lipoprotein percentage in preumenopausal female group 2 was 50.99 $\pm$ 1.3%, in group 4 it was 50.3 $\pm$ 1.33% in group 7 it was 51.03 $\pm$ 2.75% and in group 8 it was 52.22 $\pm$ 1.7%.

Table 42 showed that there was no statistical significant difference between the mean values of β-lipoprotein percentage in re menopausal females of different groups.

The mean values of β-lipoprotein percentage in post menopausal females group2 was 46.69 $\pm$ 2.44%, in group 4 it was 53.3 $\pm$ 4.61% in group 7 it was 53.62 $\pm$ 2.02% and in group 8 it was 54.12 $\pm$ 1.06%.

Table 43 showed that there was no statistical significant differences between mean values of β-lipoprotein percentage in different groups.

Figure 55 showed the mean values and SEM of β-lipoprotein percentage in the 4 females groups.

The mean values of HDL cholesterol percentage in premenopausal females group 2 was 25.37 $\pm$ 1.28%, in group 4 it was 24.06 $\pm$ 1.82%, in group 7 it was 21.35 $\pm$ 1.99 and in group 8 it was 23.92 $\pm$ 3.19%.

Table 44 showed that there was no statistical significant difference in the mean values of HDL cholesterol percentage in all the 4 females groups.

The mean values of HDL cholesterol pe centage in postmenespausal females group 2 was 36.53 ± 3.25% in group 4 it was 7.9 ± 2.53%, in group 7 it was 19.62 ± 2.36 and in group 8 it was 19.47 ± 1.28%.

Table 45 showed that there was a hi h statistical significant difference ($P < 0.01$) in the mean values of HDL ch lesterol percentage in the female reference group and each of teh diabetic group . More statistical relations could be seen in the same table.

Figure 56 showed the mean values and EM of HDL cholesterol percentage in the 4 females groups.

The mean values of VLDL cholesterol p rcentage in premenopausal females group 2 was 4.61 ± 0.93% in group 4 it was 7.6 ± 1.32%, in group 7 it was 10.32 ± 1.88 and in group 8 it was 2.88 ± 1.09%.

Table 46 showed that there was a gi h statistical significant difference ($P < 0.01$) between the mean values of VLDL c olesterol percentage between group 2 and 7. Other statistical relations could be seen n table 46.

The mean values of VLDL cholesterol p rcentage in postmenopausal females group 2 was 2.4 ± 1.54% in group 4 it was 18.6 ± 9.66%, in group 7 it was 6.33 ± 1.55 and in group 8 it was 5.26 ± 1.18%.

Table 47 showed that there was a hi h statistical significant difference ($P < 0.01$) between the mean values of VLDL c olesterol percentage between group 4 and all other groups.

Figure 57 showed the mean values and S M of VLDL cholesterol percentage in all the 4 groups.

The mean values of LDL cholesterol p rcentage in premenopausal females group 2 was 67.53 ± 3.19% in group 4 it was 68 27 ± 2.26%, in group 7 it was 69.97 ± 2.09 and in group 8 it was 73.16 ± 2.94 %.

Table 48 showed that there was no stat stical significant differences in the mean values of LDL cholesterol percentage etween the premenopausal female groups.

The mean values of LDL cholesterol pe centage in post menopaisal females group 2 was 61.03 ± 2.11% in group 4 it was 73 35 ± 7.39%, in group 7 it was 72.85 ± 2.35 and in group 8 it was 75.23 ± 1.92 %.

Table 49 showed that there was a statisti al significant difference ($P < 0.05$) between the mean values of LDL cholesterol ercentage between groups 8 and 2 other statistical relations could be seen in table 4).

Figure 58 showed the mean values and EM of LDL cholesterol percentage in the 4 female groups.

The mean values of T/H ratio in preeme opausal females group 2 was 4.16 ± 0.18, in group 4 it was 4.72 ± 0.38 in group 7 it was 5.72 ± 0.7 and in group 8 it was 4.77 ± 0.58.

Table 50 showed that there was mostat stical significant difference in the mean values of T/H ratio in the premenopausal emale groups.

The mean values of T/H ratio in the p stmonopausal females group 2 was 2.82 ± 0.26, in group 4 it was 17.14 ± 3.1, in gr up 7 it was 5.74 ± 1, in group 8 it was 5.47 ± 0.37.

Table 51 showed that there was a hi h statistical significant difference ($P < 0.01$) between the mean values of T/H r tio between group 4 and all other groups.

Figure 59 showed the mean values and SEM of T/H ratio between the 4 females groups.

The mean values of L/H ratio in preeme opausal females group 2 was 2.97 ± 0.19, in group 4 it was 3.34 ± 0.33 in group 7 t was 4.06 ± 0.56 and in group 8 it was 3.62 ± 0.55.

Table 52 showed there was no statistica significant difference between the mean values L/H ratios in the premenopausal fe nale groups.

The mean values of L/H in postmenopat al females group 2 was 1.73 ± 0.21, in group 4 it was 11.76 ± 4.2 in group 7 it wa 4.39 ± 1.01 and in group 8 it was 4.21 ± 0.38.

Table 53 showed there was a high statistical significant differences ($P < 0.01$) between the mean values of L/H r tio between group 4 and all other groups. Other statistical relations could be seen table 53.

Figure 60 showed the mean values and SEM of the L/H ratio in all the females groups.

Table (1

Descriptive Statistics Summary for Ma| Reference Group (Group No. 1)

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	44.92	18.70	3.74
Weight/Height	25	24.06	5.63	1.12
Duration of the disease	25	0.00	0.00	0.00
Fasting blood sugar [mmol/l]	25	5.26	0.71	0.14
Postprandial blood sugar [mmol/l]	25	6.20	0.70	0.14
Serum cholesterol [mmol/l]	25	5.09	0.48	0.10
Serum triglyceride [mmol/l]	25	1.18	0.43	0.09
Glycosylated haemoglobin [%]	25	4.36	1.08	0.21
Apolipoprotein B [g/l]	25	1.14	0.22	0.04
Anti-insulin antibodies (serum dilution)	25	2.88	2.45	0.49
α-lipoprotein [%]	25	28.09	7.91	1.58
Pre-Beta lipoprotein [%]	25	18.91	5.69	1.14
β-lipoprotein [%]	25	52.75	6.76	1.35
Chylomicrons [%]	25	0.04	0.21	0.04
HDL cholesterol [mmol/l]	25	1.24	0.37	0.07
VLDL cholesterol [mmol/l]	25	0.36	0.27	0.05
LDL cholesterol [mmol/l]	25	3.48	0.47	0.09
HDL cholesterol [%]	25	24.27	6.45	1.29
VLDL cholesterol [%]	25	7.08	5.28	1.06
LDL cholesterol [%]	25	68.55	6.94	1.39
Total cholesterol/HDL cholesterol (T/H)	25	4.42	1.43	0.29
LDL cholesterol/HDL cholesterol (L/H)	25	3.08	1.21	0.24

Table (

Descriptive Statistics Summary for Fem le Reference Group (Group No. 2)

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	37.04	13.28	2.65
Weight/Height	25	26.26	4.89	0.98
Duration of the disease	25	0.00	0.00	0.00
Fasting blood sugar [mmol/l]	25	5.33	0.66	0.13
Postprandial blood sugar [mmol/l]	25	6.08	0.74	0.15
Serum cholesterol [mmol/l]	25	4.84	0.36	0.07
Serum triglyceride [mmol/l]	25	0.99	0.40	0.08
Glycosylated haemoglobin [%]	25	4.17	1.07	0.21
Apolipoprotein B [g/l]	25	1.07	0.20	0.04
Anti-insulin Antibodies (serum dilution)	25	2.88	2.95	0.59
α-lipoprotein [%]	25	32.96	6.68	1.34
Pre-Beta lipoprotein [%]	25	16.90	3.97	0.79
β-lipoprotein [%]	25	50.13	5.89	1.18
Chylomicrons [%]	25	0.00	0.00	0.00
HDL cholesterol [mmol/l]	25	1.32	0.39	0.08
VLDL cholesterol [mmol/l]	25	0.19	0.19	0.04
LDL cholesterol [mmol/l]	25	3.28	0.52	0.10
HDL cholesterol [%]	25	27.60	7.45	1.49
VLDL cholesterol [%]	25	4.17	4.05	0.81
LDL cholesterol [%]	25	66.23	13.13	2.62
Total cholesterol/HDL cholesterol (T/H)	25	3.89	0.93	0.18
LDL cholesterol/HDL cholesterol (L/H)	25	2.73	0.93	0.18

Table (:

Descriptive Statistics Summary for Type I Diabetic Male Group (**Group No.3**)

[Insulin Dependent Diab ic Male (IDD ♂)]

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	27.76	15.10	3.02
Weight/Height	25	20.42	2.24	0.45
Duration of the disease	25	4.95	5.16	1.03
Fasting blood sugar [mmol/l]	25	17.07	6.67	1.33
Postprandial blood sugar [mmol/l]	25	20.40	6.08	1.22
Serum cholesterol [mmol/l]	25	5.28	0.93	0.19
Serum triglyceride [mmol/l]	25	2.53	0.64	0.13
Glycosylated haemoglobin [%]	25	12.92	4.77	0.95
Apolipoprotein B [g/l]	25	1.38	0.06	0.05
Anti-insulin antibodies (serum dilution)	25	160.00	91.91	18.38
α-lipoprotein [%]	25	23.35	7.38	1.48
Pre-Beta lipoprotein [%]	25	24.63	6.51	1.30
β-lipoprotein [%]	25	52.01	5.96	1.19
Chylomicrons [%]	25	0.00	0.00	0.00
HDL cholesterol [mmol/l]	25	0.87	0.40	0.08
VLDL cholesterol [mmol/l]	25	0.50	0.43	0.09
LDL cholesterol [mmol/l]	25	3.90	0.84	0.17
HDL cholesterol [%]	25	16.48	6.47	1.29
VLDL cholesterol [%]	25	9.60	7.55	1.51
LDL cholesterol [%]	25	73.91	8.30	1.66
Total cholesterol/HDL cholesterol (T/H)	25	6.95	2.60	0.52
LDL cholesterol/HDL cholesterol (L/H)	25	5.26	2.34	0.47

Table (4)

Descriptive Statistics Summary for Type I Diab ic Female Group (Goup No.4)

[Insulin Dependent Diabetic Fe nale (IDD ♀)]

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	28.80	16.78	3.36
Weight/Height	25	20.82	3.10	0.62
Duration of the disease	25	7.22	7.14	1.43
Fasting blood sugar [mmol/l]	25	14.99	5.42	1.08
Postprandial blood sugar [mmol/l]	25	19.80	5.38	1.08
Serum cholesterol [mmol/l]	25	5.02	0.60	0.12
Serum triglyceride [mmol/l]	25	3.03	1.55	0.31
Glycosylated haemoglobin [%]	25	13.48	2.74	0.55
Apolipoprotein B [g/l]	25	1.29	0.27	0.05
Anti-insulin antibodies (serum dilution)	25	1 3.28	98.99	19.80
α-lipoprotein [%]	25	24.62	6.42	1.28
Pre-Beta lipoprotein [%]	25	15.44	4.94	0.99
β-lipoprotein [%]	25	30.66	6.41	1.28
Chylomicrons [%]	25	0.07	0.33	0.07
HDL cholesterol [mmol/l]	25	1.06	0.44	0.09
VLDL cholesterol [mmol/l]	25	0.43	0.43	0.08
LDL cholesterol [mmol/l]	25	3.48	0.79	0.16
HDL cholesterol [%]	25	22.12	9.69	1.94
VLDL cholesterol [%]	25	8.95	8.39	1.68
LDL cholesterol [%]	25	(3.88	10.73	2.14
Total cholesterol/HDL cholesterol (T/H)	25	5.21	5.69	1.14
LDL cholesterol/HDL cholesterol (L/H)	25	1.35	3.79	0.76

Table ( )

Descriptive Statistics Summary for Type I Diabetic Male Uncontrolled Group (Group N(5)

[Non Insulin Dependent Dia)etic Male (NIDD ♂)]

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	51.08	9.52	1.90
Weight/Height	25	25.25	3.44	0.69
Duration of the disease	25	6.11	3.57	0.71
Fasting blood sugar [mmol/l]	25	11.71	2.98	0.60
Postprandial blood sugar [mmol/l]	25	17.47	4.01	0.80
Serum cholesterol [mmol/l]	25	5.60	0.90	0.18
Serum triglyceride [mmol/l]	25	1.81	0.68	0.14
Glycosylated haemoglobin [%]	25	12.40	3.76	0.75
Apolipoprotein B [g/l]	25	1.30	0.23	0.05
Anti-insulin antibodies (serum dilution)	25	8.16	12.67	2.53
α-lipoprotein [%]	25	24.02	7.24	1.45
Pre-Beta lipoprotein [%]	25	20.58	3.18	0.64
β-lipoprotein [%]	25	55.36	7.36	1.47
Chylomicrons [%]	25	0.00	0.00	0.00
HDL cholesterol [mmol/l]	25	0.76	0.38	0.07
VLDL cholesterol [mmol/l]	25	0.43	0.49	0.10
LDL cholesterol [mmol/l]	25	4.39	0.57	0.11
HDL cholesterol [%]	25	13.40	5.77	1.15
VLDL cholesterol [%]	25	7.13	7.29	1.45
LDL cholesterol [%]	25	79.23	9.22	1.84
Total cholesterol/HDL cholesterol (T/H)	25	8.40	3.59	0.72
LDL cholesterol/HDL cholesterol (L/H)	25	6.69	3.16	0.63

Table ( )

Descriptive Statistics Summary for Type II Dial etic Male Controlled Group (Group No. 6)

[Non Insulin Dependent Dia bitic Male (NIDD o)]

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	51.16	9.69	1.94
Weight/Height	25	26.03	2.13	0.43
Duration of the disease	25	5.08	4.45	0.89
Fasting blood sugar [mmol/l]	25	7.25	1.25	0.25
Postprandial blood sugar [mmol/l]	25	9.55	2.66	0.53
Serum cholesterol [mmol/l]	25	5.39	0.89	0.18
Serum triglyceride [mmol/l]	25	1.71	0.67	0.13
Glycosylated haemoglobin [%]	25	6.32	0.57	0.11
Apolipoprotein B [g/l]	25	1.28	0.22	0.04
Anti-insulin antibodies (serum dilution)	25	4.96	3.88	0.77
α-lipoprotein [%]	25	24.61	5.26	1.05
Pre-Beta lipoprotein [%]	25	19.92	5.39	1.08
β-lipoprotein [%]	25	54.88	5.02	1.00
Chylomicrons [%]	25	0.17	0.85	0.17
HDL cholesterol [mmol/l]	25	0.89	0.41	0.08
VLDL cholesterol [mmol/l]	25	0.33	0.37	0.07
LDL cholesterol [mmol/l]	25	4.05	1.01	0.20
HDL cholesterol [%]	25	16.82	7.61	1.52
VLDL cholesterol [%]	25	6.11	7.20	1.44
LDL cholesterol [%]	25	77.04	10.34	2.07
Total cholesterol/HDL cholesterol (T/H)	25	7.30	3.48	0.69
LDL cholesterol/HDL cholesterol (L/H)	25	5.85	3.32	0.66

Table ( )

Descriptive Statistics Summary for Type II Diabetic Female Uncontrolled Group **(Group N(7)**

[Non Insulin Dependent Dia)etic Female (NIDD ♀)]

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	49.36	10.08	2.01
Weight/Height	25	28.87	5.70	1.14
Duration of the disease	25	4.92	5.09	1.02
Fasting blood sugar [mmol/l]	25	11.47	4.50	0.90
Postprandial blood sugar [mmol/l]	25	16.02	5.57	1.10
Serum cholesterol [mmol/l]	25	5.45	1.25	0.25
Serum triglyceride [mmol/l]	25	2.12	1.20	0.24
Glycosylated haemoglobin [%]	25	13.02	5.23	1.05
Apolipoprotein B [g/l]	25	1.26	0.24	0.05
Anti-insulin antibodies (serum dilution)	25	14.48	17.56	3.51
α-lipoprotein [%]	25	25.81	7.19	1.44
Pre-Beta lipoprotein [%]	25	21.29	6.02	1.20
β-lipoprotein [%]	25	52.69	8.06	1.61
Chylomicrons [%]	25	0.20	0.71	0.14
HDL cholesterol [mmol/l]	25	1.13	0.58	0.11
VLDL cholesterol [mmol/l]	25	0.43	0.39	0.08
LDL cholesterol [mmol/l]	25	3.92	1.07	0.21
HDL cholesterol [%]	25	20.73	7.55	1.51
VLDL cholesterol [%]	25	7.77	6.20	1.24
LDL cholesterol [%]	25	71.81	8.40	1.68
Total cholesterol/HDL cholesterol (T/H)	25	5.73	3.39	0.68
LDL cholesterol/HDL cholesterol (L/H)	25	4.27	3.34	0.67

Table (

Descriptive Statistics Summary for Type 1 Diabetic Female Controlled Group (Group N(8)

[Non Insulin Dependent Dia etic Femal (NIDD o)]

Field	Number	Mean	Standard Deviation	Standard Error
Age	25	50.84	8.81	1.76
Weight/Height	25	26.99	3.24	0.65
Duration of the disease	25	5.02	4.13	0.82
Fasting blood sugar [mmol/l]	25	7.96	2.04	0.41
Postprandial blood sugar [mmol/l]	25	11.20	3.13	0.62
Serum cholesterol [mmol/l]	25	5.22	0.78	0.16
Serum triglyceride [mmol/l]	25	1.96	0.80	0.16
Glycosylated haemoglobin [%]	25	6.19	0.81	0.16
Apolipoprotein B [g/l]	25	1.20	0.18	0.03
Anti-insulin antibodies (serum dilution)	25	5.36	4.64	0.93
α-lipoprotein [%]	25	25.55	6.61	1.32
Pre-Beta lipoprotein [%]	25	20.84	5.09	1.02
β-lipoprotein [%]	25	53.43	4.55	0.91
Chylomicrons [%]	25	0.22	1.12	0.22
HDL cholesterol [mmol/l]	25	1.10	0.45	0.09
VLDL cholesterol [mmol/l]	25	0.23	0.24	0.05
LDL cholesterol [mmol/l]	25	3.90	0.73	0.15
HDL cholesterol [%]	25	21.07	7.20	1.44
VLDL cholesterol [%]	25	4.41	4.35	0.87
LDL cholesterol [%]	25	74.49	7.99	1.60
Total cholesterol/HDL cholesterol (T/H)	25	5.22	1.59	0.32
LDL cholesterol/HDL cholesterol (L/H)	25	3.99	1.55	0.31

Table (9)

Comparative Statistical Summary between M le Reference and Diabetic Groups

Field	Group No. 1	Gr up No. 3	Group No. 5	Group No. 6
Age	44.92 ± 3.74	27 6 ± 3.02	51.08 ± 1.90	51.16 ± 1.94
Weight/Height	24.06 ± 1.12	20 2 ± 0.45	25.25 ± 0.69	26.03 ± 0.43
Duration of the disease	00.00	4. 5 ± 1.03	6.11 ± 0.71	5.08 ± 0.89
Fasting blood sugar [mmol/l]	5.26 ± 0.14	17. 7 ± 1.33	11.71 ± 0.60	7.25 ± 0.25
Postprandial blood sugar [mmol/l]	6.2 ± 0.14	20. 0 ± 1.22	17.47 ± 0.80	9.55 ± 0.53
Serum cholesterol [mmol/l]	5.09 ± 0.1	5.2 ± 0.19	5.60 ± 0.18	5.39 ± 0.18
Serum triglyceride [mmol/l]	1.18 ± 0.09	2.5 ± 0.13	1.81 ± 0.14	1.71 ± 0.13
Glycosylated haemoglobin [%]	4.36 ± 0.21	12. 2 ± 0.95	12.40 ± 0.75	6.32 ± 0.11
Apolipoprotein B [g/l]	1.14 ± 0.04	1.3 ± 0.05	1.30 ± 0.05	1.28 ± 0.04
Anti-insulin antibodies (serum dilution)	2.88 ± 0.49	16(± 18.38	8.16 ± 2.53	4.96 ± 0.77
a-lipoprotein [%]	28.09 ± 1.58	23.3 ± 1.48	24.02 ± 1.45	24.61 ± 1.05
Pre-Beta lipoprotein [%]	18.91 ± 1.14	24.6 ± 1.30	20.58 ± 0.64	19.92 ± 1.08
b-lipoprotein [%]	52.75 ± 1.35	52.0 ± 1.19	55.36 ± 1.47	54.88 ± 1.00
HDL cholesterol [mmol/l]	1.24 ± 0.07	0.8 ± 0.08	0.76 ± 0.07	0.89 ± 0.08
VLDL cholesterol [mmol/l]	0.36 ± 0.05	0.5(± 0.09	0.43 ± 0.10	0.33 ± 0.07
LDL cholesterol [mmol/l]	3.48 ± 0.09	3.9(± 0.17	4.39 ± 0.11	4.05 ± 0.20
HDL cholesterol [%]	24.27 ± 1.29	16.4 ± 1.29	13.40 ± 1.15	16.82 ± 1.52
VLDL cholesterol [%]	7.08 ± 1.06	9.60 ± 1.51	7.13 ± 1.45	6.11 ± 1.44
LDL cholesterol [%]	68.55 ± 1.39	73.9 ± 1.66	79.23 ± 1.84	77.04 ± 2.07
Total cholesterol/HDL cholesterol (T/H)	4.42 ± 0.29	6.95 ± 0.52	8.40 ± 0.72	7.30 ± 0.69
LDL cholesterol/HDL cholesterol (L/H)	3.08 ± 0.24	5.26 ± 0.47	6.69 ± 0.63	5.85 ± 0.66

Table (1)

Comparative Statistical Summary between Fem le Reference and Diabetic Groups

Field	Group No. 2	Gr up No. 4	Group No. 7	Group No. 8
Age	37.04 ± 2.65	28 0 ± 3.36	49.36 ± 2.01	50.84 ± 1.76
Weight/Height	26.26 ± 0.98	20. 2 ± 0.62	28.87 ± 1.14	26.99 ± 0.65
Duration of the disease		7.: 2 ± 1.43	4.92 ± 1.02	5.02 ± 0.82
Fasting blood sugar [mmol/l]	5.33 ± 0.13	14. 9 ± 1.08	11.47 ± 0.90	7.96 ± 0.41
Postprandial blood sugar [mmol/l]	6.08 ± 0.15	19.: 0 ± 1.08	16.02 ± 1.10	11.20 ± 0.62
Serum cholesterol [mmol/l]	4.84 ± 0.07	5.0 ± 0.12	5.45 ± 0.25	5.22 ± 0.16
Serum triglyceride [mmol/l]	0.99 ± 0.08	3.0 ± 0.31	2.12 ± 0.24	1.96 ± 0.16
Glycosylated haemoglobin [%]	4.17 ± 0.21	13.4 ± 0.55	13.02 ± 1.05	6.19 ± 0.16
Apolipoprotein B [g/l]	1.07 ± 0.04	1.2 ± 0.05	1.26 ± 0.05	1.20 ± 0.03
Anti-insulin antibodies (serum dilution)	2.88 ± 0.59	153.2 ± 19.80	14.48 ± 3.51	5.36 ± 0.93
a-lipoprotein [%]	32.96 ± 1.34	24.6 ± 1.28	25.81 ± 1.44	25.55 ± 1.32
Pre-Beta lipoprotein [%]	16.90 ± 0.79	25.4 ± 0.99	21.29 ± 1.20	20.84 ± 1.02
b-lipoprotein [%]	50.13 ± 1.18	50.6 ± 1.28	52.69 ± 1.61	53.43 ± 0.91
HDL cholesterol [mmol/l]	1.32 ± 0.08	1.06 ± 0.09	1.13 ± 0.11	1.10 ± 0.09
VLDL cholesterol [mmol/l]	0.19 ± 0.04	0.43 ± 0.08	0.43 ± 0.08	0.23 ± 0.05
LDL cholesterol [mmol/l]	3.28 ± 0.10	3.48 ± 0.16	3.92 ± 0.21	3.90 ± 0.15
HDL cholesterol [%]	27.60 ± 1.49	22.12 ± 1.94	20.73 ± 1.51	21.07 ± 1.44
VLDL cholesterol [%]	4.17 ± 0.81	8.95 1.68	7.77 ± 1.24	4.41 ± 0.87
LDL cholesterol [%]	66.23 ± 2.62	68.88 ± 2.14	71.81 ± 1.68	74.49 ± 1.60
Total cholesterol/HDL cholesterol (T/H)	3.89 ± 0.18	6.21 : 1.14	5.73 ± 0.68	5.22 ± 0.32
LDL cholesterol/HDL cholesterol (L/H)	2.73 ± 0.18	4.35 : 0.76	4.27 ± 0.67	3.99 ± 0.31

Table (11)

Comparative statistical summary between the 8 groups

Field	Group No. 1	Group No. 2	Group No. 3	Group No. 4	Group No. 5	Group No. 6	Group No. 7	Group No. 8
Age	44.92 ± 3.74	37.04 ± 2.65	27.76 ± 3.02	28.80 ± 3.36	51.08 ± 1.90	51.16 ± 1.94	49.36 ± 2.01	50.84 ± 1.76
Weight/Height	24.06 ± 1.12	26.26 ± 0.98	20.42 ± 0.45	20.82 ± 0.62	25.25 ± 0.69	26.03 ± 0.43	28.87 ± 1.14	26.99 ± 0.65
Duration of the disease			4.95 ± 1.03	7.22 ± 1.43	6.11 ± 0.71	5.08 ± 0.89	4.92 ± 1.02	5.02 ± 0.82
Fasting blood sugar [mmol/l]	5.26 ± 0.14	5.33 ± 0.13	17.07 ± 1.33	14.99 ± 1.08	11.71 ± 0.60	7.25 ± 0.25	11.47 ± 0.90	7.96 ± 0.41
Postprandial blood sugar [mmol/l]	6.2 ± 0.14	6.08 ± 0.15	20.40 ± 1.22	19.80 ± 1.08	17.47 ± 0.80	9.55 ± 0.53	16.02 ± 1.10	11.20 ± 0.62
Serum cholesterol [mmol/l]	5.09 ± 0.1	4.84 ± 0.07	5.28 ± 0.19	5.02 ± 0.12	5.60 ± 0.18	5.39 ± 0.18	5.45 ± 0.25	5.22 ± 0.16
Serum triglyceride [mmol/l]	1.18 ± 0.09	0.99 ± 0.08	2.53 ± 0.13	3.03 ± 0.31	1.81 ± 0.14	1.71 ± 0.13	2.12 ± 0.24	1.96 ± 0.16
Glycosylated haemoglobin [%]	4.36 ± 0.21	4.17 ± 0.21	12.92 ± 0.95	13.48 ± 0.55	12.40 ± 0.75	6.32 ± 0.11	13.02 ± 1.05	6.19 ± 0.16
Apolipoprotein B [g/l]	1.14 ± 0.04	1.07 ± 0.04	1.38 ± 0.05	1.29 ± 0.05	1.30 ± 0.05	1.28 ± 0.04	1.26 ± 0.05	1.20 ± 0.03
Anti-insulin antibodies (serum dilution)	2.88 ± 0.49	2.88 ± 0.59	160 ± 18.38	153.28 ± 19.80	8.16 ± 2.53	4.96 ± 0.77	14.48 ± 3.51	5.36 ± 0.93
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24.61 ± 1.05	25.81 ± 1.44	25.55 ± 1.32
Pre-Beta lipoprotein [%]	18.91 ± 1.14	16.90 ± 0.79	24.63 ± 1.30	25.44 ± 0.99	20.58 ± 0.64	19.92 ± 1.08	21.29 ± 1.20	20.84 ± 1.02
β-lipoprotein [%]	52.75 ± 1.35	50.13 ± 1.18	52.01 ± 1.19	50.66 ± 1.28	55.36 ± 1.47	54.88 ± 1.00	52.69 ± 1.61	53.43 ± 0.91
HDL cholesterol [mmol/l]	1.24 ± 0.07	1.32 ± 0.08	0.87 ± 0.08	1.06 ± 0.09	0.76 ± 0.07	0.89 ± 0.08	1.13 ± 0.11	1.10 ± 0.09
VLDL cholesterol [mmol/l]	0.36 ± 0.05	0.19 ± 0.04	0.50 ± 0.09	0.43 ± 0.08	0.43 ± 0.10	0.33 ± 0.07	0.43 ± 0.08	0.23 ± 0.05
LDL cholesterol [mmol/l]	3.48 ± 0.09	3.28 ± 0.10	3.90 ± 0.17	3.48 ± 0.16	4.39± 0.11	4.05 ± 0.20	3.92 ± 0.21	3.90 ± 0.15
HDL cholesterol [%]	24.27 ± 1.29	27.60 ± 1.49	16.48 ± 1.29	22.12 ± 1.94	13.40 ± 1.15	16.82 ± 1.52	20.73 ± 1.51	21.07 ± 1.44
VLDL cholesterol [%]	7.08 ± 1.06	4.17 ± 0.81	9.60 ± 1.51	8.95 ± 1.68	7.13 ± 1.45	6.11 ± 1.44	7.77 ± 1.24	4.41 ± 0.87
LDL cholesterol [%]	68.55 ± 1.39	66.23 ± 2.62	73.91 ± 1.66	68.88 ± 2.14	79.23 ± 1.84	77.04 ± 2.07	71.81 ± 1.68	74.49 ± 1.60
Total cholesterol/HDL cholesterol (T/H)	4.42 ± 0.29	3.89 ± 0.18	6.95 ± 0.52	6.21 ± 1.14	8.40 ± 0.72	7.30 ± 0.69	5.73 ± 0.68	5.22 ± 0.32
LDL cholesterol/HDL cholesterol (L/H)	3.08 ± 0.24	2.73 ± 0.18	5.26 ± 0.47	4.35 ± 0.76	6.69 ± 0.63	5.85 ± 0.66	4.27 ± 0.67	3.99 ± 0.31

Table (12)

Comparative statistical summary between premenopausal and post menopausal females in the different groups.

Group	Group 2 Reference ♀		Group 4 IDDM ♀		Group 7 NIDDM ♀		Group 8 NIDDM ♀	
Field	Pre-menopausal age 0-49	Post-menopausal age over 50	Pre-menopausal	Post	Pre-menopausal	Post-	Pre-	Post
No.	20	5	22	3	9	16	9	16
Serum cholesterol [mmol/l]	4.81 ± 0.08	4.95 ± 0.16	5.01 ± 0.13	5.09 ± 0.4	5.61 ± 0.40	5.36 ± 0.32	5.18 ± 0.28	5.24 ± 0.19
Serum triglyceride [mmol/l]	0.91 ± 0.07	1.28 ± 0.26	2,73 ± 0.13	@@5.21 ± 0.37	1.75 ± 0.37	2.32 ± 0.31	1.77 ± 0.21	2.06 ± 0.22
Glycosylated haemoglobin [%]	4.28 ± 0.25	3.72 ± 0.33	13.59 ± 0.55	12.69 ± 2.44	13.26 ± 2.19	12.88 ± 1.14	5.94 ± 0.29	6.32 ± 0.19
Apolipoprotein B [g/l]	1.07 ± 0.04	1.08 ± 0.02	1.26 ± 0.05	1.49 ± 0.17	1.18 ± 0.08	1.31 ± 0.06	1.22 ± 0.06	1.19 ± 0.04
Anti-insulin antibodies (serum dilution)	2.40 ± 0.61	4.80 ± 1.50	145.09 ± 21.42	213.33 ± 42.6	20.44 ± 8.83	11.12 ± 2.31	5.33 ± 1.63	5.37 ± 1.16
α-lipoprotein [%]	32.68 ± 1.49	34.09 ± 3.31	24.52 + 1.45	25.42 + 1.46	29.80 ± 2.21	#32.57 ± 1.66	[illegible]	[illegible]
Pre-Beta lipoprotein [%]	16.32 ± 0.79	19.21 ± 2.33	26.07 ± 0.96	20.77 ± 3.74	19.15 ± 1.59	22.49 ± 1.61	21.54 ± 1.29	20.45 ± 1.43
β-lipoprotein [%]	50.99 ± 1.30	46.69 ± 2.44	50.23 ± 1.33	53.80 ± 4.61	51.03 ± 2.75	53.62 ± 2.02	52.22 ± 1.70	54.12 ± 1.06
HDL cholesterol [%]	25.37 ± 1.28	**36.53 ± 3.25	24.06 ± 1.82	@@7.91 ± 2.53	21.35 ± 1.99	19.62 ± 2.36	23.92 ± 3.19	19.47 ± 1.28
VLDL cholesterol [%]	4.61 ± 0.93	2.40 ± 1.54	7.63 ± 1.32	@18.66 ± 9.66	10.32 ± 1.88	6.33 ± 1.55	2.88 ± 1.09	5.26 ± 1.18
LDL cholesterol [%]	67.53 ± 3.19	61.03 ± 2.11	68.27 ± 2.26	73.35 ± 7.39	69.97 ± 2.09	72.85 ± 2.35	73.16 ± 2.94	75.23 ± 1.92
Total cholesterol/HDL cholesterol (T/H)	4.16 ± 0.18	**2.82 ± 0.26	4.72 ± 0.38	@@17.14 ± 3.10	5.72 ± 0.70	5.74 ± 1.00	4.77 ± 0.58	5.47 ± 0.37
LDL cholesterol/HDL cholesterol (L/H)	2.97 ± 0.19	**1.73 ± 0.21	3.34 ± 0.33	@@11.76 ± 4.20	4.06 ± 0.56	4.39 ± 1.01	3.62 ± 0.55	4.21 ± 0.38

*, @, #: Statistical Significant difference from premenopause ($p < 0.05$)

**, @@, ##: High statistical significant difference from premenopause ($p < 0.01$)

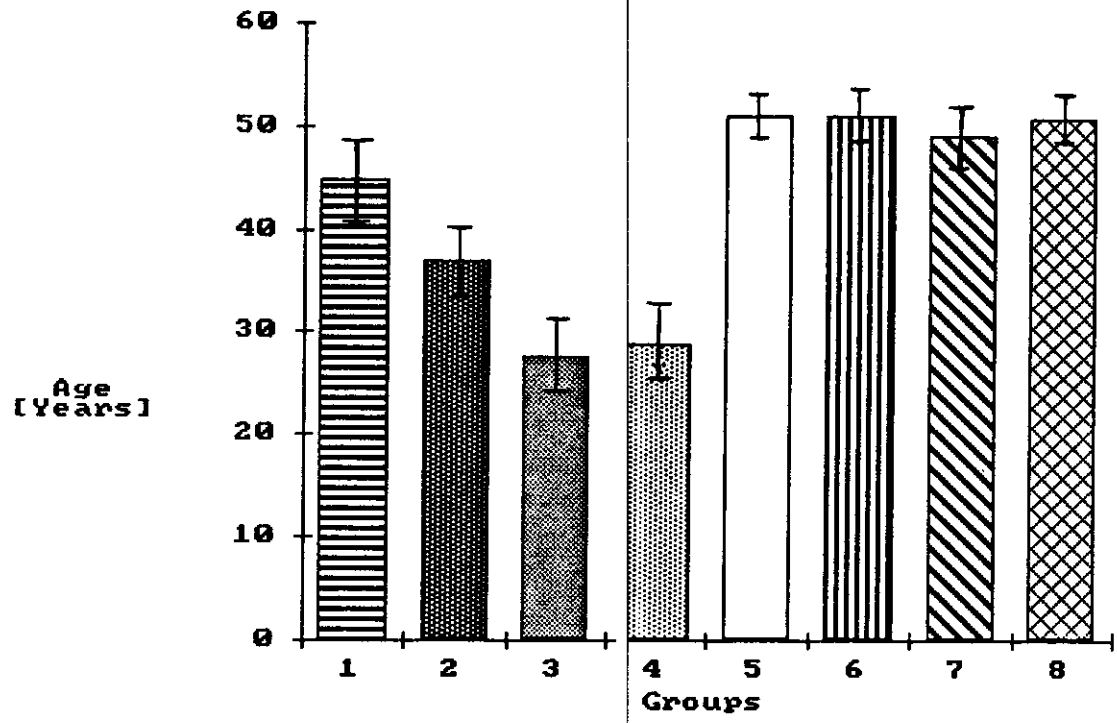


Fig. (1): Means of the age in the 8 groups. SEM

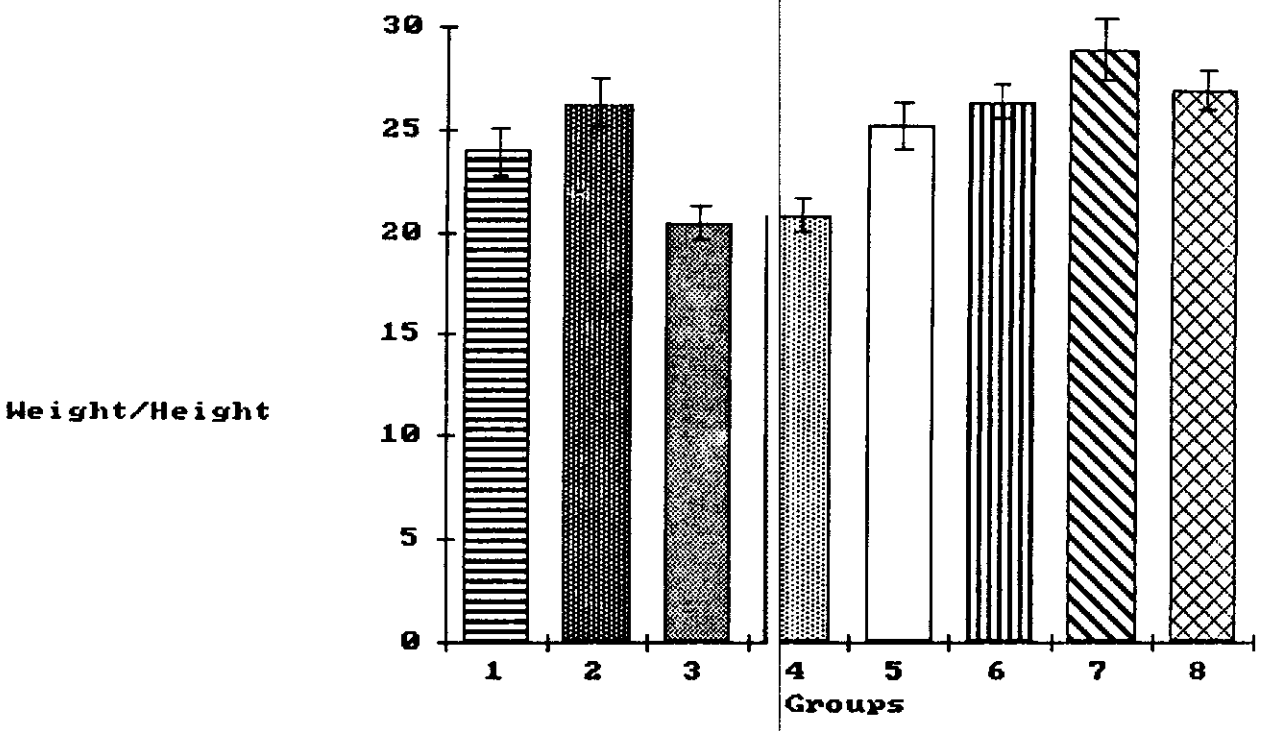


Fig. (2): Means of Weight/Height (index) in the 8 groups.

Table (13): Comparison between the 8 groups for fasti g blood sugar [mmol/l]

Number of groups	
Number of observations	20
Total mean	10.131
Total variance	6031.436

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	3395.6808	485.0973	35.3366
Within groups	192	2635.7551	13.7279	
Total	199	6031.4360		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	Fasting blood sugar [mmol/l]							
Group No.	3	4	5	7	8	6	2	1
Mean	17.072	14.994	11.710	11.466	7.962	7.252	5.330	5.264

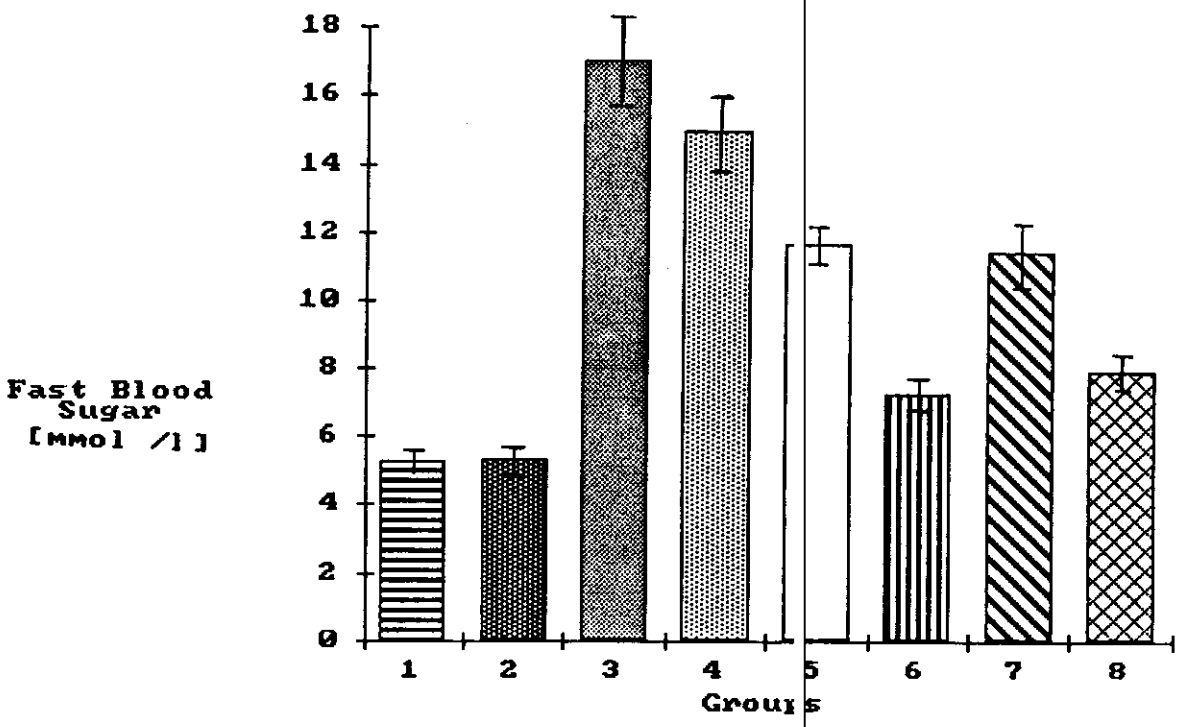


Fig. (3): Mean values of fasting lood sugar (mmol/l) in the 8 groups.
SEM I

Table (14): Comparison between the 8 gro ps for postprandial blood sugar

Number of groups	8
Number of observations	200
Total mean	13.3433
Total variance	9109.2246

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	5961.1104	851.5872	51.9374
Within groups	192	3148.1142	16.3964	
Total	199	9109.2246		

P < 0.01: Highly significant difference between at least 2 g roup means.

Duncan analysis for identification of significant groups.

Field	Post prandial blood sugar [m hol/l]							
Group No.	3	4	5	7	8	6	1	2
Mean	20.404	19.7988	17.4744	16.0194	11.1988	9.554	6.204	6.0832

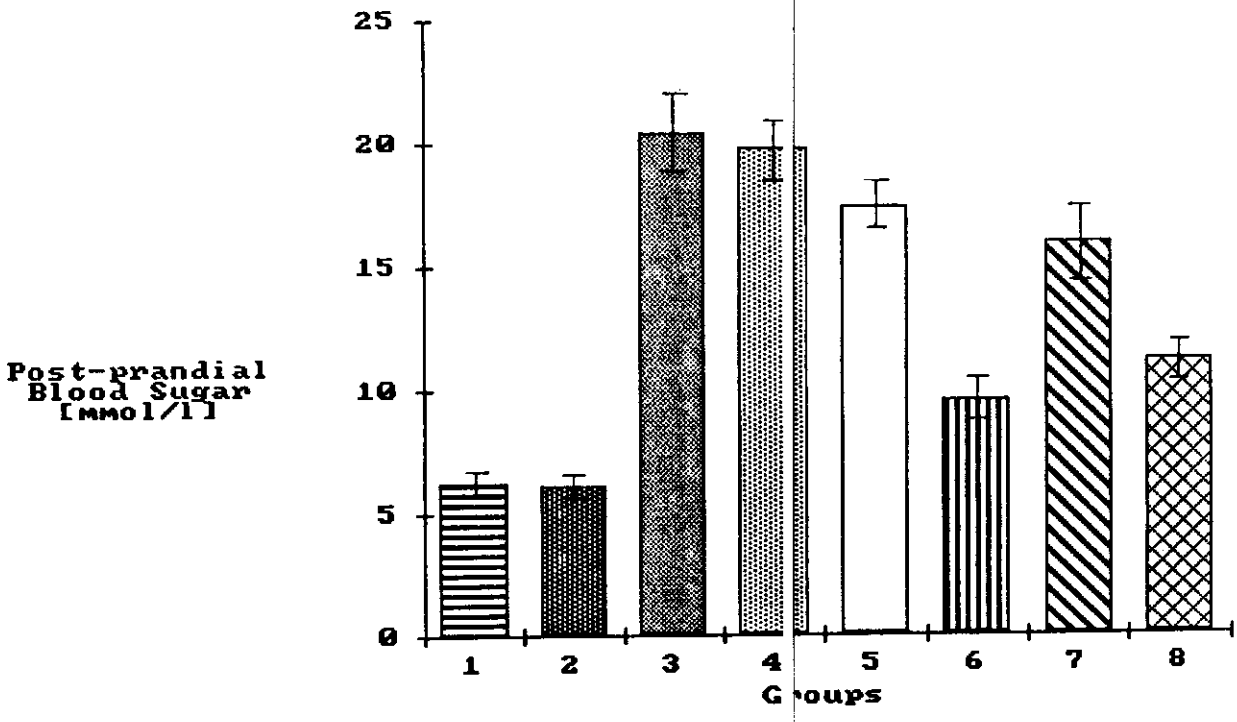


Fig. (4): Mean values of post-p andial blood sugar (mmol/l) in the 8 groups. SEM

Table (15): Comparison between the 8 groups for serum cholesterol [mmol/l]

Number of groups	8
Number of observations	200
Total mean	5.2377
Total variance	139.2631

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	10.6896	1.5271	2.2804
Within groups	192	128.5735	0.6697	
Total	199	139.2631		

P < 0.05: There exists a significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	serum cholesterol [mmol/l]							
Group No.	5	7	6	3	8	1	4	2
Mean	5.5998	5.4522	5.3908	5.284	5.2202	5.0892	5.024	4.8416

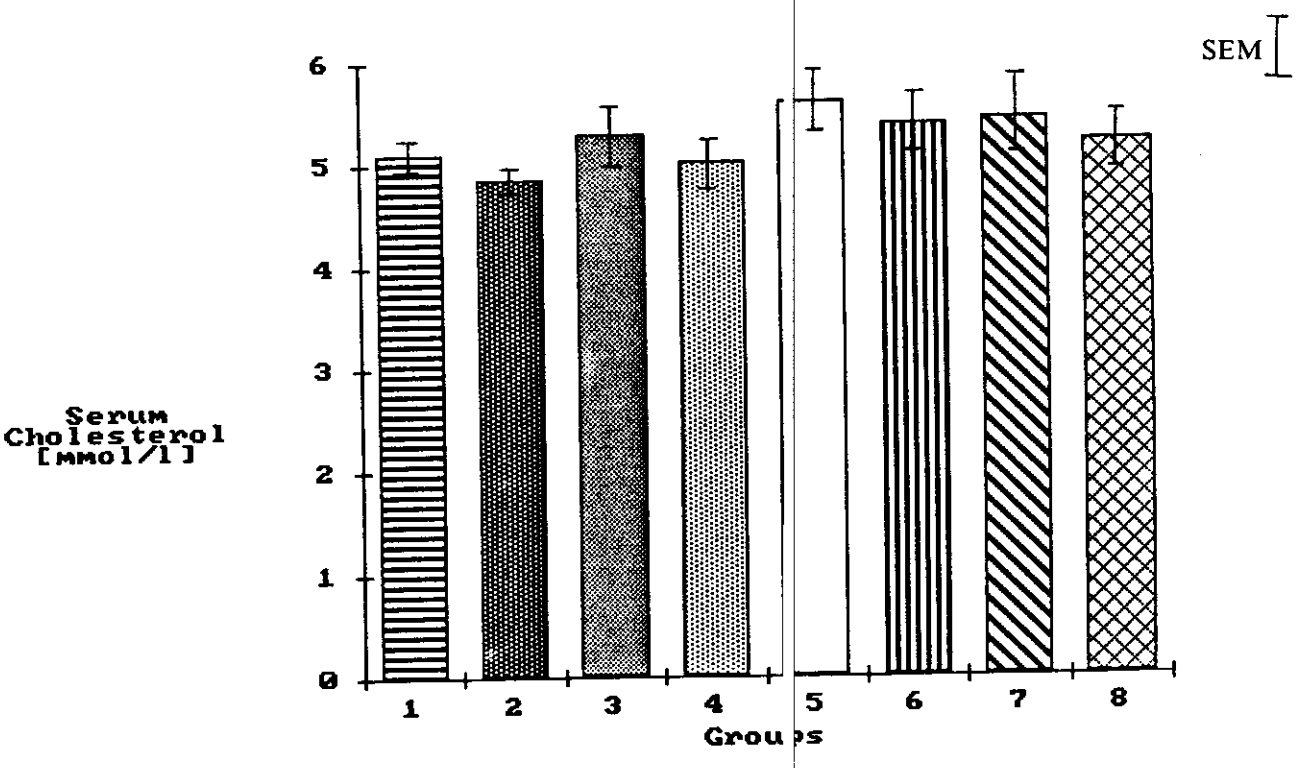


Fig. (5): Mean values of serum cholesterol (mmol/l) in the 8 groups.

Table (16): Comparison between the 8 groups for serum triglyceride [mmol/l]

Number of groups	8
Number of observations	200
Total mean	1.9169
Total variance	225.3785

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	77.3981	11.0569	14.3459
Within groups	192	147.9805	0.7707	
Total	199	225.3786		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Serum Triglyceride [mmol/l							
Group No.	4	3	7	8	5	6	1	2
Mean	3.0284	2.5302	2.1179	1.9592	1.808	1.7127	1.1852	0.9932

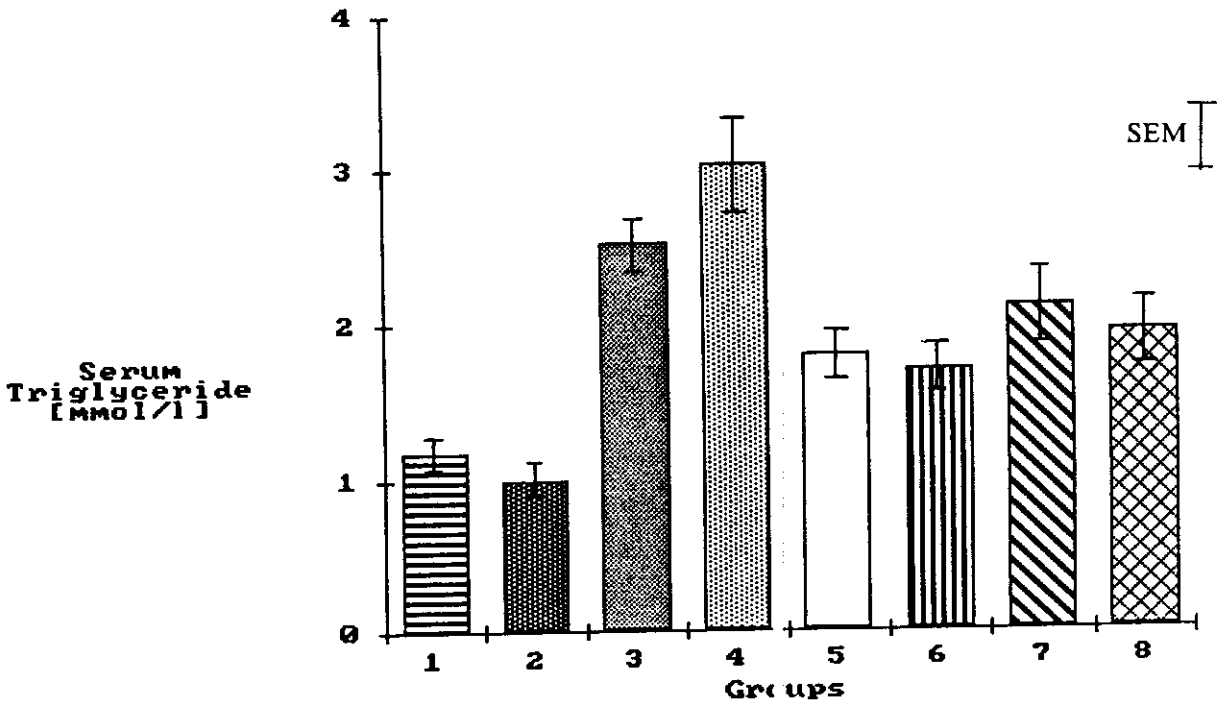


Fig. (6): Mean values of serum triglyceride (mmol/l) in the 8 groups.

Table (17): Comparison between the 8 groups for gl cosylated haemoglobin [%]

Number of groups	8
Number of observations	200
Total mean	9.1078
Total variance	4881.1901

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	3076.4846	439.4978	46.7575
Within groups	192	1804.7055	9.3995	
Total	199	4881.1901		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Glycosylated Haemoglobin %]							
Group No.	4	7	3	5	6	8	1	2
Mean	13.4856	13.0184	12.9224	12.3968	6.3256	6.1872	4.358	4.168

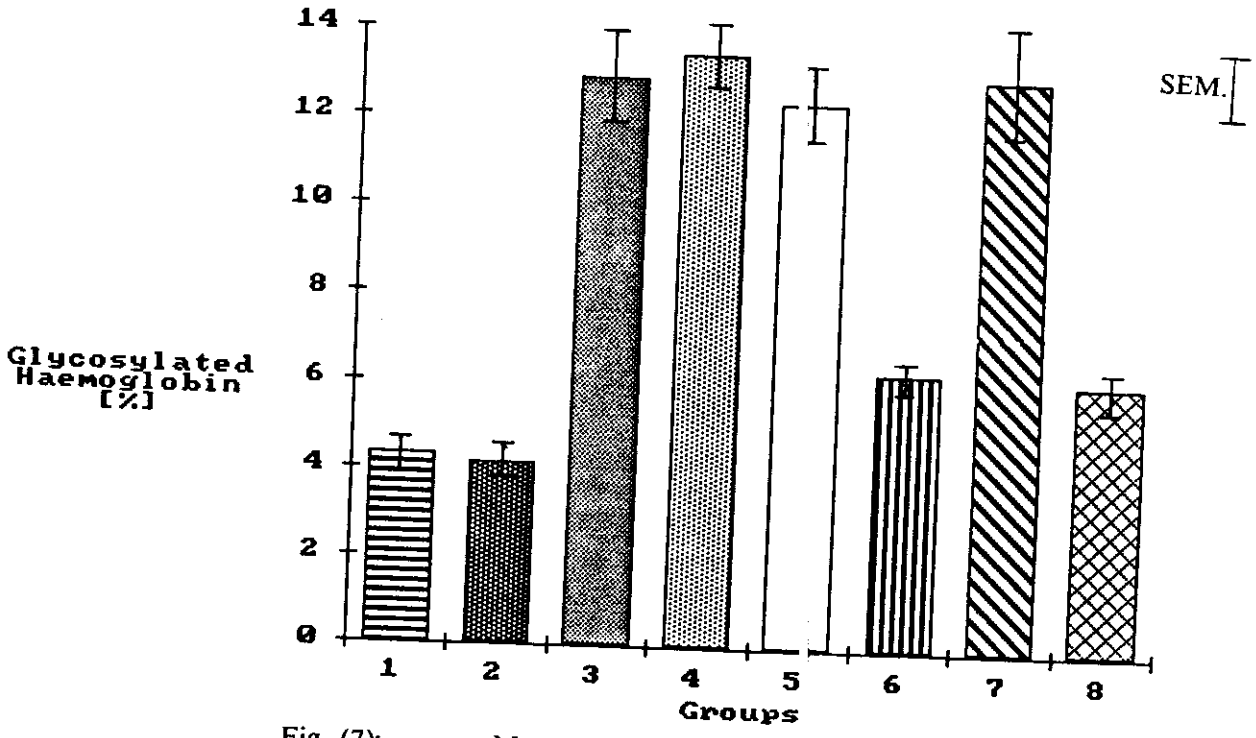


Fig. (7): Mean values of glycosyl ited haemoglobin (%) in the 8 goups.

Table (18): Comparison between the 8 groups for apolipoprotein B

Number of groups	8
Number of observations	200
Total mean	1.2[illegible]19
Total variance	11.3[illegible]77

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	1.7422	0.2489	4.9644
Within groups	192	9.6255	0.0501	
Total	199	11.3677		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Apolipoprotein B [mmol/l]							
Group No.	3	5	4	6	7	8	1	2
Mean	1.3848	1.3008	1.2902	1.2836	1.2652	1.2012	1.1357	1.0738

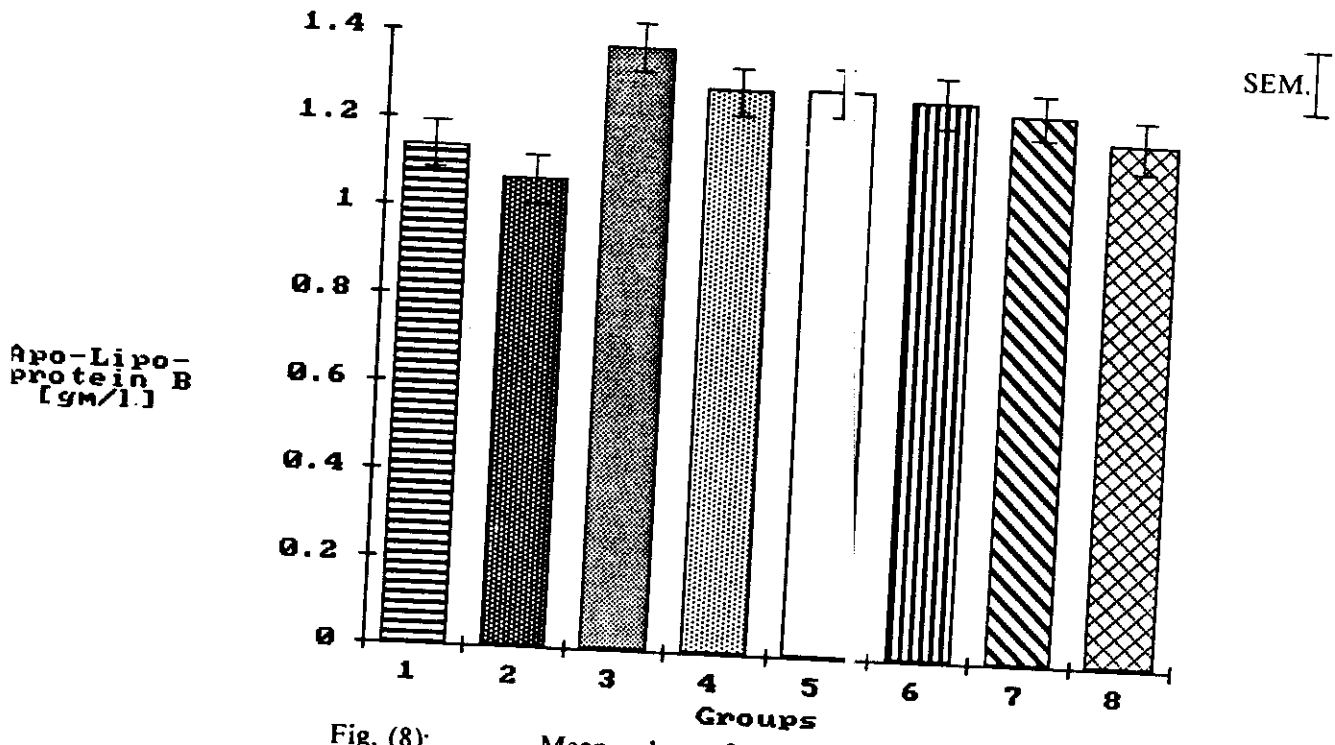


Fig. (8): Mean values of apolipoprotein β (gm/l) in the 8 groups.

Table (19): Comparison between the 8 groups for Anti- nsulin antibodies [serum dilution]

Number of groups	
Number of observations	20(
Total mean	44.000(
Total variance	1.29929e+0(

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	8.48823e+05	1.1260e+05	51.6844
Within groups	192	4.50465e+05	2146.1700	
Total	199	1.29929e+06		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	Anti-insulin Antibodies [seru n dilution]							
Group No.	3	4	7	5	8	6	2	1
Mean	160.00	153.28	14.4800	8.1600	5.3600	4.9600	2.8800	2.8800

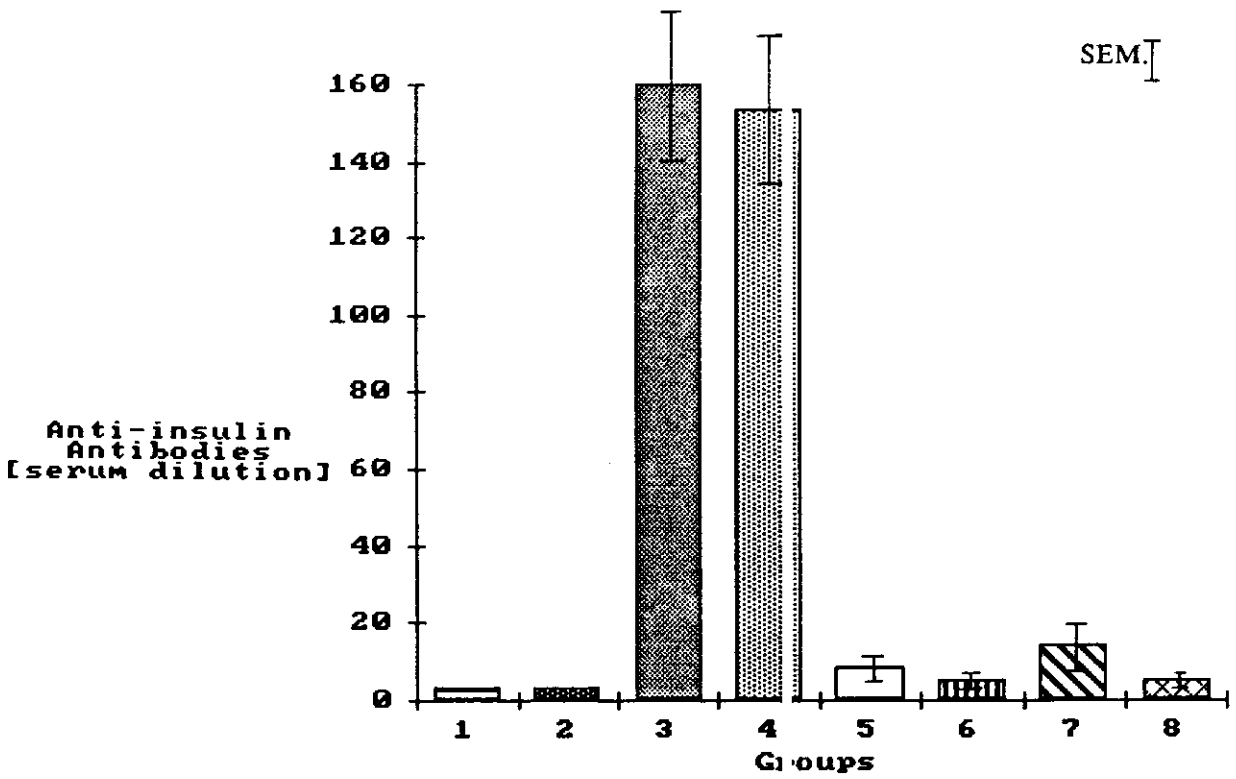


Fig. (9): Mean values of anti-insulin a ntibodies (serum dilution) in the 8 groups.

Table (20): Comparison between the 8 groups for α-lip protein [%]

Number of groups	
Number of observations	20(
Total mean	26.127
Total variance	1.07769e+04

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	1691.8056	41.6865	5.1077
Within groups	192	9085.1277	47.3184	
Total	199	1.07769e+04		

P < 0.01: Highly a significant difference between at least 2 roup means.

Duncan analysis for identification of significant groups.

Field	α-lipoprotein [%							
Group No.	2	1	7	8	4	6	5	3
Mean	32.9608	28.088	25.8115	25.5536	24.6256	24.6124	24.0236	23.3476

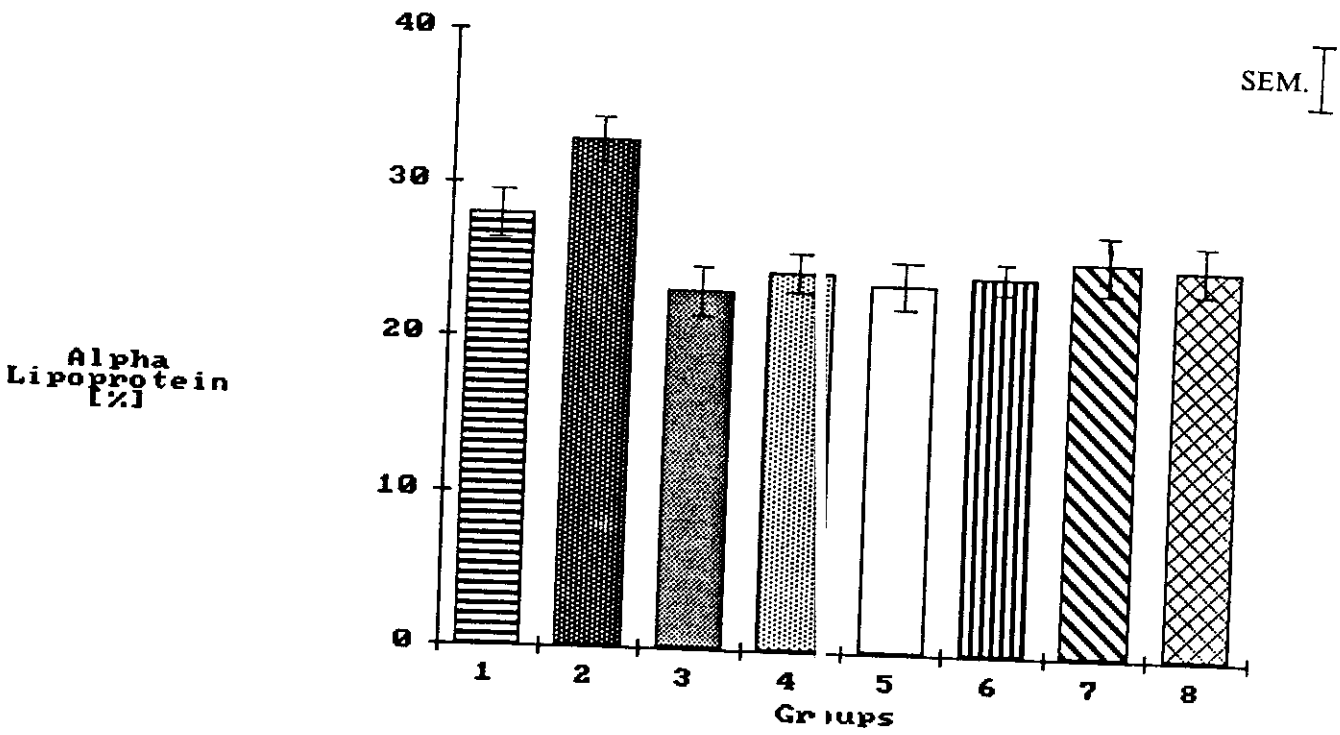


Fig. (10): Mean values o α lipoprotein (%) in the 8 groups.

Table (21): Comparison between the 8 groups for pre-β lipoprotein [%]

Number of groups	
Number of observations	20
Total mean	21.0644
Total variance	6577.579

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	1386.7187	198.1027	7.3274
Within groups	192	5190.8609	27.0357	
Total	199	6577.5795		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	Pre β- lipoprotein [%]							
Group No.	4	3	7	8		6	1	2
Mean	25.4384	24.6348	21.288	20.8408	20.178	19.9232	18.9147	16.9016

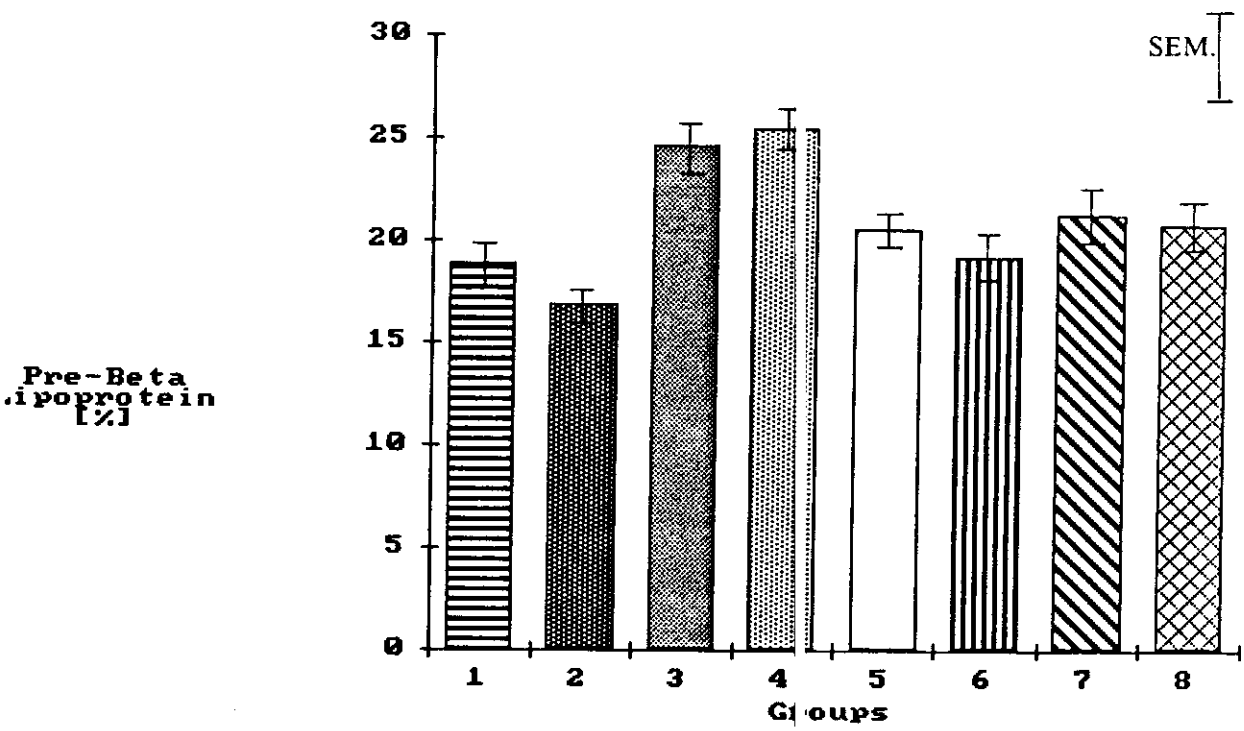


Fig. (11): Mean values of pre-β lipoprotein (%) in the 8 gorups

Table (22): Comparison between the 8 groups for β-lipoprotein [%]

Number of groups	8
Number of observations	200
Total mean	52.7411
Total variance	8329.7091

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	590.0481	84.2926	2.0911
Within groups	192	7739.6610	40.3107	
Total	199	8329.7091		

P < 0.05: There exists a significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	β-lipoprotein [%]							
Group No.	5	6	8	1	7	3	4	2
Mean	55.3628	54.8820	53.4352	52.75	52.1924	52.0122	50.6616	50.1324

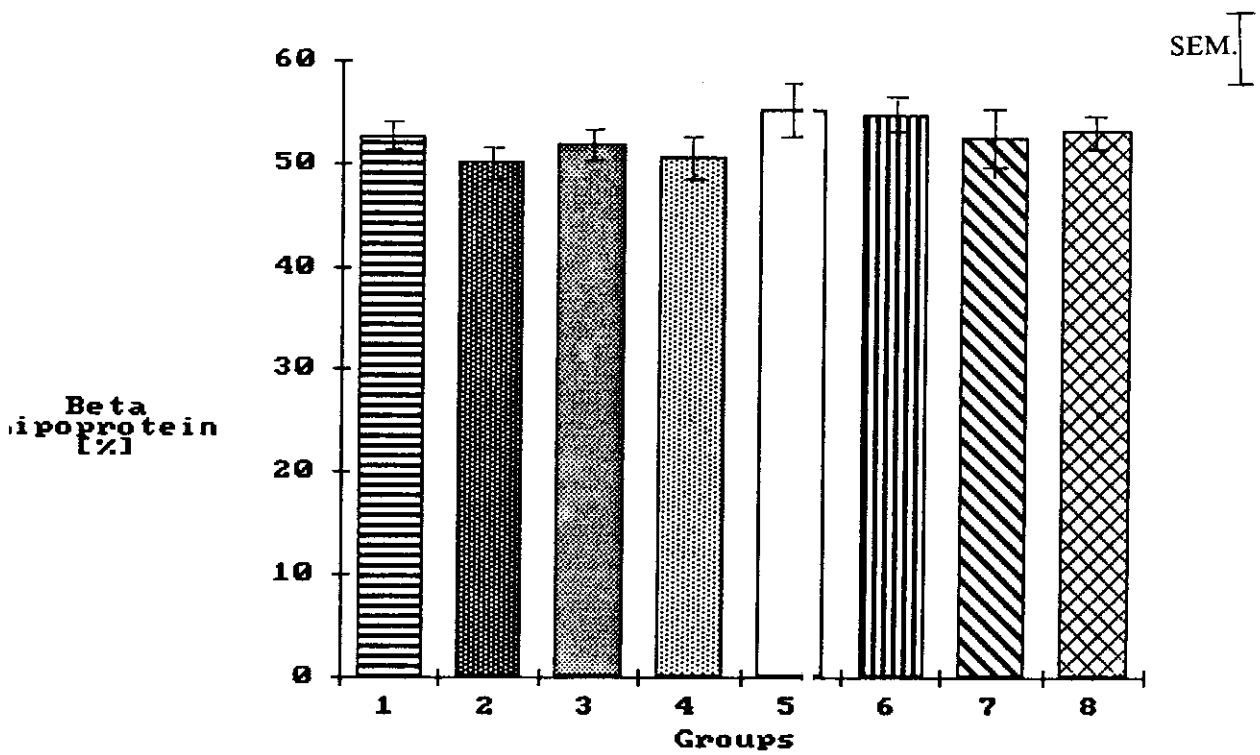


Fig. (12): Mean values of β lipoprotein (%) in the 8 groups.

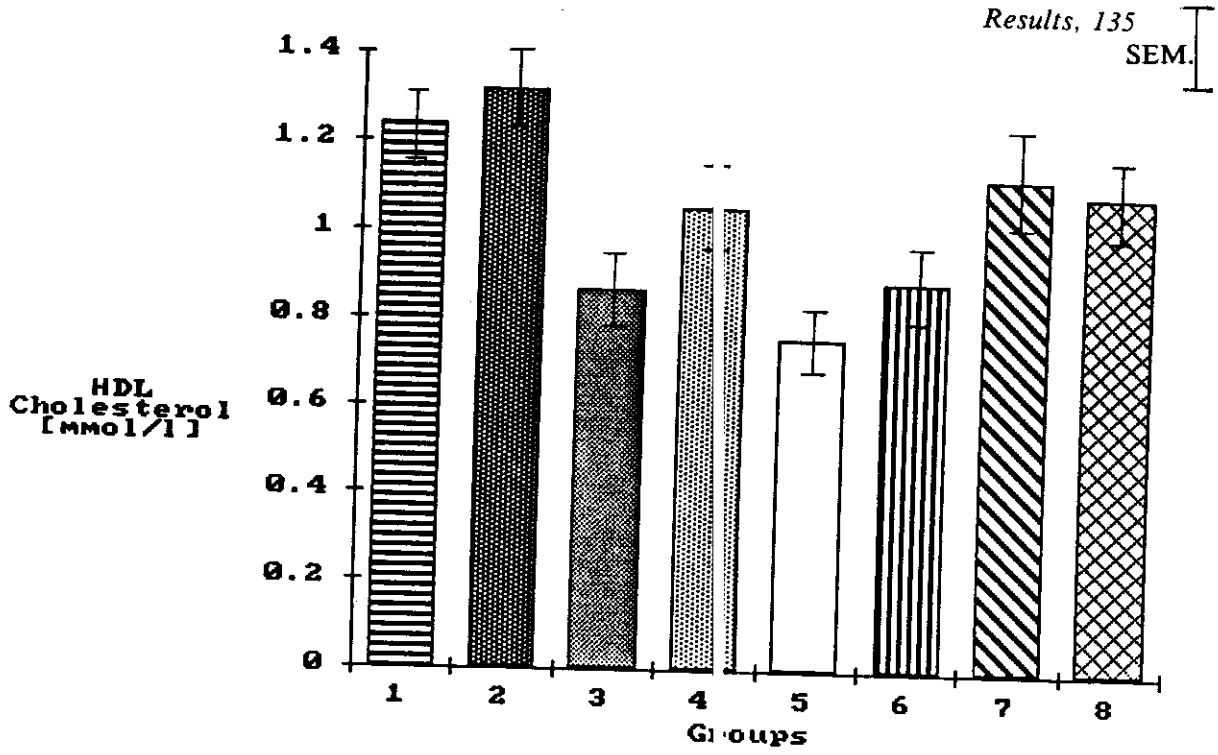


Fig. (13): Mean values of HDL cholesterol (mmol/l) in the 8 groups.

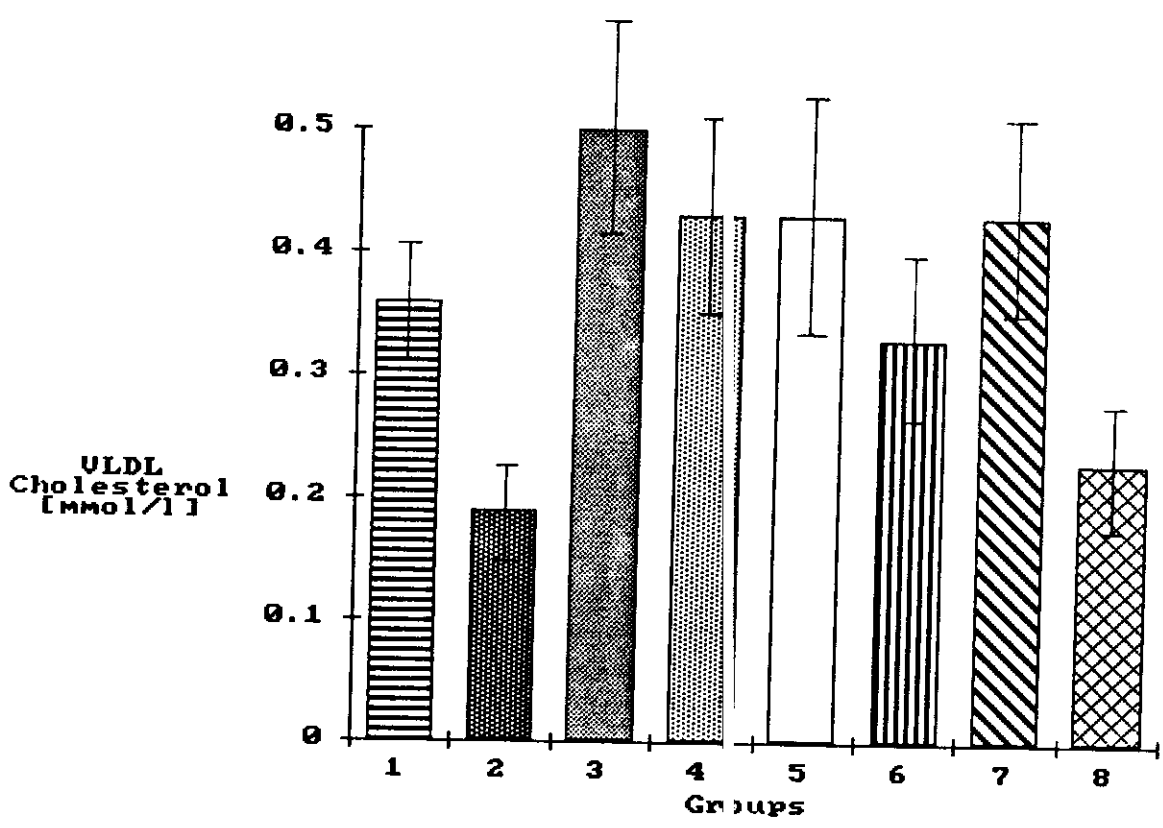


Fig. (14): Mean values of VLDL cholesterol (mmol/l) in the 8 groups.

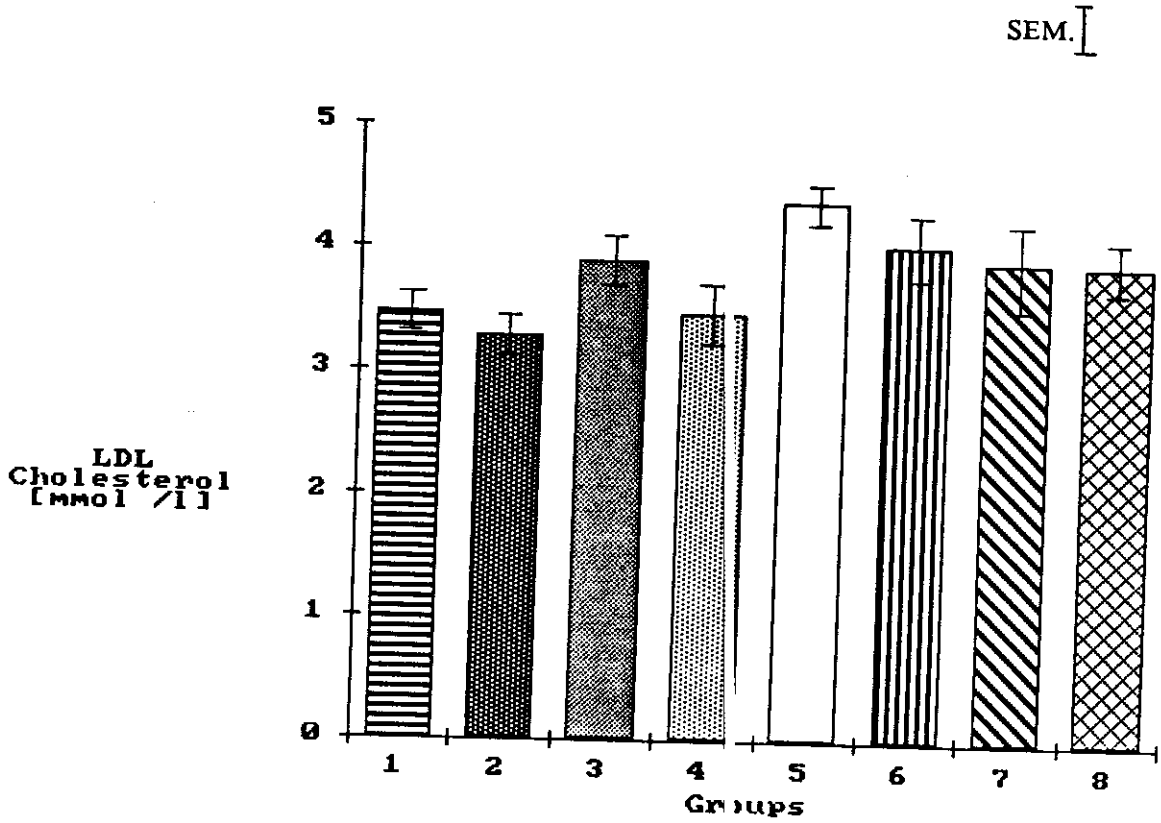


Fig. (15): Mean values of LDL cholesterol (mmol/l) in the 8 groups.

Table (23): Comparison between the 8 groups for HDL cholesterol [%]

Number of groups	8
Number of observations	200
Total mean	20.3130
Total variance	1.4084e+04

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	3688.5142	526.9306	9.7317
Within groups	192	1.03959e+04	54.1455	
Total	199	1.40845e+04		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	HDL cholesterol [%]							
Group No.	2	1	4	8	7	6	3	5
Mean	27.6052	24.2727	22.1228	21.0716	20.7268	16.8248	16.4824	13.3976

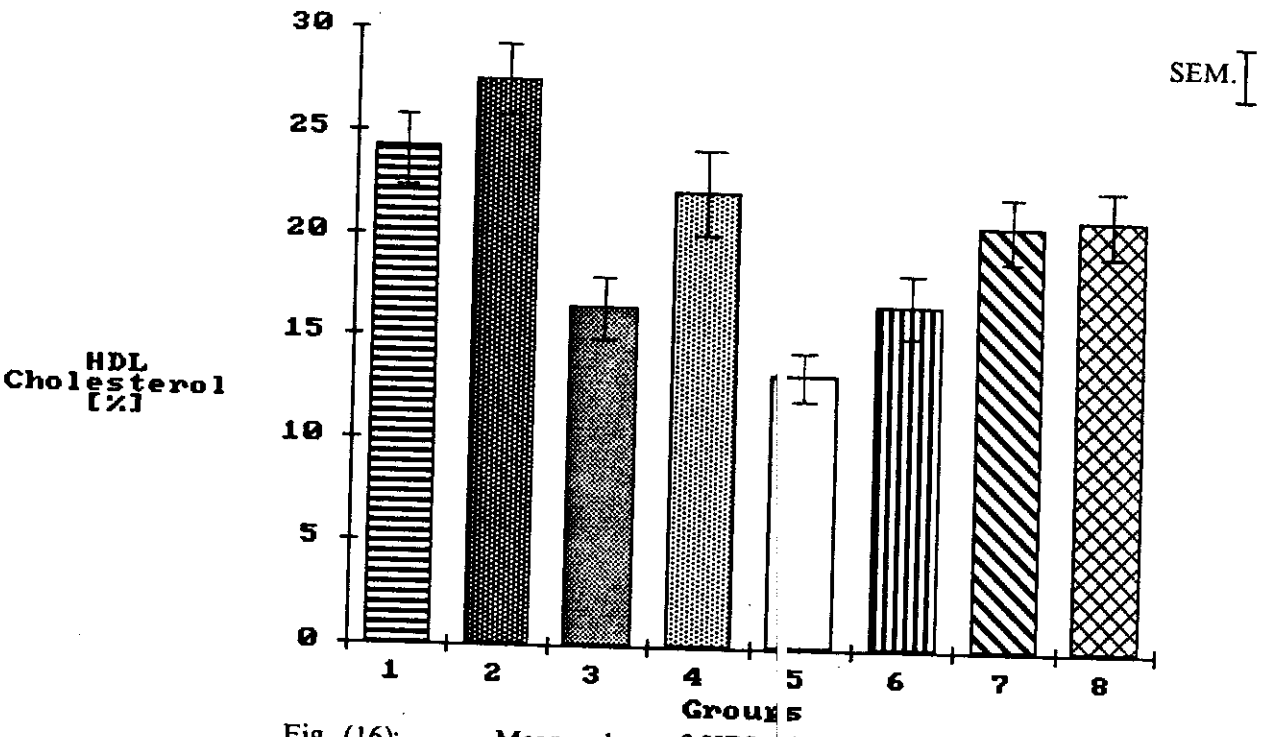


Fig. (16): Mean values of HDL cholesterol (%) in the 8 groups.

Table (24): Comparison between the 8 groups for VLDL cholesterol [%]

Number of groups	8
Number of observations	200
Total mean	6.9028
Total variance	8688.5613

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	666.1486	95.1641	2.2776
Within groups	192	8022.4127	41.7834	
Total	199	8688.5613		

P < 0.05: There exists a significant difference between a least 2 group means.

Duncan analysis for identification of significant groups.

Field	VLDL Cholesterol [%]							
Group No.	3	4	7	5	1	6	8	2
Mean	9.6044	8.9508	7.7688	7.1339	7.0779	6.1080	4.4081	4.1708

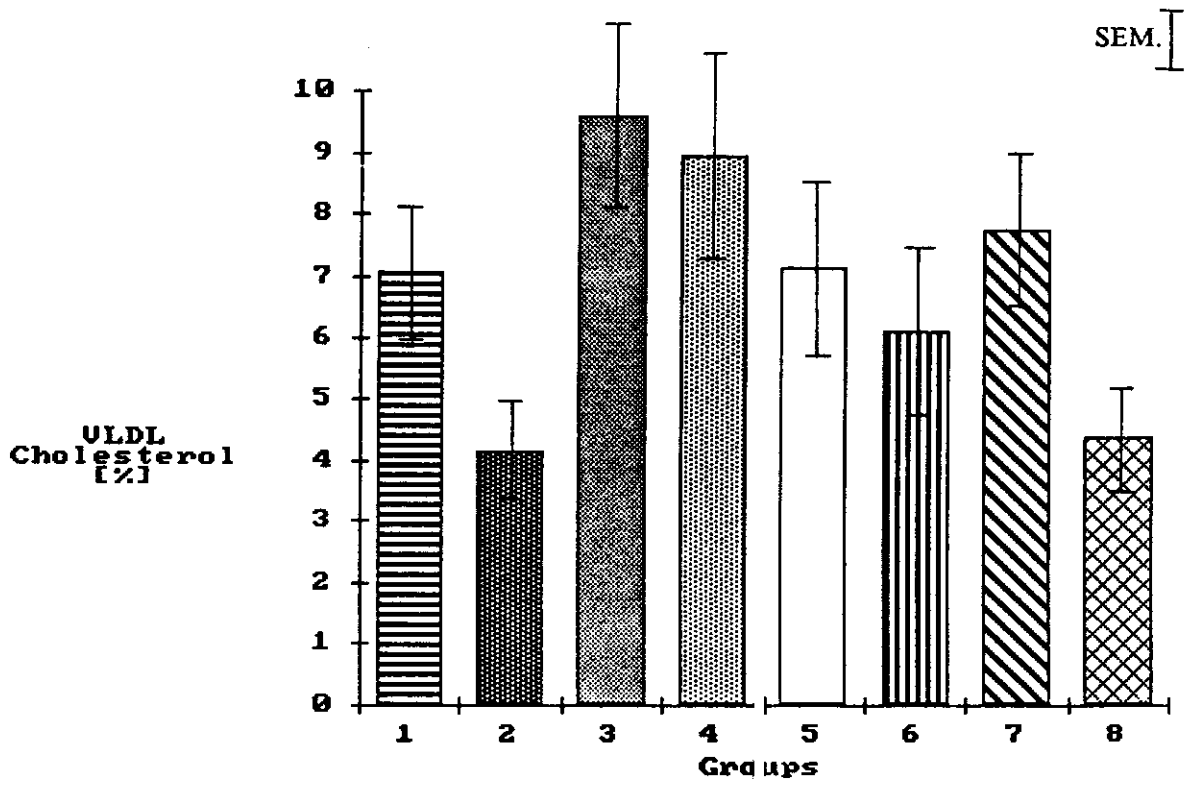


Fig. (17): Mean values of VLDL cholesterol (%) in the 8 groups.

Table (25): Comparison between the 8 groups for LDL cholesterol [%]

Number of groups	8
Number of observations	200
Total mean	72.5119
Total variance	2.10559e+04

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	3509.5980	501.3711	5.4862
Within groups	192	1.75463e+04	91.3872	
Total	199	2.10559e+04		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	LDL cholesterol [%]							
Group No.	5	6	8	3	7	4	1	2
Mean	79.2313	77.0436	74.486	73.9156	71.3148	68.8776	68.5516	66.2308

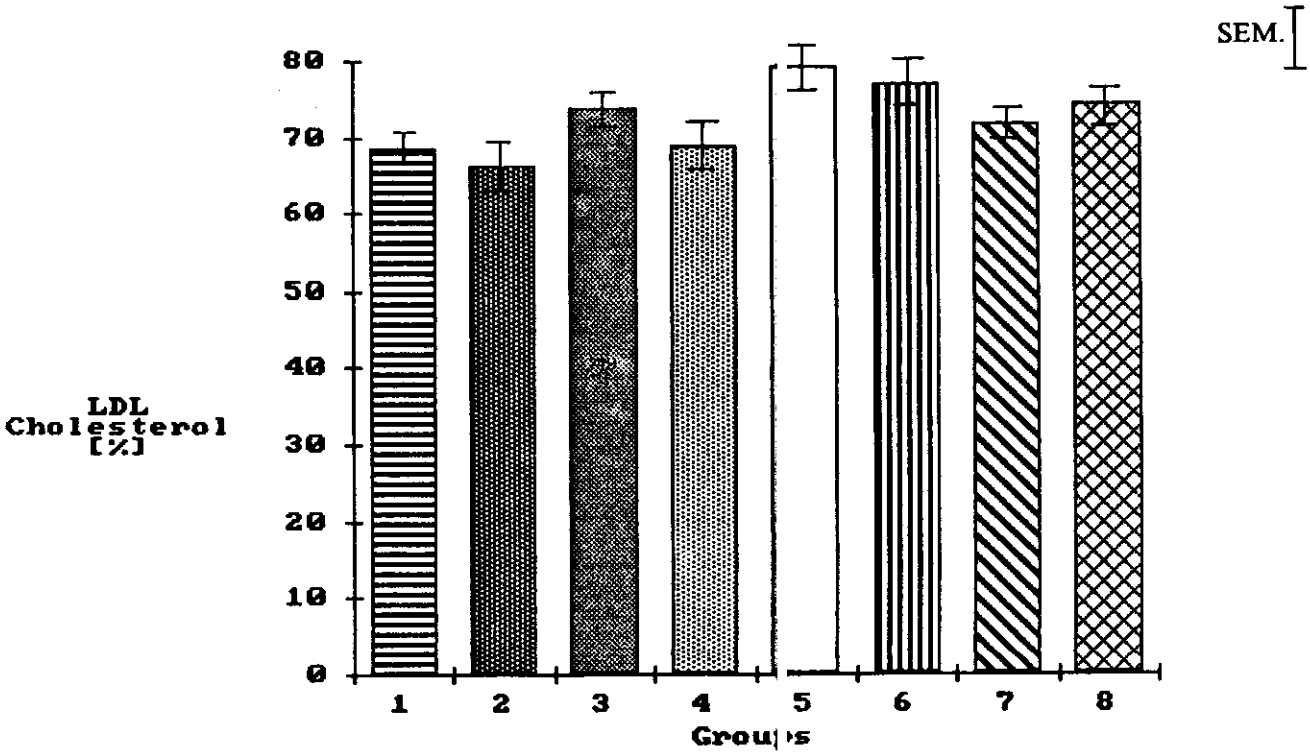


Fig. (18): Mean values of LDL cholesterol (%) in the 8 groups.

Table (26): Comparison between the 8 groups for tota l cholesterol/HDL cholesterol

Number of groups	8
Number of observations	200
Total mean	6.006
Total variance	2328.2458

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	395.1372	56.4482	5.5773
Within groups	192	1933.1096	10.1210	
Total	199	2328.2468		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Total cholesterol/HDL chole terol							
Group No.	5	6	3	4	7	8	1	2
Mean	8.3981	7.3048	6.9552	6.2092	5.7348	5.2223	4.416	3.8924

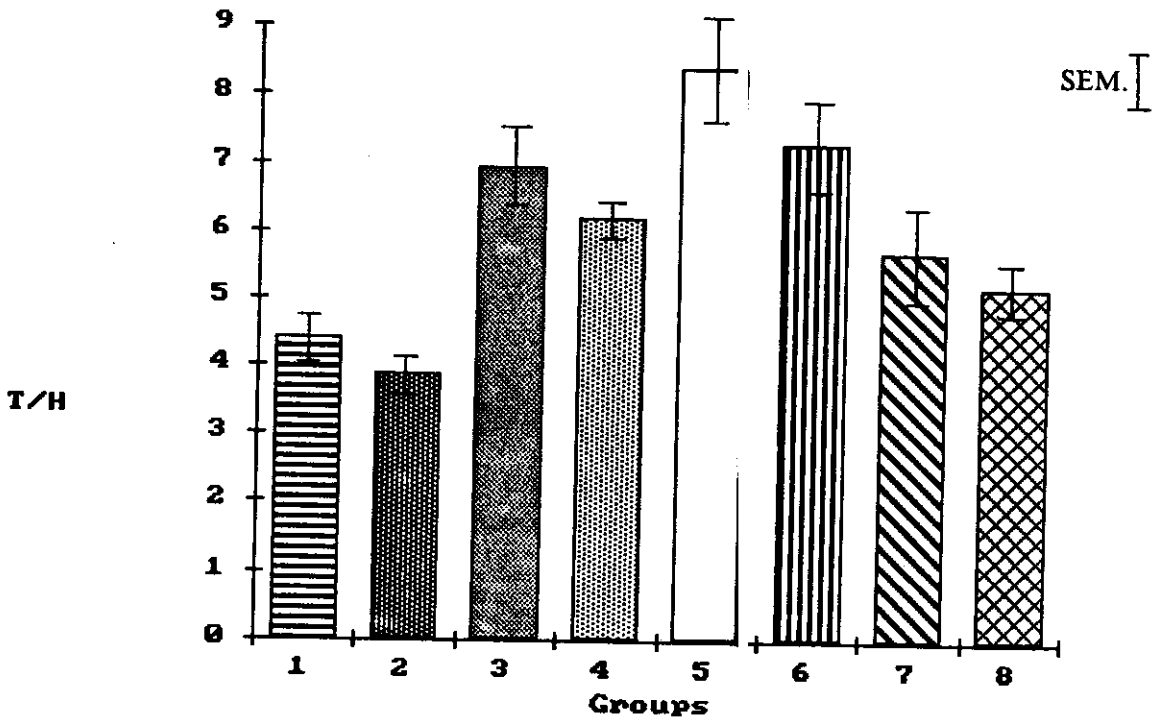


Fig. (19): Mean values of total cholester l/HDL cholesterol in the 8 groups.

Table (27): Comparison between the 8 groups for LDL cholesterol/HDL cholesterol

Number of groups	8
Number of observations	200
Total mean	4.518
Total variance	1665.817

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	7	312.7758	44.6823	6.3405
Within groups	192	1353.0418	7.0471	
Total	199	1665.8175		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	LDL cholesterol/HDL cholesterol							
Group No.	5	6	3	4	7	8	1	2
Mean	6.6954	5.85	5.2584	4.3536	4.2724	3.9954	3.0798	2.7268

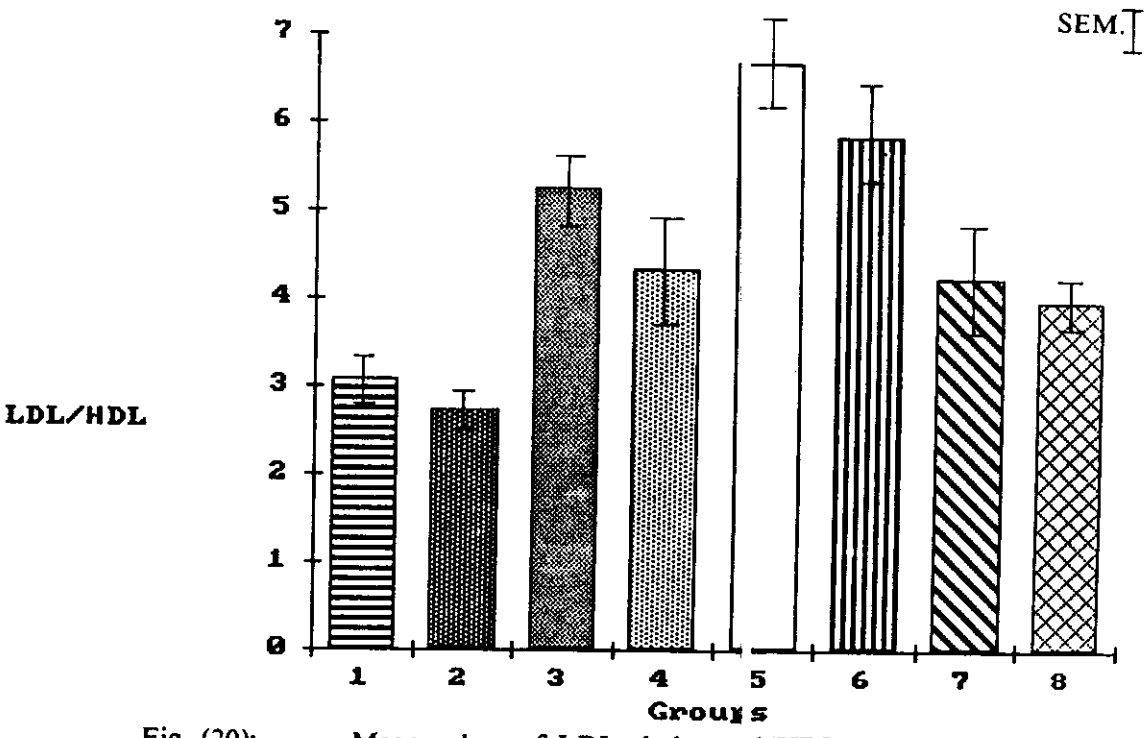
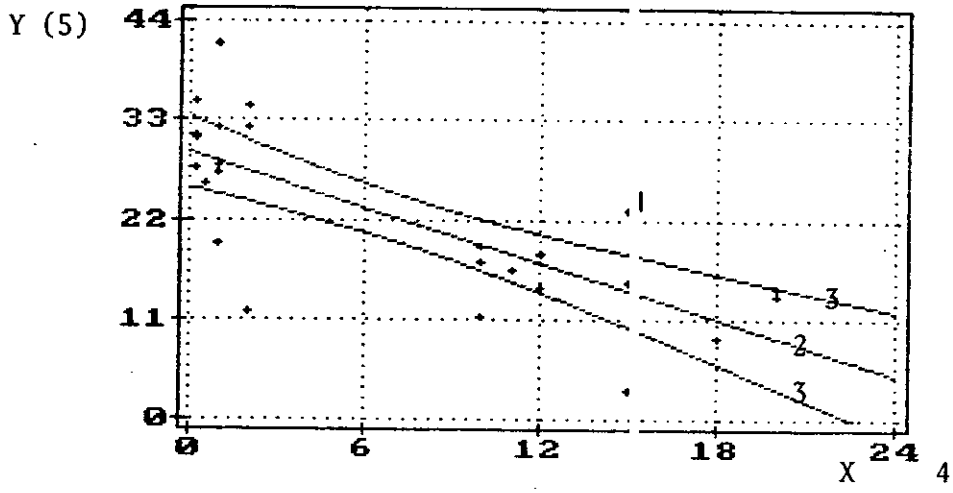


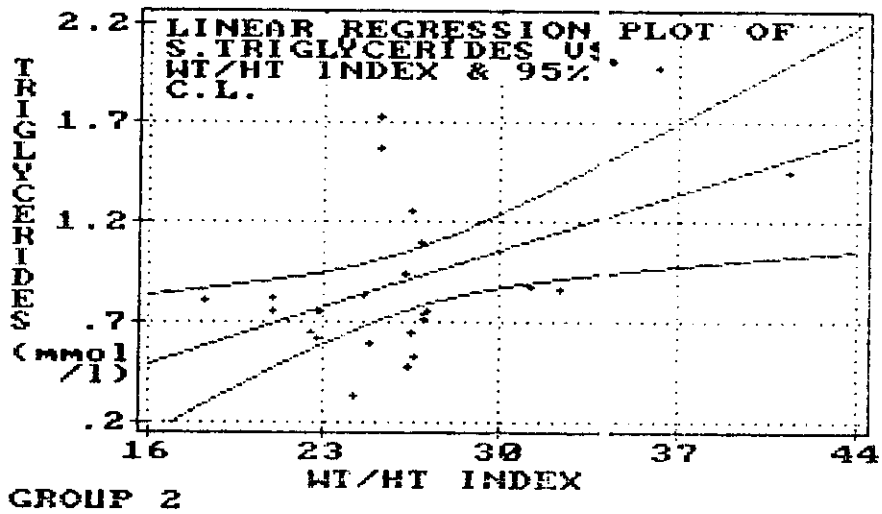
Fig. (20): Mean values of LDL cholesterol/HDL cholesterol in the 8 groups.

Fig. (21) : Model of linear regression.



1. Scater plot.
2. Line of regression.
3. 95% confedence limits.
4. X axis.
5. Y axis.

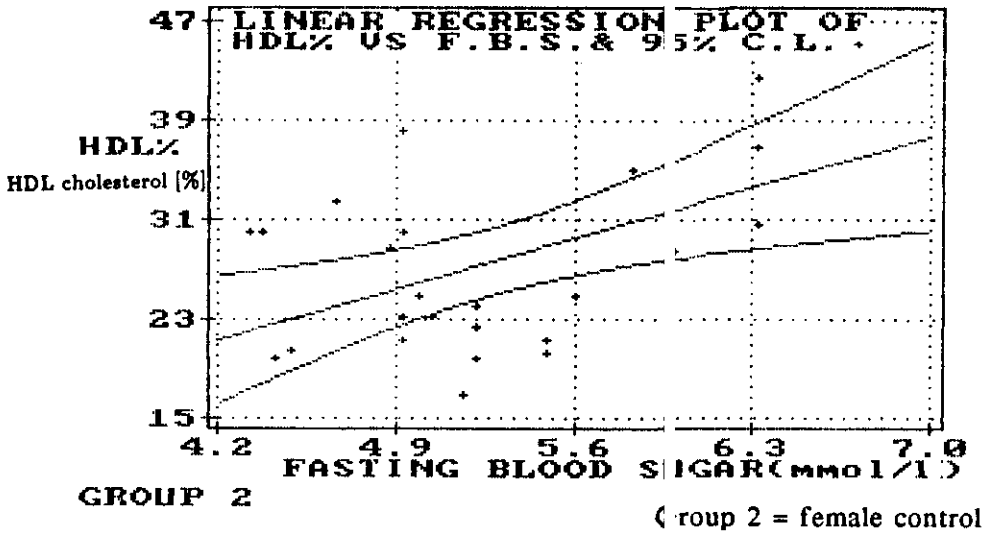
Fig. (22)



r = 0.4930
β_0 = - 0.0700
β_1 = 0.0405

F - Test = 7.3855 [P < 0.05]

Fig. (23)

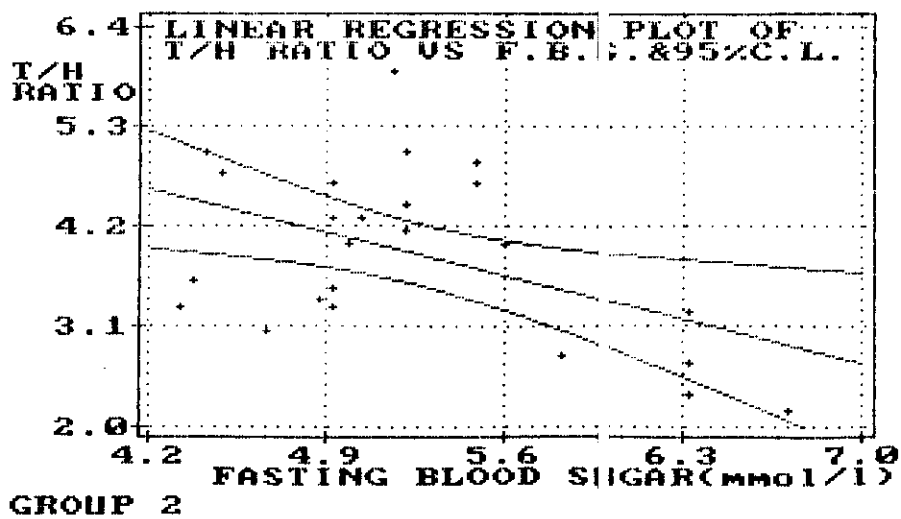


Group 2 = female control

r = 0.5190
β_o = - 3.4895
β_1 = 5.8335

F - Test = 8.4790 [P < 0.05]

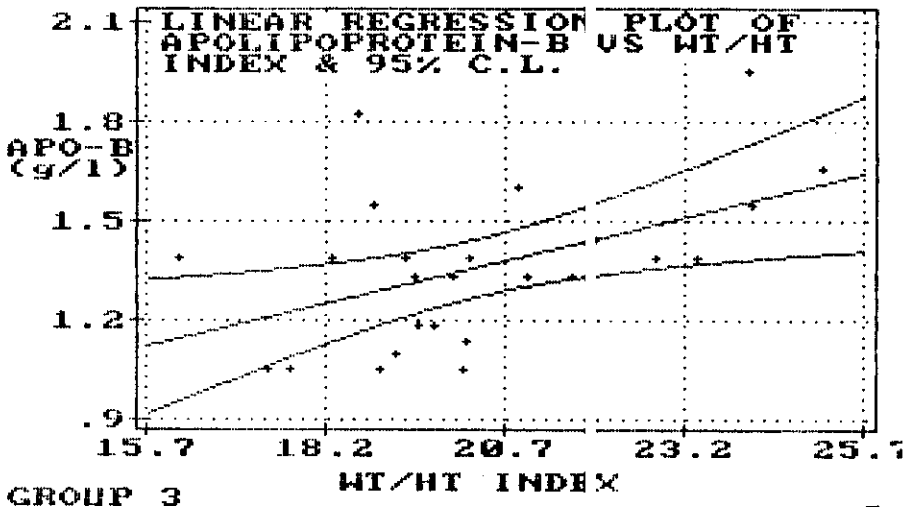
Fig. (24)



r = - 0.4834
β_o = 7.4975
β_1 = - 0.6763

F - Test = 7.0128 [P < 0.05]

Fig. (25)

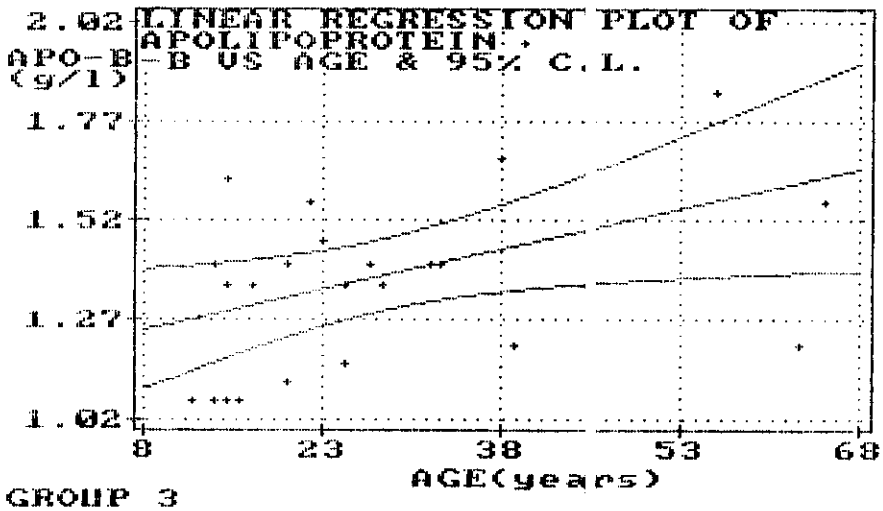


Group 3 = IDD ♂

r = 0.4821
β_o = 0.3141
β_1 = 0.0524

F - Test = 7.3484 [P < 0.05]

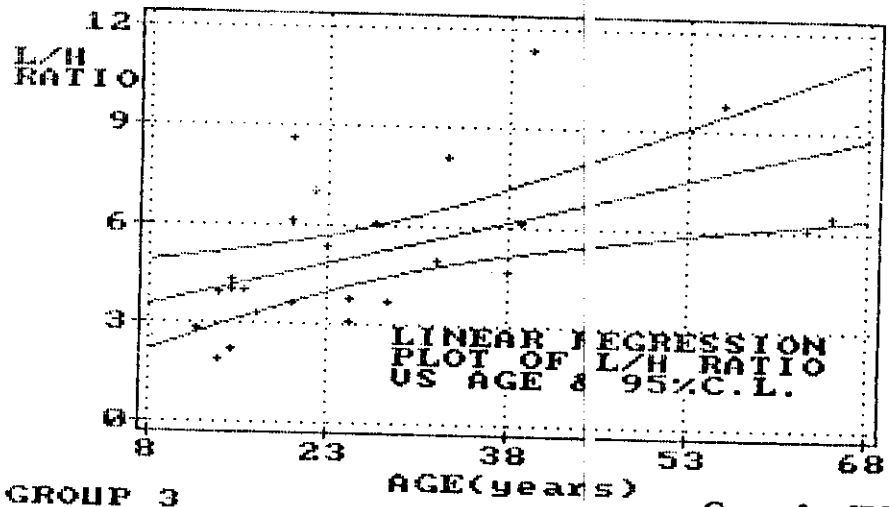
Fig. (26)



r = 0.4314
β_o = 1.1956
β_1 = 0.0068

F - Test = 5.2581 [P < 0.05]

Fig. (27)

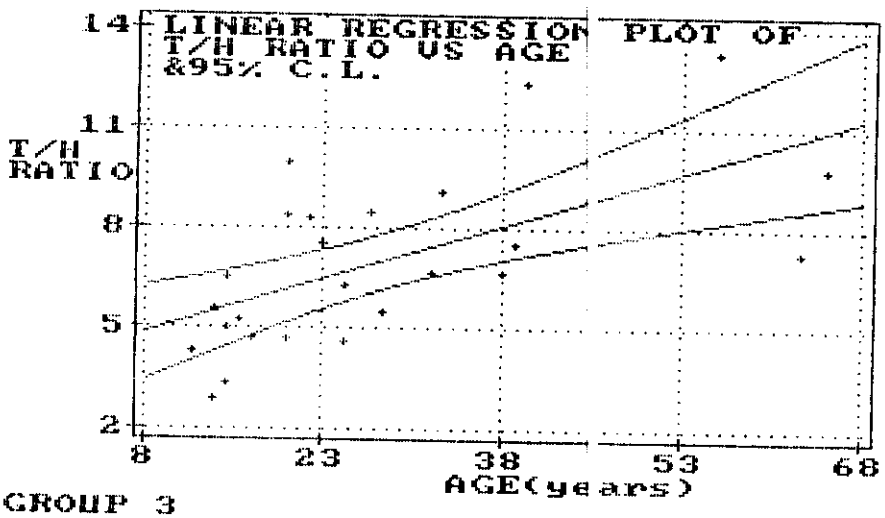


Group 3 = IDD ♂

r = 0.5607
β_o = 2.8399
β_1 = 0.0871

F - Test = 10.5471 [P < 0.05]

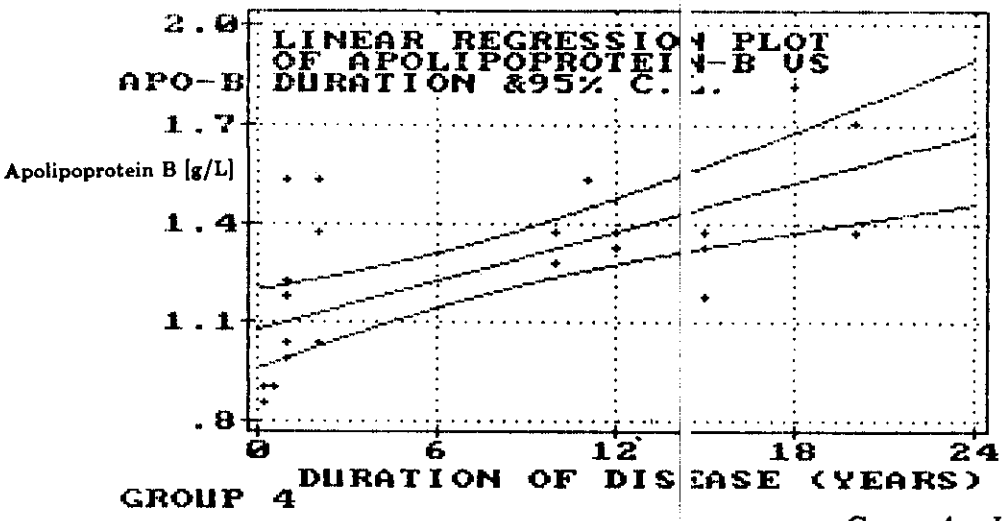
Fig. (28)



r = 0.6314
β_o = 3.9328
β_1 = 0.1089

F - Test = 15.2445 [P < 0.05]

Fig. (29)

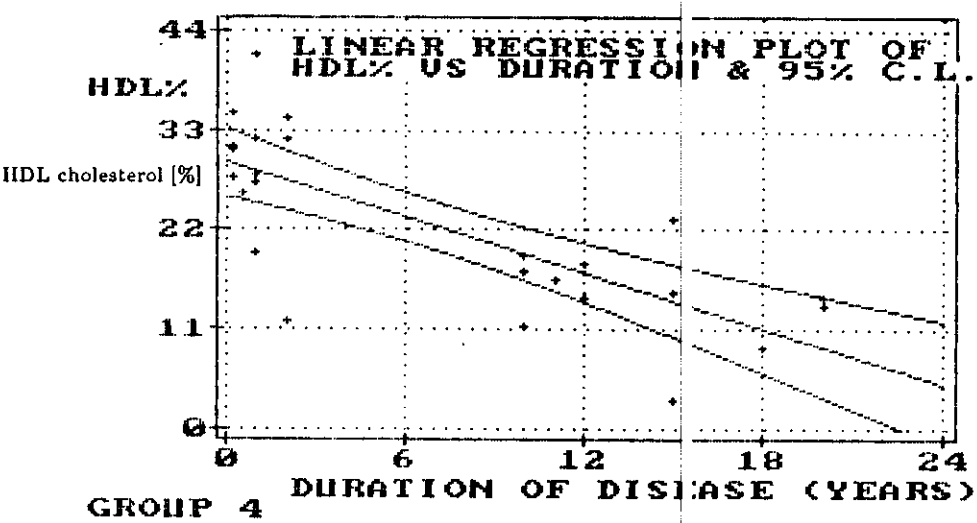


Group 4 = IDD ♀

r = 0.6703
β_o = 1.1098
β_1 = 0.0250

F - Test = 18.7640 [P < 0.05]

Fig. (30)

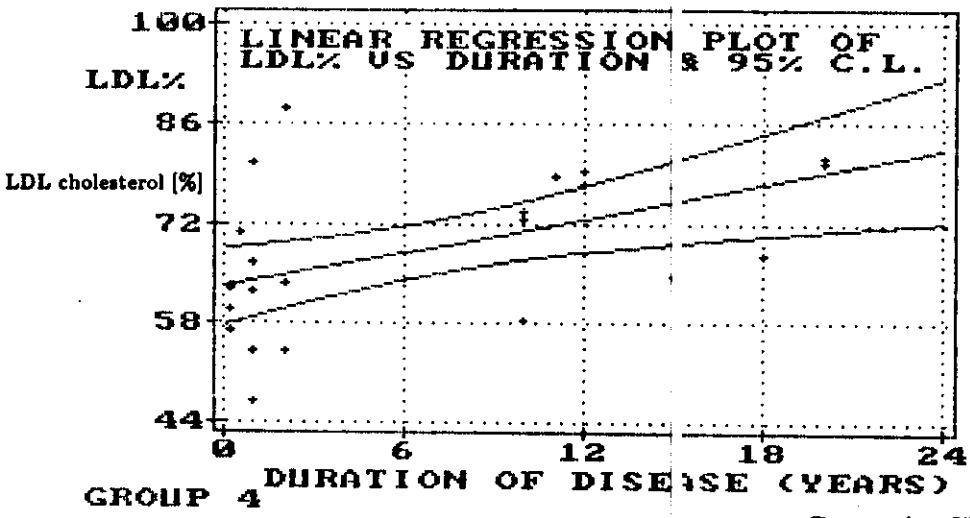


Group 4 = IDD ♀

r = - 0.7549
β_o = 29.5271
β_1 = - 1.0255

F - Test = 30.4770 [P < 0.05]

Fig. (31)

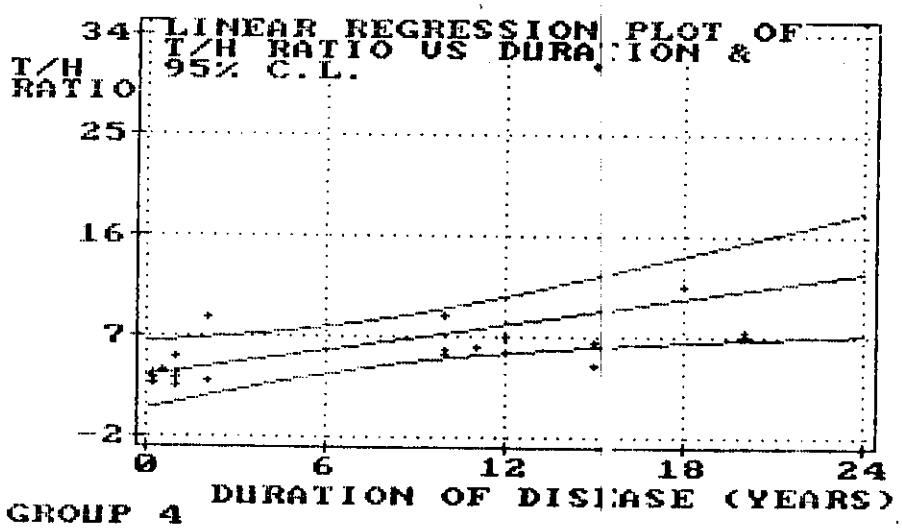


Group 4 = IDD ♀

r = 0.5295
β_o = 63.0311
β_1 = 8.9596

F - Test = 8.9596 [P < 0.05]

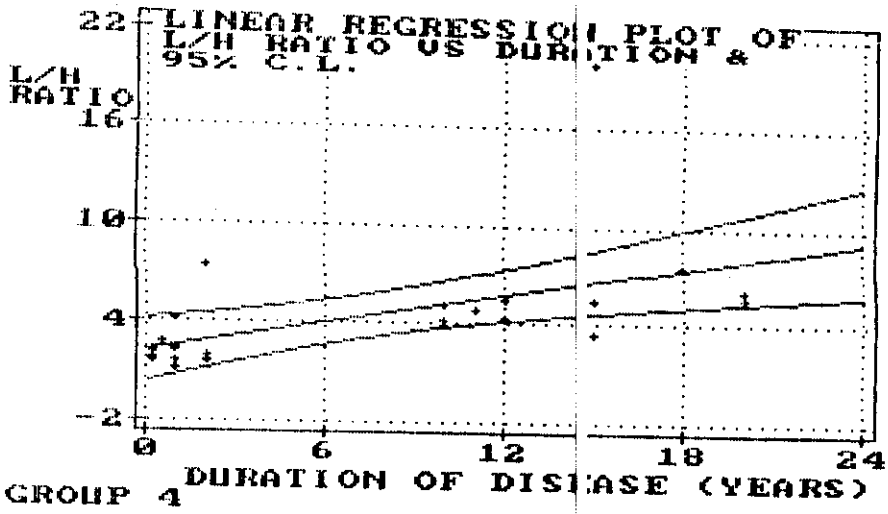
Fig. (32)



r = 0.4798
β_o = 3.4478
β_1 = 0.3825

F - Test = 6.8800 [P < 0.05]

Fig. (33)

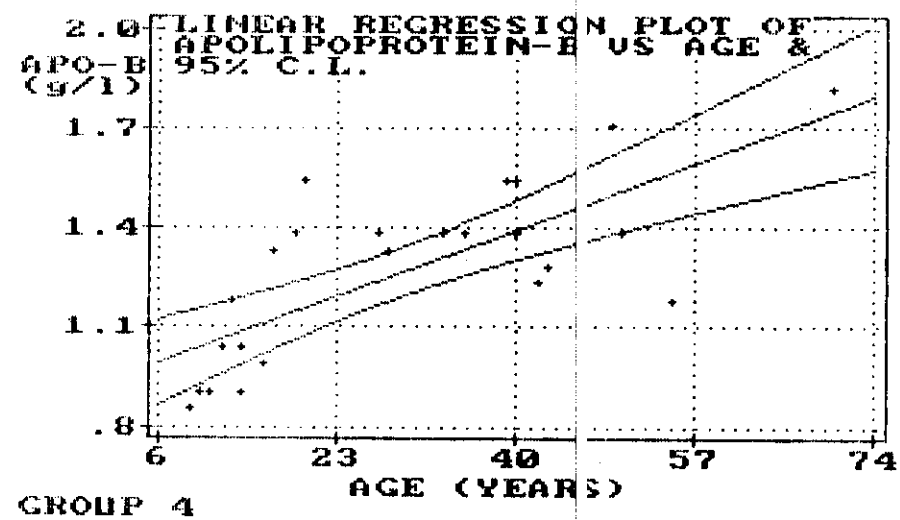


Group 4 = IDD ♀

r = 0.5464
β_o = 2.2607
β_1 = 0.2899

F - Test = 9.7875 [P < 0.05]

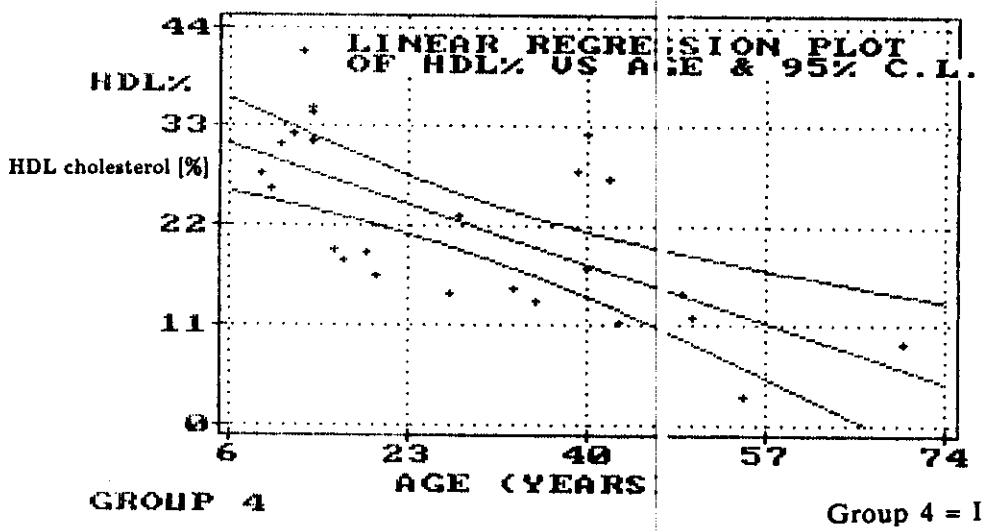
Fig. (34)



r = 0.7421
β_o = 0.8515
β_1 = 0.0118

F - Test = 28.1842 [P < 0.05]

Fig. (35)

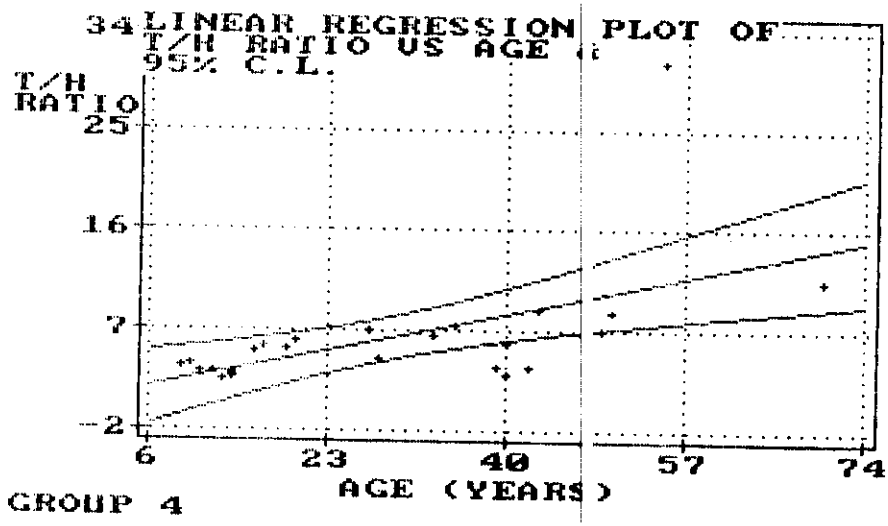


Group 4 = IDD ♀

r = - 0.6709
β_o = 33.2840
β_1 = - 0.3875

F - Test = 18.8268 [P < 0.05]

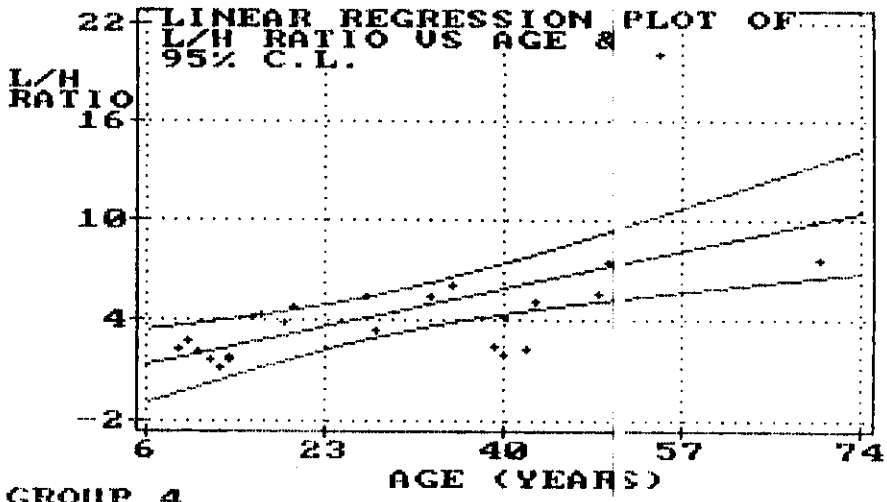
Fig. (36)



r = 0.5772
β_o = 0.5750
β_1 = 0.1916

F - Test = 11.4916 [P < 0.05]

Fig. (37)

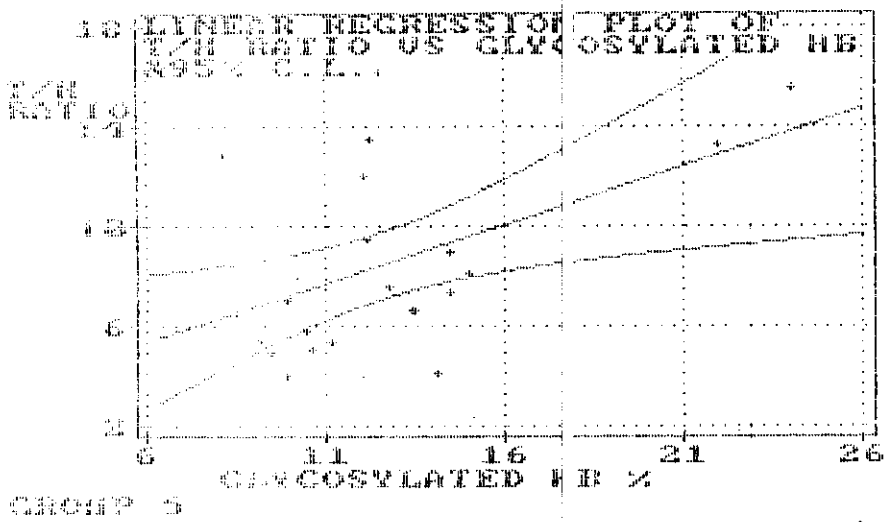


Group 4 = IDD ♀

r = 0.6046
β_o = 0.4253
β_1 = 0.1364

F - Test = 13.2518 [P < 0.05]

Fig. (38)

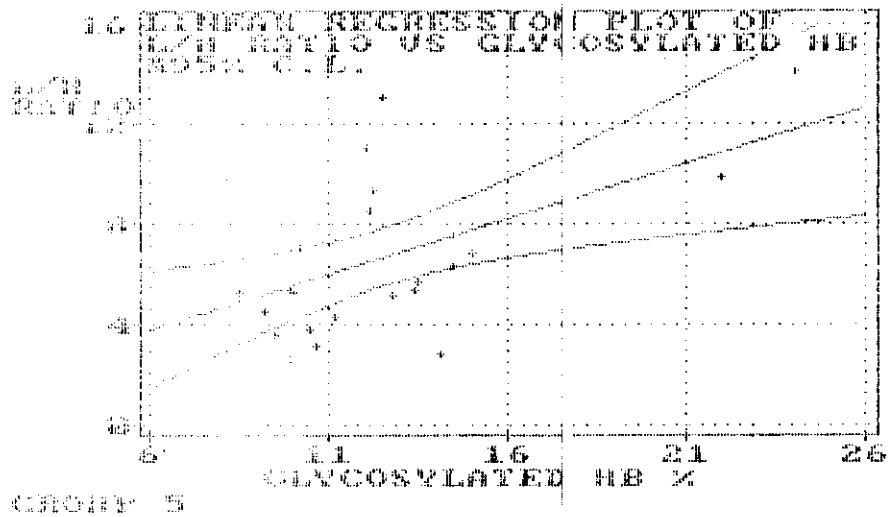


Group 5 NIDD ♂ uncontroled

r = 0.4961
β_o = 2.5205
β_1 = 0.4696

F - Test = 7.1803 [P < 0.05]

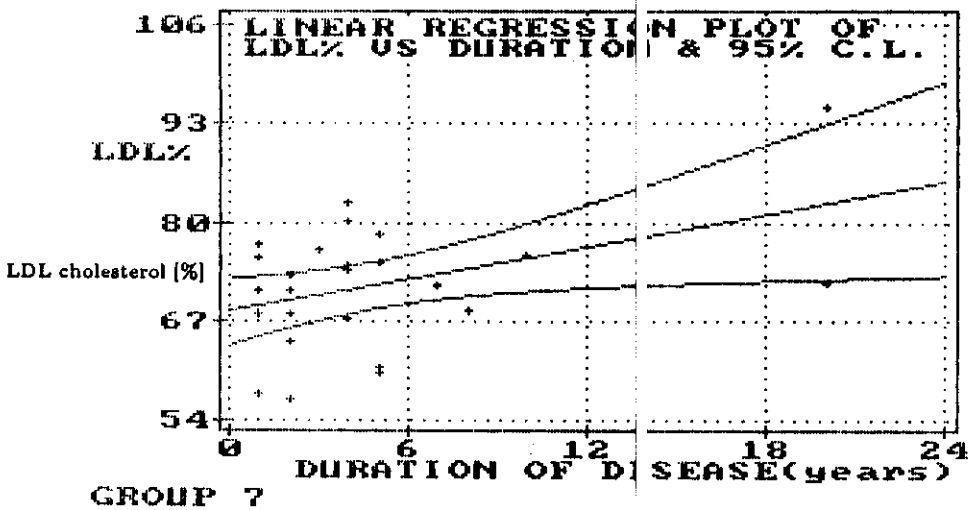
Fig. (39)



r = 0.5307
β_o = 1.1644
β_1 = 0.4419

F - Test = 8.6257 [P < 0.05]

Fig. (40)

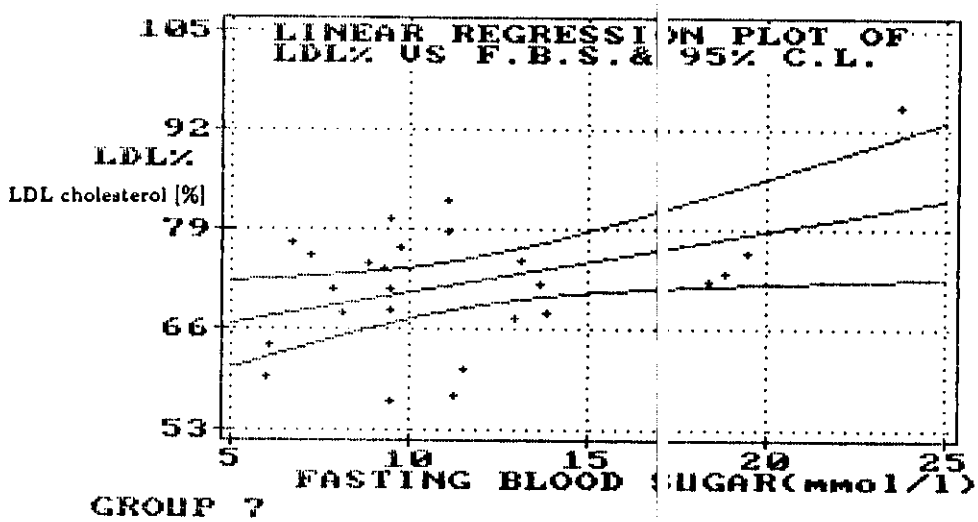


Group 7 NIDD ♀ uncontroled

r = 0.4371
β_o = 68.2657
β_1 = 0.7214

F - Test = 5.4316 [P < 0.05]

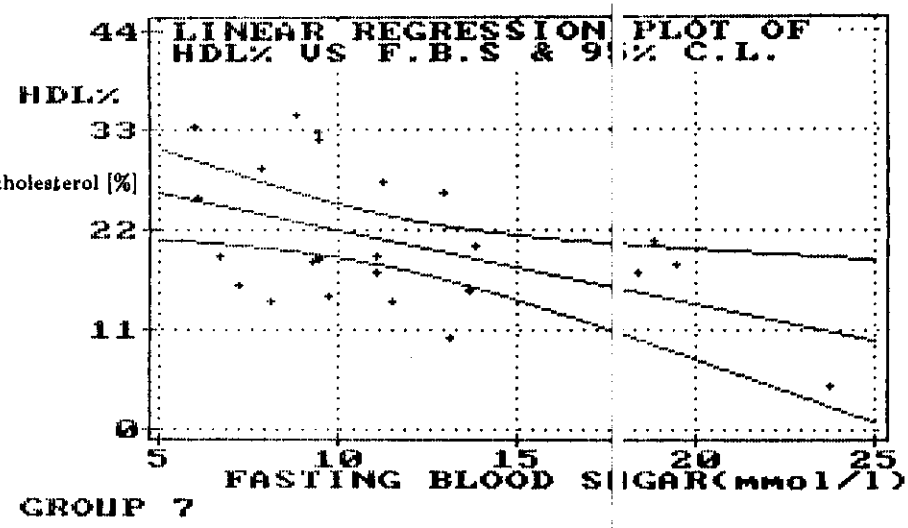
Fig. (41)



r = 0.4343
β_o = 62.5298
β_1 = 0.8098

F - Test = 5.3457 [P < 0.05]

Fig. (42)

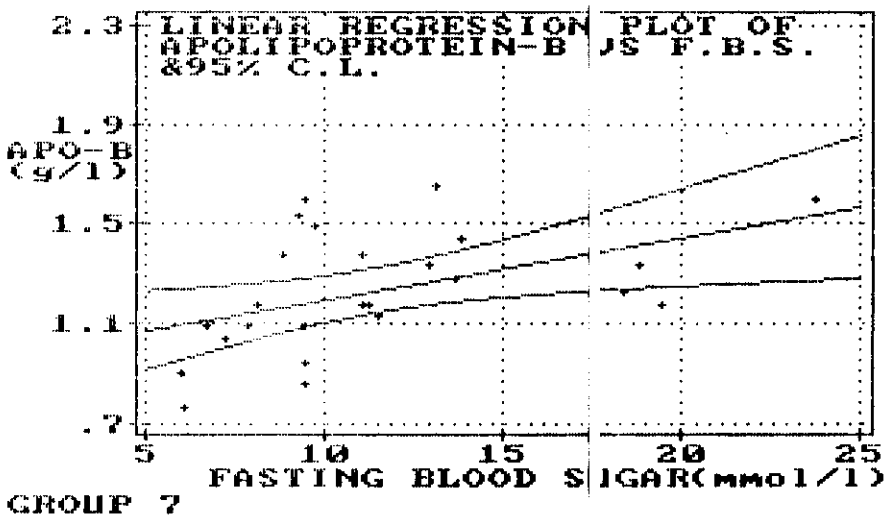


Group 7 NIDD ♀ uncontroled

r = - 0.4807
β_o = 29.9688
β_1 = - 0.8060

F - Test = 6.9135 [P < 0.05]

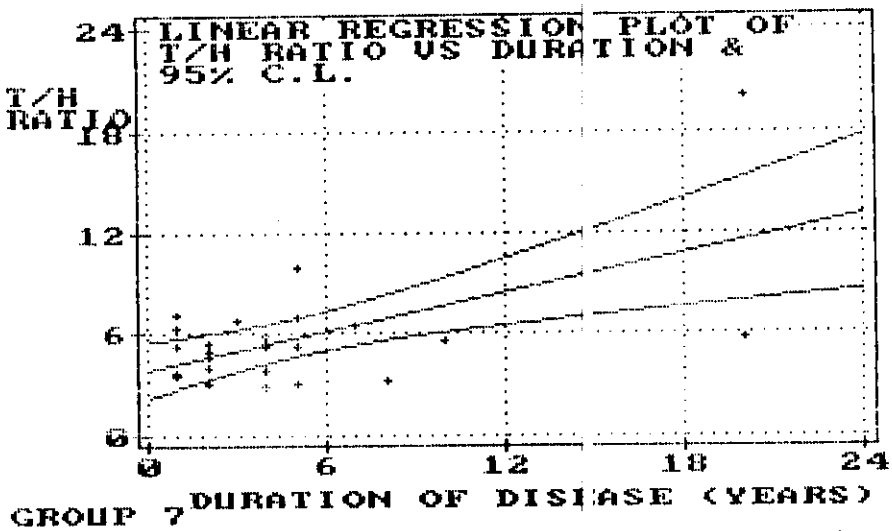
Fig. (43)



r = 0.4656
β_o = 0.9808
β_1 = 0.0248

F - Test = 6.2670 [P < 0.05]

Fig. (44)

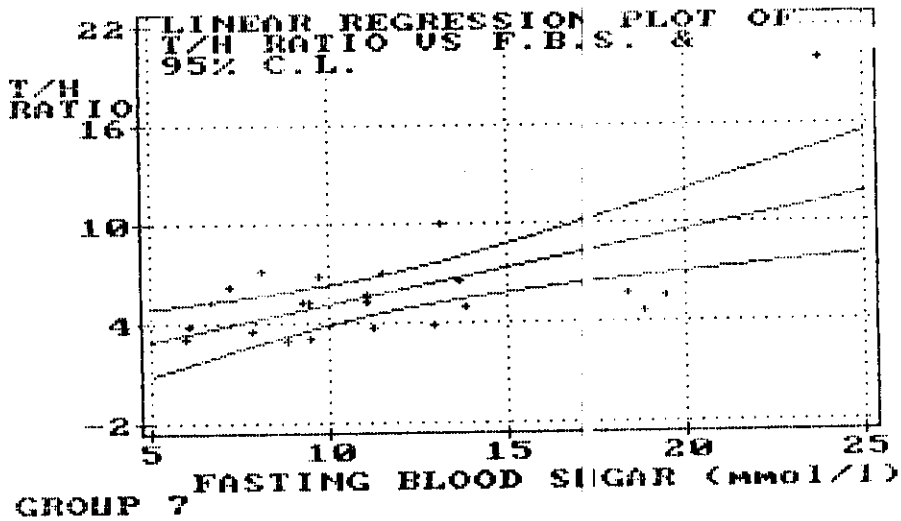


Group 7 NIDD ♀ uncontroled

r = 0.5841
β_o = 3.8183
β_1 = 0.3895

F - Test = 11.9088 [P < 0.05]

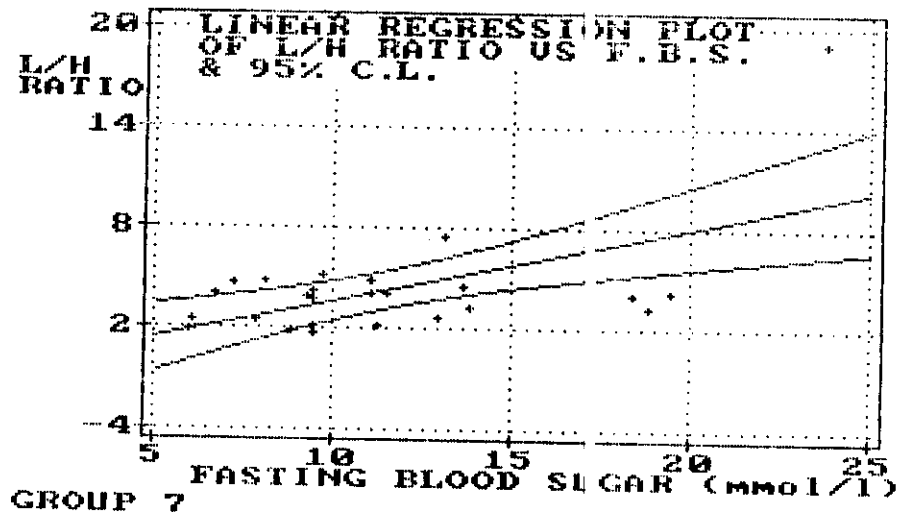
Fig. (45)



r = 0.5919
β_o = 0.6204
β_1 = 0.4460

F - Test = 12.4059 [P < 0.05]

Fig. (46)

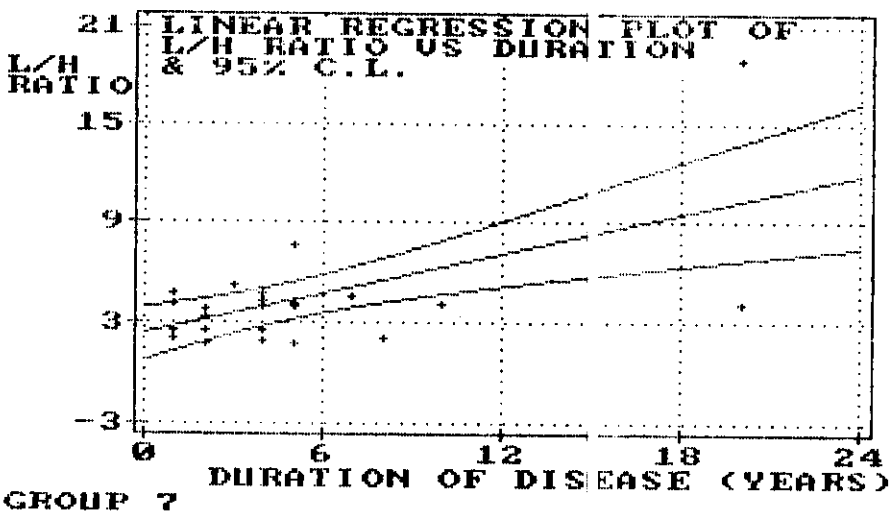


Group 7 NIDD ♀ uncontroled

r = 0.5986
β_o = - 0.8234
β_1 = 0.4444

F - Test = 12.8438 [P < 0.05]

Fig. (47)



r = 0.6051
β_o = 2.3162
β_1 = 0.3976

F - Test = 13.2846 [P < 0.05]

Table (28): Comparison between the 4 female groups [premenopause age up to 49] for serum cholesterol [mmol/l]

Number of groups	4
Number of observations	60
Total mean	5.0629
Total variance	31.4854

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	4.1437	1.3812	2.8290
Within groups	56	27.3416	0.4882	
Total	59	31.4854		

P < 0.05: There exists a significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	serum cholesterol [mmol/l]			
Group No.	7	8	4	2
Mean	5.6137	5.1822	5.0145	4.8145

Table (29): Comparison between the 4 female groups [postmenopause age over 50] for serum cholesterol [mmol/l]

Number of groups	4
Number of observations	40
Total mean	5.2419
Total variance	36.5740

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	0.7204	0.2401	0.2411
Within groups	36	35.8536	0.9959	
Total	39	36.5740		

P > 0.05: No significant difference between group means.

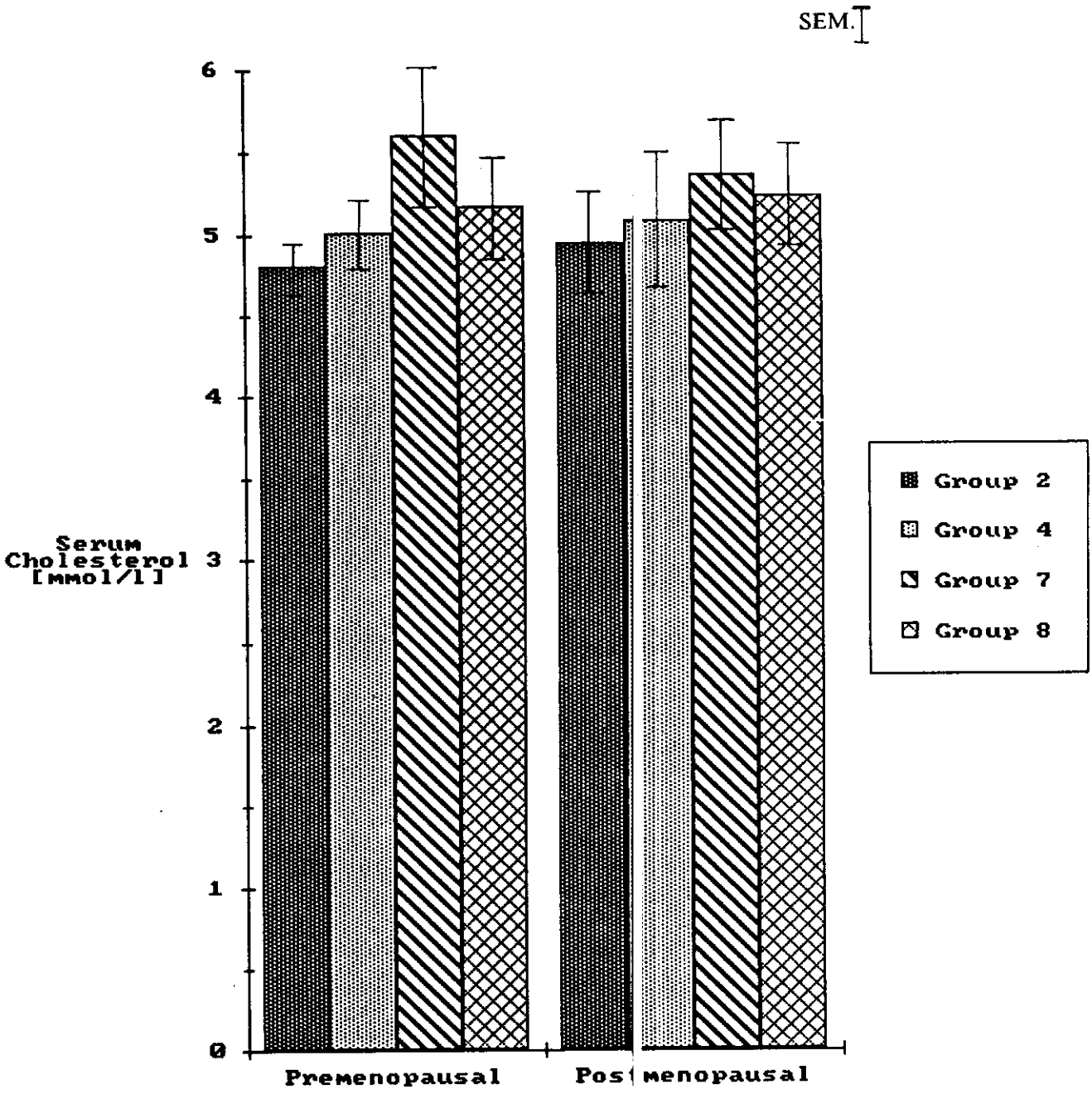


Fig. (48): Mean values of serum cholesterol (mmol/l) in the 4 female groups.

Table (30): Comparison between the 4 female groups [premenopause age up to 49] for serum Triglyceride [mmol/l]

Number of groups	4
Number of observations	60
Total mean	1.8318
Total variance	57.4472

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	34.4882	11.4961	28.0405
Within groups	56	22.9589	0.4100	
Total	59	57.4472		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Serum triglyceride [mmol/l]			
Group No.	4	8	7	2
Mean	2.7305	1.7789	1.7553	0.9195

Table (31): Comparison between the 4 female groups [postmenopause age over 50] for serum Triglyceride [mmol/l]

Number of groups	4
Number of observations	40
Total mean	2.3050
Total variance	101.2592

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	31.5067	10.5022	5.4203
Within groups	36	69.7525	1.9376	
Total	39	101.2592		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Serum Triglyceride [mmol/l]			
Group No.	4	7	8	2
Mean	5.2133	2.3218	2.0606	1.280

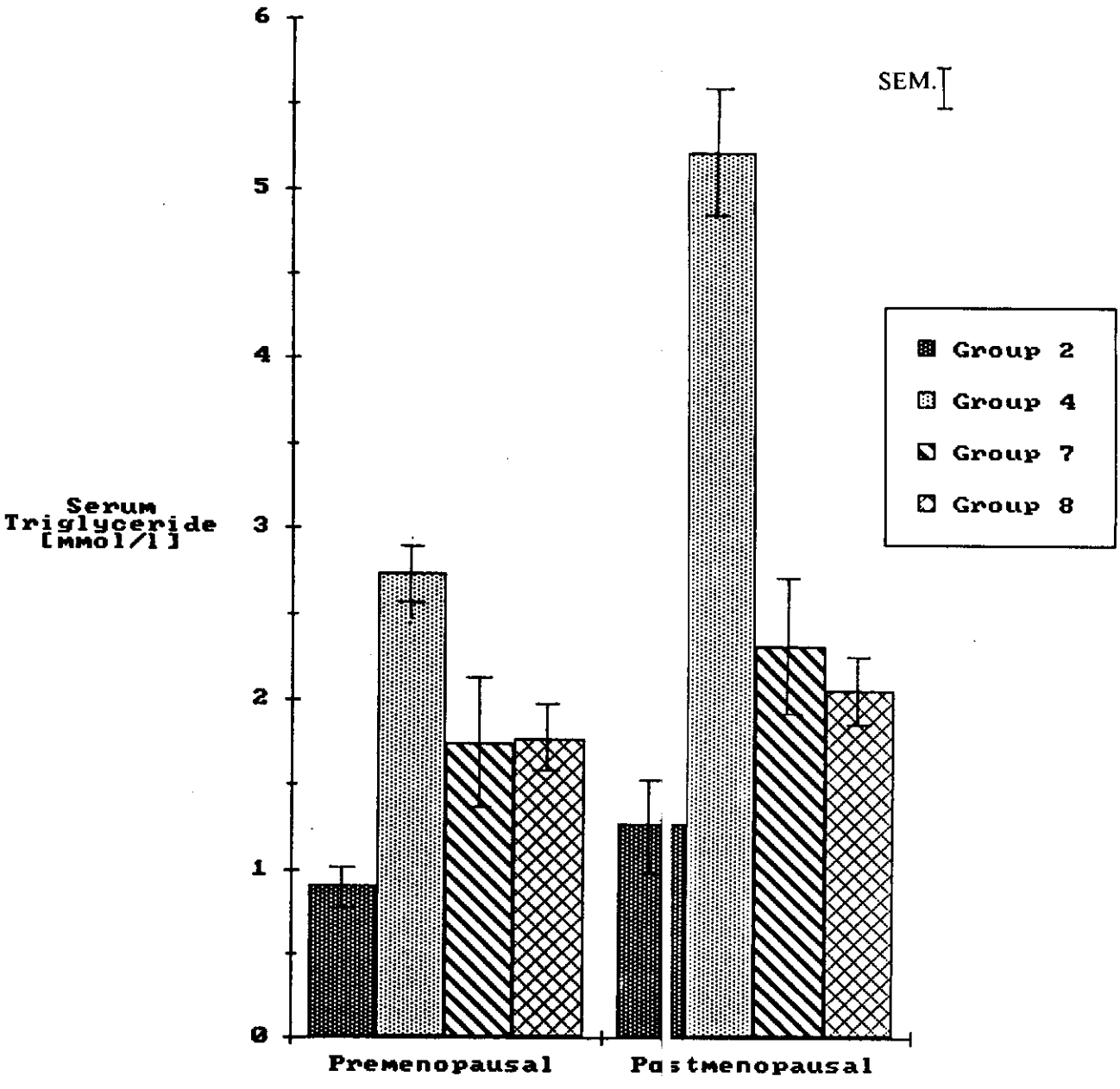


Fig. (49): Mean values of serum triglyceride (mmol/l) in the 4 female groups

Table (32: Comparison between the 4 female groups [p remenopause age up to 49] for glycosylated Haemoglobin [%]

Number of groups	
Number of observations	6
Total mean	9.291
Total variance	1667.128

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	1152.2002	384.0667	41.7684
Within groups	56	514.9281	9.1951	
Total	59	1667.1283		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	Glycosylated Hb [%]			
Group No.	4	7	8	2
Mean	13.5945	13.2578	5.9422	4.2800

Table (33): Comparison between the 4 female groups [p stmenopause age over 50] for glycosylated Haemoglobin [%]

Number of groups	4
Number of observations	40
Total mean	9.1000
Total variance	897.6722

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	535.5928	78.5309	17.7506
Within groups	36	362.0794	10.0578	
Total	39	897.6722		

P < 0.01: Highly significant difference between at least 2 gi oup means.

Duncan analysis for identification of significant groups.

Field	Glycosylated Hb [%]			
Group No.	7	4	8	2
Mean	12.8837	12.6867	6.325	3.725

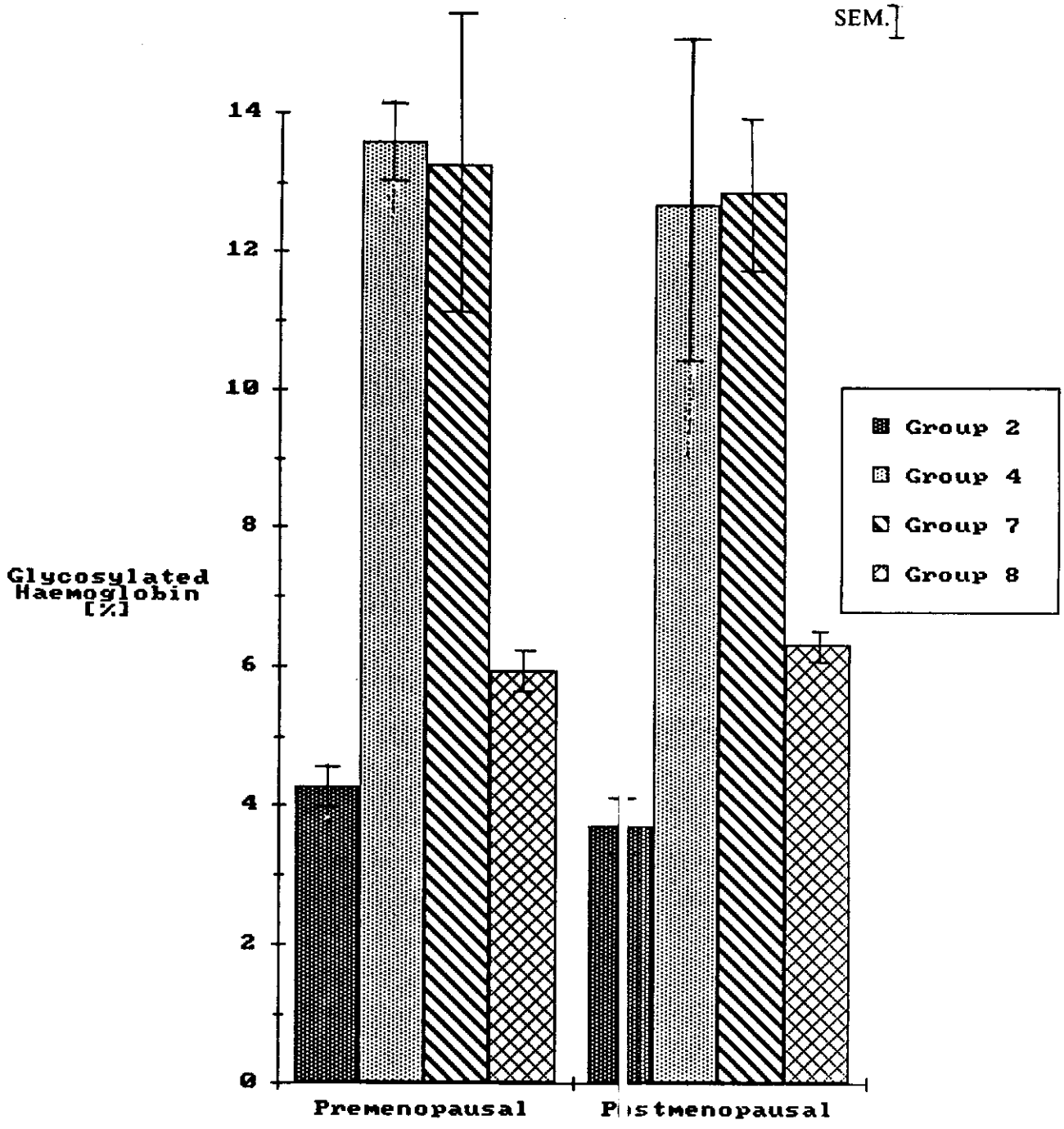


Fig. (50): Mean values of serum glycosylated Hb% in the 4 female groups.

Table (34: Comparison between the 4 female groups [p emenopause age up to 49] for Apolipoprotein B [g/l]

Number of groups	4
Number of observations	6(
Total mean	1.180
Total variance	3.362

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	0.4083	0.1361	2.5795
Within groups	56	2.9546	0.0528	
Total	59	3.3629		

P > 0.05 No significant difference between group means.

Table (35): Comparison between the 4 female groups [p stmenopause age over 50] for Apolipoprotein B [g/l]

Number of groups	4
Number of observations	40
Total mean	1.2484
Total variance	1.8726

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	0.4247	0.1416	3.5201
Within groups	36	1.4479	0.0402	
Total	39	1.8726		

P < 0.05: There exists a significant difference between at le ist 2 group means.

Duncan analysis for identification of significant groups.

Field	Apolipoprotein B [g/l]			
Group No.	4	7	8	2
Mean	1.490	1.3123	1.1894	1.080

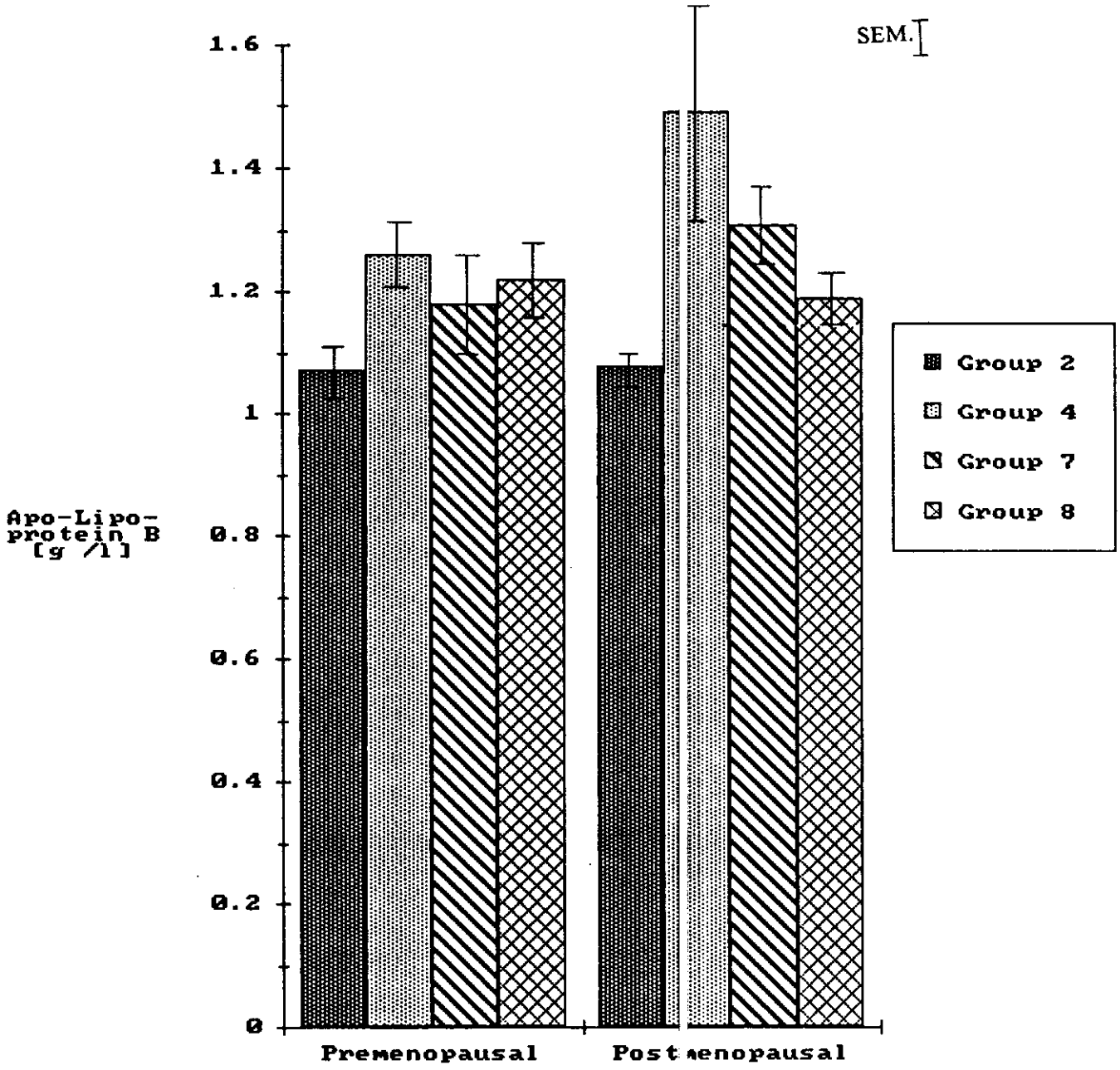


Fig. (51): Mean values of serum apolipoprotein B (g/l) in the 4 female groups.

Table (36): Comparison between the 4 female group [premenopause age up to 49] for Anti-insulin antibodies [serum dilution]

Number of groups	4
Number of observations	60
Total mean	57.1667
Total variance	4.84303e+05

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	2.66350e+05	8.87834e+04	22.8117
Within groups	56	2.17953e+05	3892.0150	
Total	59	4.84303e+05		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups

Field	Anti-insulin antibodies [serum dilution]			
Group No.	4	7	8	2
Mean	145.0909	20.4444	5.3333	2.4

Table (37): Comparison between the 4 female groups [postmenopause age over 50] for Anti-insulin antibodies [serum dilution]

Number of groups	4
Number of observations	40
Total mean	23.2000
Total variance	1.30142e+05

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	1.17561e+05	3.91871e+04	112.1327
Within groups	36	1.25810e+04	349.4713	
Total	39	1.30142e+05		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Anti-insulin antibodies [serum dilution]			
Group No.	4	7	8	2
Mean	213.3333	11.125	5.375	4.8

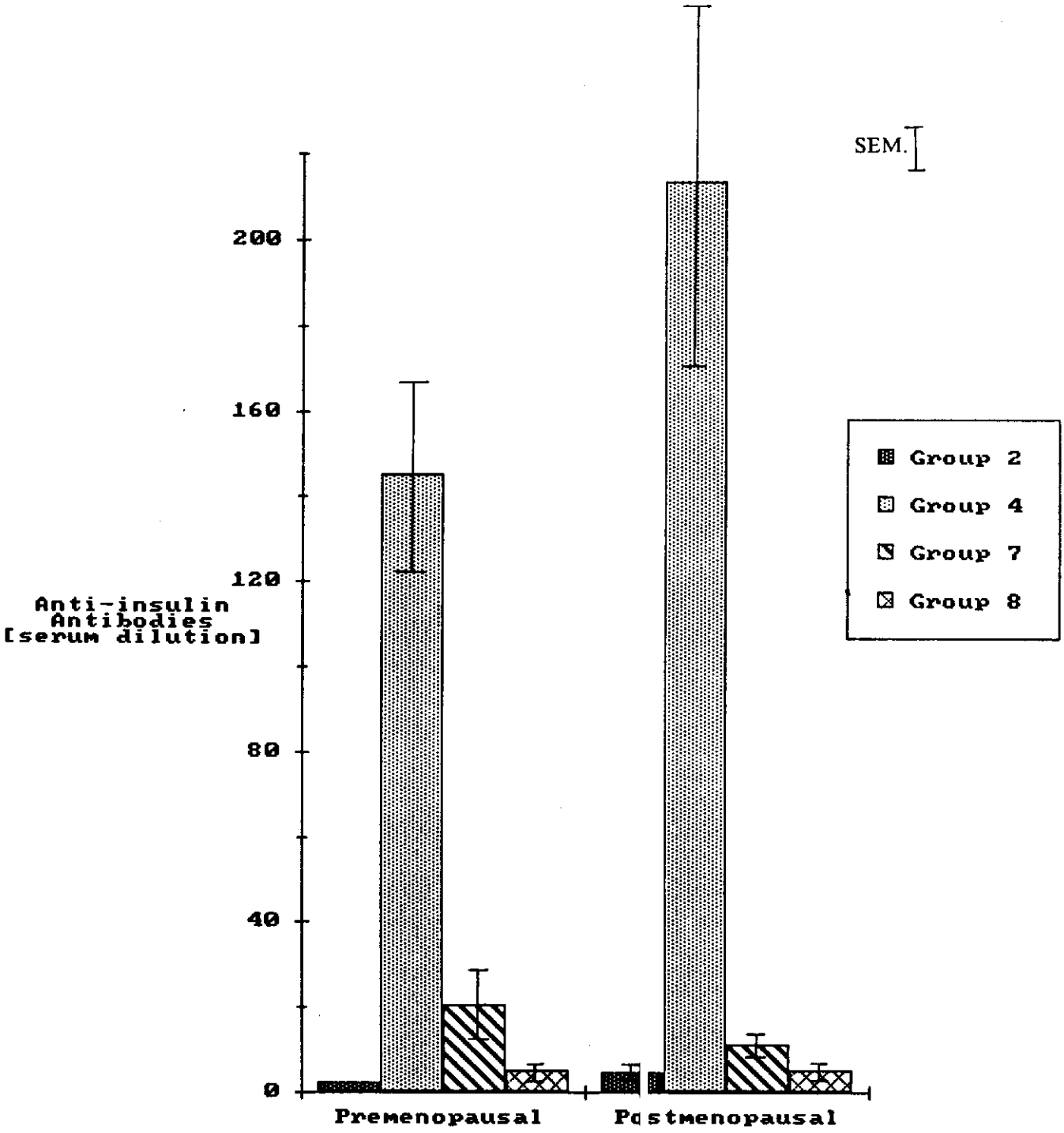


Fig. (52): Mean values of serum anti-insulin antibodies in the 4 female groups

Table (38): Comparison between the 4 female groups [premenopause age up to 49] for α-lipoprotein [%]

Number of groups	4
Number of observations	60
Total mean	28.28 72
Total variance	3314.58 74

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	757.0785	252.3595	5.5257
Within groups	56	2557.5089	45.6698	
Total	59	3314.5874		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	α-lipoprotein [%]			
Group No.	2	7	8	4
Mean	32.679	29.7989	26.2322	24.5168

Table (39): Comparison between the 4 female groups [postmenopause age over 50] for α-lipoprotein [%]

Number of groups	4
Number of observations	40
Total mean	25.66 39
Total variance	1983.44 39

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	429.1172	143.0391	3.3129
Within groups	36	1554.3317	43.1759	
Total	39	1983.4489		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	α-lipoprotein [%]			
Group No.	2	4	8	7
Mean	34.088	25.4233	25.1719	23.5686

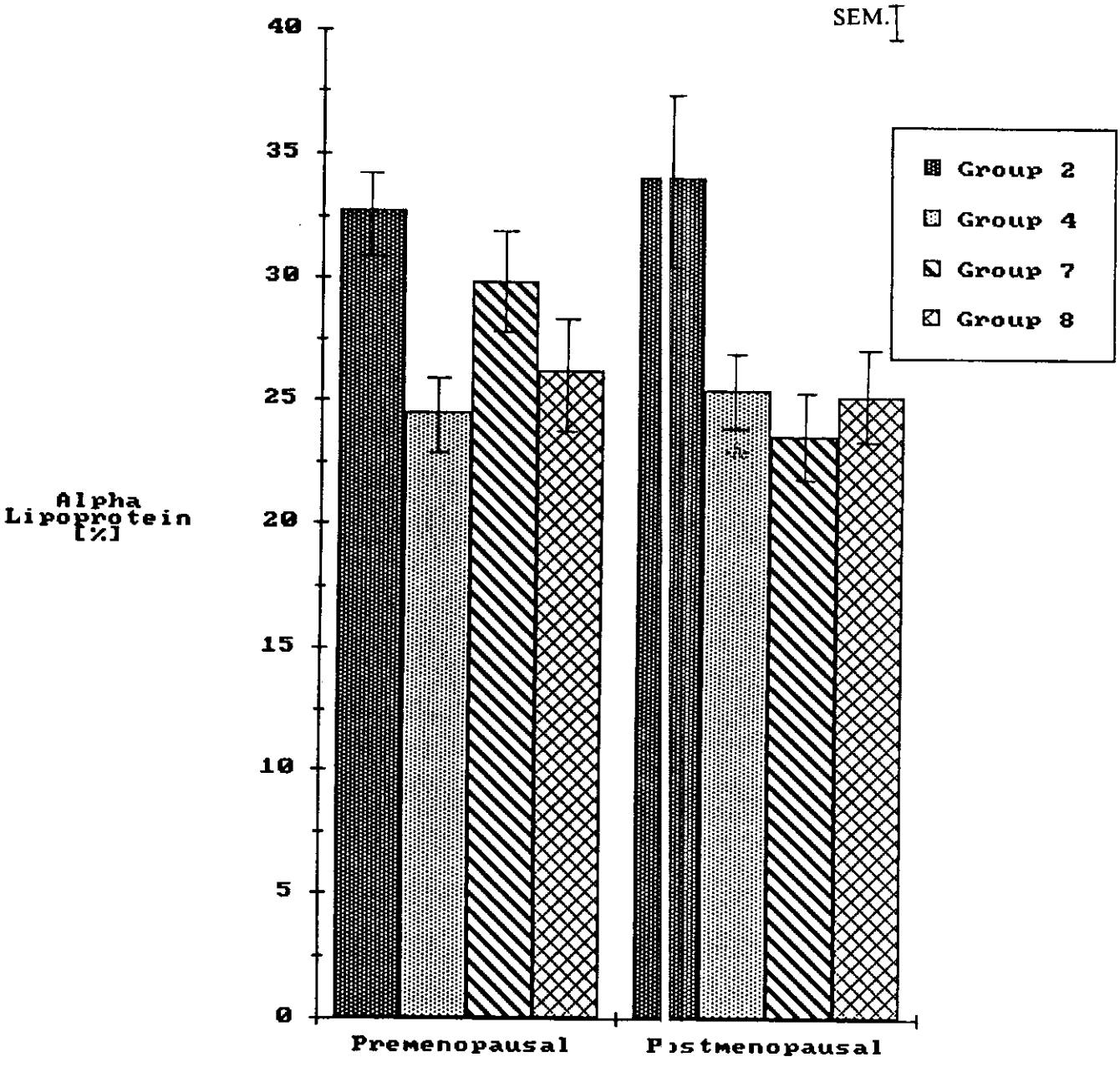


Fig. (53): Mean values of serum α lipoprotein (%) in the 4 female groups.

Table (40): Comparison between the 4 female groups premenopause age up to 49] for pre-β lipoprotein [%]

Number of groups	4
Number of observations	60
Total mean	21.1058
Total variance	2001.3219

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	1036.6324	345.5441	20.0588
Within groups	56	964.6894	17.2266	
Total	59	2001.3219		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	Pre-β lipoprotein [%]			
Group No.	4	8	7	2
Mean	26.075	21.5411	19.1489	16.3245

Table (41): Comparison between the 4 female groups [postmenopause age over 50] for pre-β lipoprotein [%]

Number of groups	4
Number of observations	40
Total mean	21.13 3
Total variance	1368.55[6

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	55.9347	18.6449	0.5114
Within groups	36	1312.6239	36.4618	
Total	39	1368.5586		

P > 0.05: No significant difference between group means.

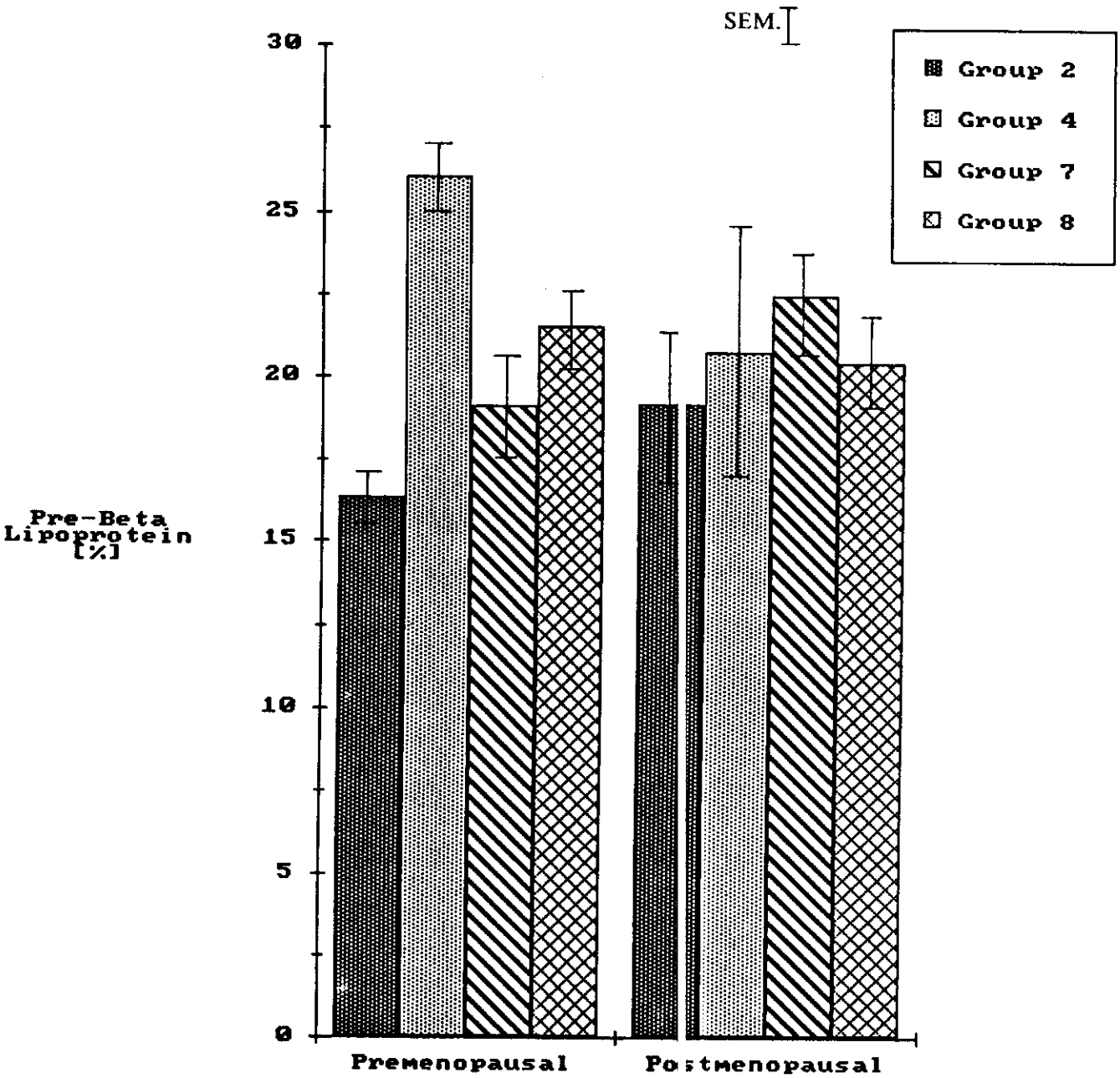


Fig. (54): Mean values of serum pre-βlipoprotein (%) in the 4 female groups.

Table (42): Comparison between the 4 female groups [premenopause age up to 49] for β-lipoprotein [%]

Number of groups	4
Number of observations	60
Total mean	50.9048
Total variance	2245.1843

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	25.7205	8.5735	0.2163
Within groups	56	2219.4638	39.6333	
Total	59	2245.1843		

P > 0.05: No significant difference between group means.

Table (43): Comparison between the 4 female groups [postmenopause age over 50] for β-lipoprotein [%]

Number of groups	4
Number of observations	40
Total mean	52.9687
Total variance	1721.3997

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	227.3908	75.7969	1.8264
Within groups	36	1494.0090	41.5002	
Total	39	1721.3997		

P > 0.05: No significant difference between group means.

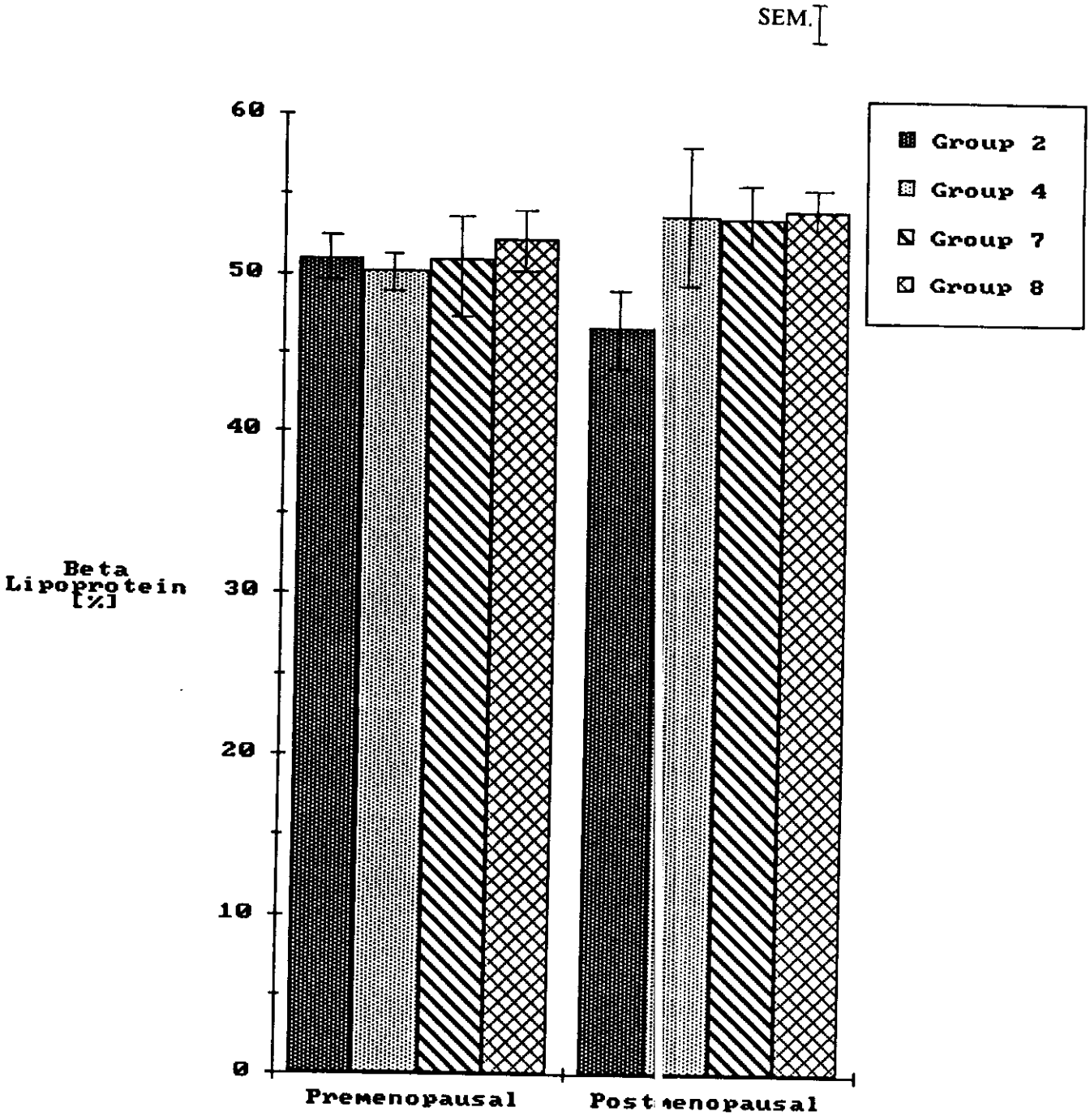


Fig. (55): Mean values of serum β lipoprotein in the 4 female groups.

Table (44): Comparison between the 4 female groups [premenopause age up to 49] for HDL cholesterol [%]

Number of groups	4
Number of observations	60
Total mean	23.8113
Total variance	3496.5517

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	208.5347	69.5116	1.1839
Within groups	56	3288.0170	58.7146	
Total	59	3496.5517		

P > 0.05: No significant difference between group means

Table (45): Comparison between the 4 female groups [postmenopause age over 50] for HDL cholesterol [%]

Number of groups	4
Number of observations	40
Total mean	21.4170
Total variance	3348.3092

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	1750.6579	583.5526	13.1492
Within groups	36	1597.6514	44.3792	
Total	39	3348.3092		

P < 0.01: Highly significant difference between at least 2 group means.

Duncan analysis for identification of significant groups

Field	HDL cholestrol [%]			
Group No.	2	7	8	4
Mean	36.534	19.617	19.4669	7.91

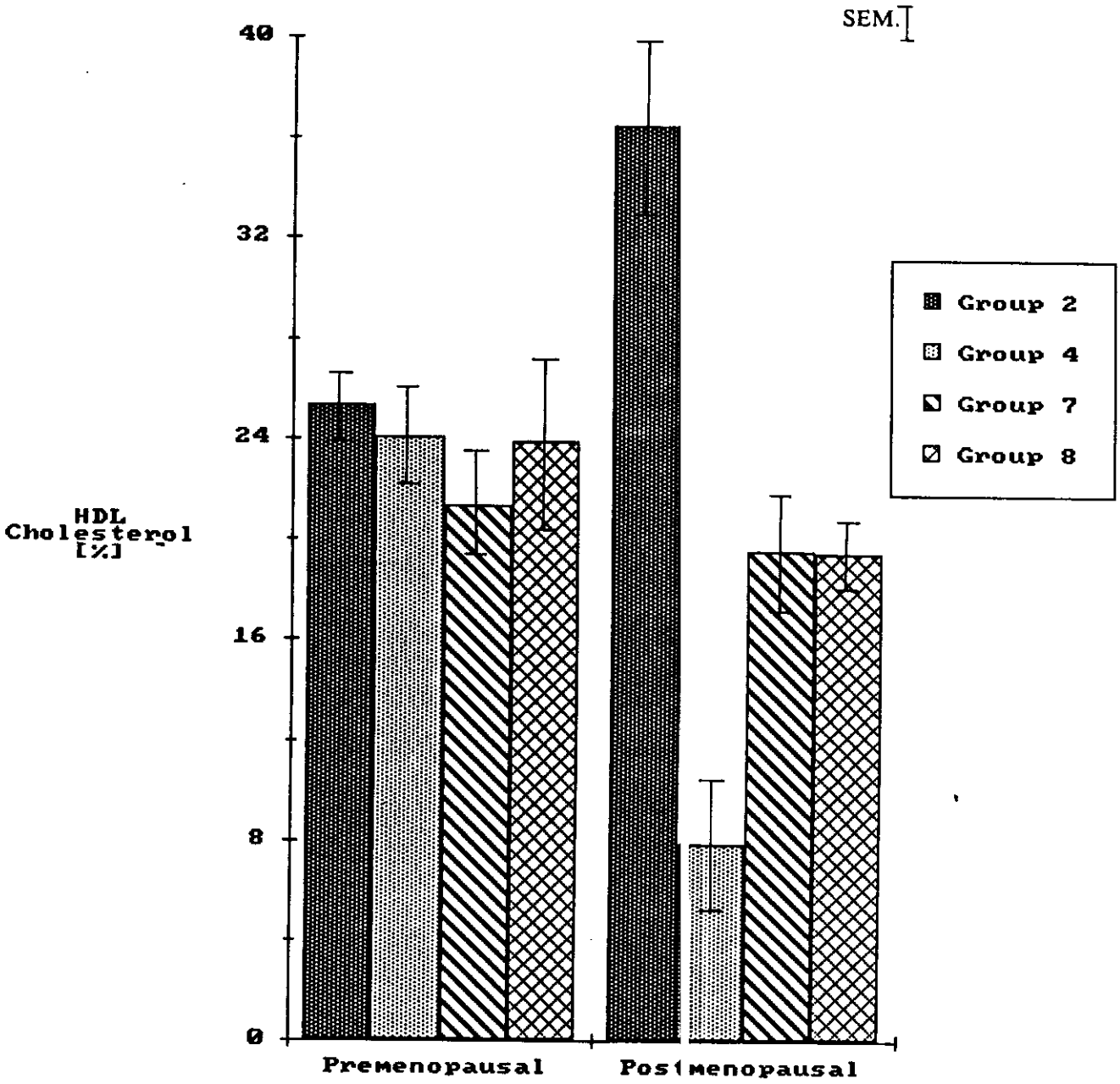


Fig. (56): Mean values of serum HDL cholesterol (%) in the 4 female groups.

Table (46): Comparison between the 4 female groups [p emenopause age up to 49] for VLDL cholesterol [%]

Number of groups	4
Number of observations	60
Total mean	6.314
Total variance	1822.867

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	345.8585	15.2862	4.3710
Within groups	56	1477.0088	26.3752	
Total	59	1822.8672		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	VLDL cholesterol [%]			
Group No.	7	4	2	8
Mean	10.3178	7.6268	4.6125	2.8859

Table (47): Comparison between the 4 female groups [p stmenopause age over 50] for VLDL cholesterol [%]

Number of groups	4
Number of observations	40
Total mean	6.339
Total variance	2071.806

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	551.3196	83.7732	4.3511
Within groups	36	1520.4869	42.2357	
Total	39	2071.8065		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	VLDL cholesterol [%]			
Group No.	4	7	8	2
Mean	18.66	6.335	5.2644	2.404

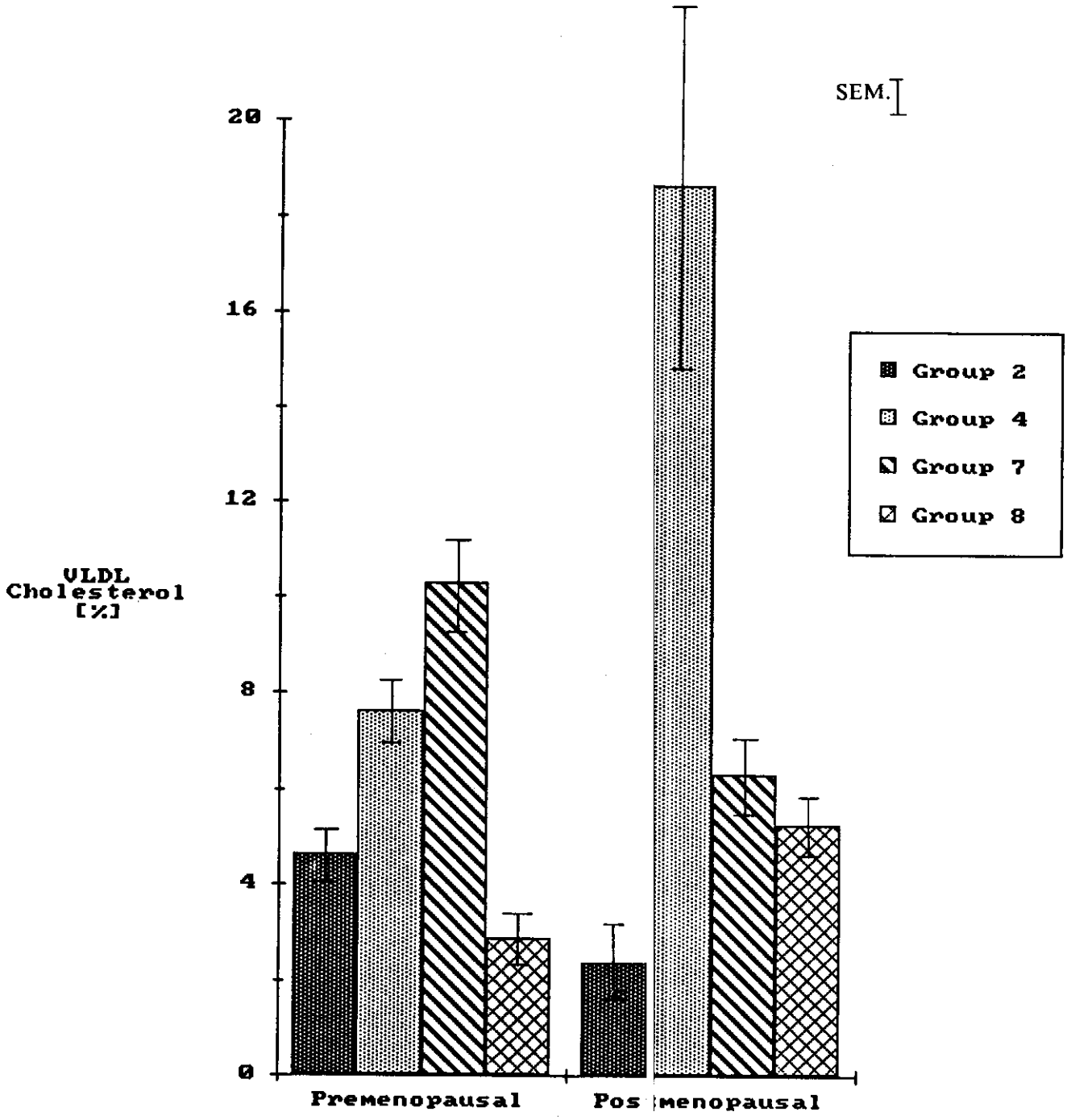


Fig. (57): Mean values of serum VLDL cholesterol (%) in the 4 female groups.

Table (48): Comparison between the 4 female groups [premenopause age up to 49] for LDL cholesterol [%]

Number of groups	
Number of observations	6
Total mean	69.011
Total variance	7400.048

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	219.3629	73.1210	0.5702
Within groups	56	7180.6850	128.2265	
Total	59	7400.0480		

P > 0.05: No significant difference between group means.

Table (49): Comparison between the 4 female groups [post menonpause over 50] for LDL cholesterol [%]

Number of groups	4
Number of observations	40
Total mean	72.363
Total variance	3415.980

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	780.7218	260.2406	3.5551
Within groups	36	2635.2589	73.2016	
Total	39	3415.9807		

P < 0.05: There exists a significant difference between at least 2 group means.

Duncan analysis for identification of significant groups.

Field	LDL cholesterol [%]			
Group No.	8	4	7	2
Mean	75.23	73.3533	72.8537	61.028

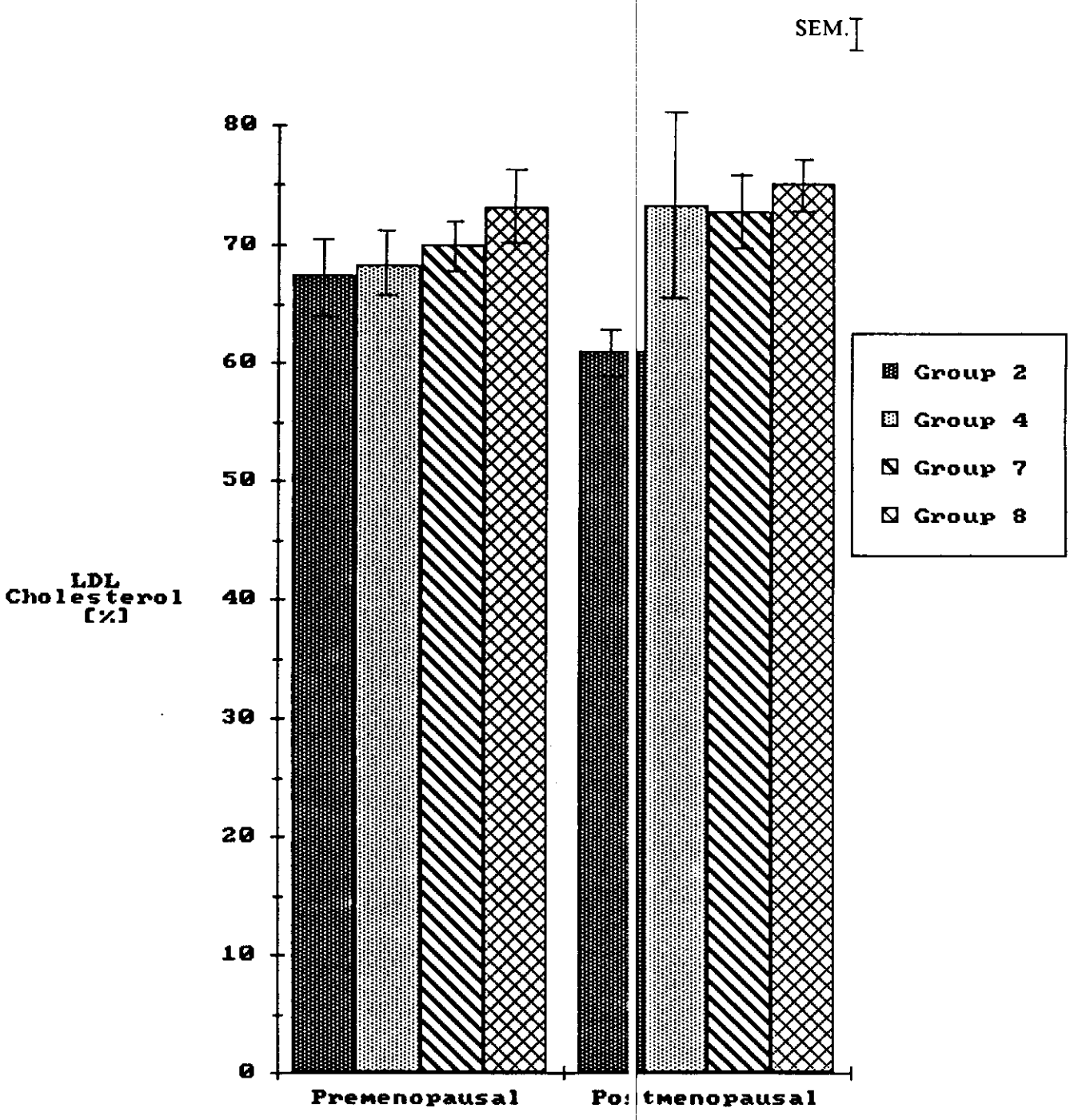


Fig. (58): Mean values of serum LDL cholesterol (%) in the 4 female groups.

Table (50): Comparison between the 4 female groups [p emenopause age up to 49] for total cholesterol /HDL cholesterol

Number of groups	4
Number of observations	60
Total mean	45.690(
Total variance	154.664!

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	15.2260	5.0753	2.0383
Within groups	56	139.4389	2.4900	
Total	59	154.6648		

P > 0.05: No significant difference between group means.

Table (51): Comparison between the 4 female groups [p ostmenopause age over 50] for total cholesterol/HDL cholesterol.

Number of groups	4
Number of observations	40
Total mean	6.125?
Total variance	1005.127!

Anova Table

Source of variation	DF	SS	MS	F-Stat
Among groups	3	427.5409	42.5136	8.8826
Within groups	36	577.5869	16.0441	
Total	39	1005.1278		

P < 0.01: Highly significant difference between at least 2 g oup means.

Duncan analysis for identification of significant groups.

Field	Total cholesterol/HDL choles erol			
Group No.	4	7	8	2
Mean	17.1367	5.7425	5.4707	2.8160

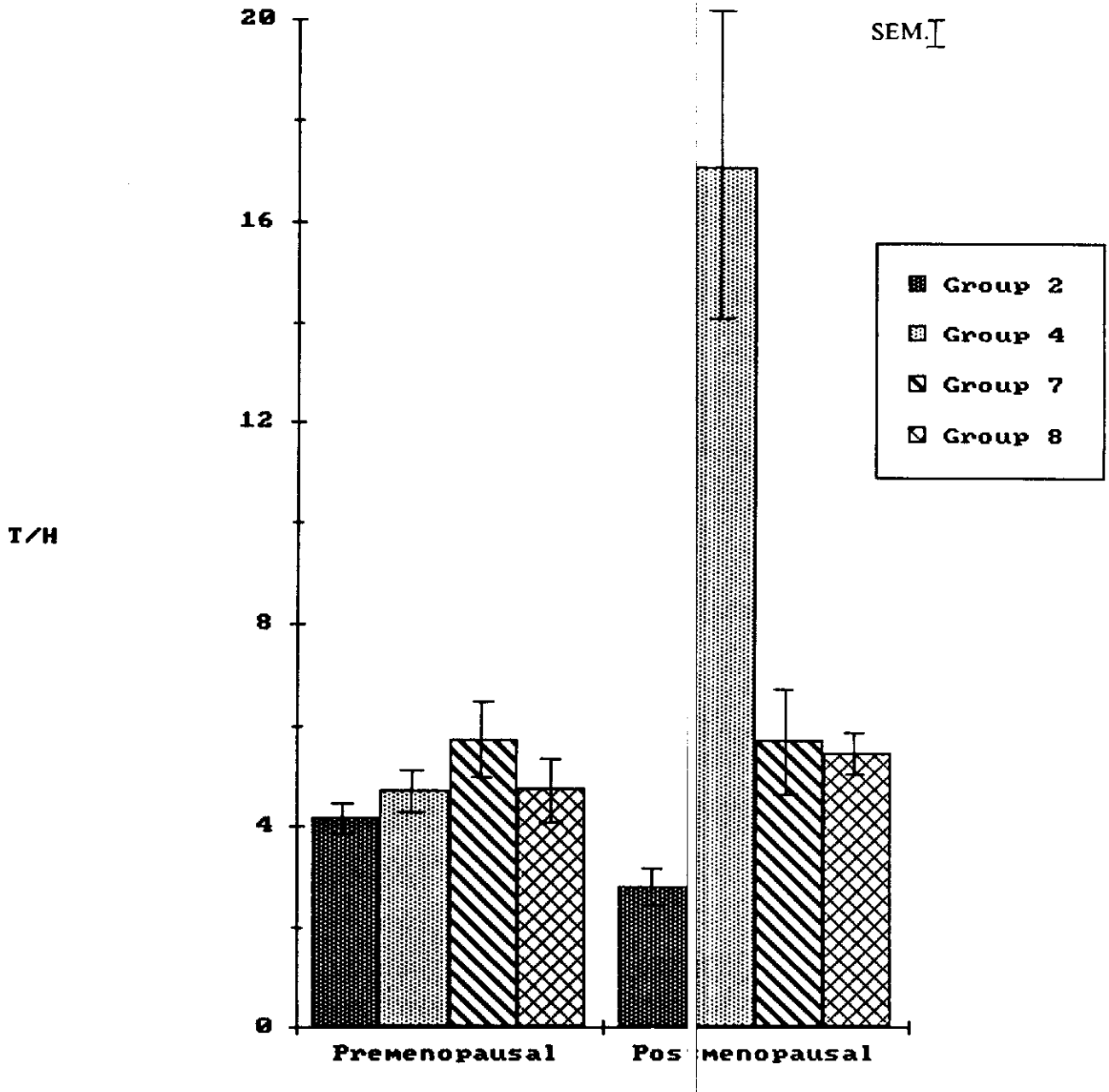


Fig. (59): Mean values of total cholesterol/HDL cholesterol in the 4 female groups.

Table (52): Comparison between the 4 female group [premenopause age up to 49] for LDL cholesterol/HDL cholesterol.

Number of groups			4	
Number of observations			60	
Total mean			3.:689	
Total variance			117.:435	
Anova Table				
Source of variation	DF	SS	MS	F-Stat
Among groups	3	7.9525	2.6508	1.3521
Within groups	56	109.7910	1.9606	
Total	59	117.7435		
P > 0.05: No significant difference between group mea ns.				

Table (53): Comparison between the 4 female groups postmenopause age over 50] for LDL cholesterol/HDL cholesterol.

Number of groups			4	
Number of observations			40	
Total mean			4.53 92	
Total variance			583.40 55	
Anova Table				
Source of variation	DF	SS	MS	F-Stat
Among groups	3	197.8571	65.9524	6.1582
Within groups	36	385.5494	10.7097	
Total	39	583.4065		
P < 0.01: Highly significant difference between at least 2 group means.				

Duncan analysis for identification of significant groups.

Field	LDL cholesterol/ HDL cholesterol			
Group No.	4	7	8	2
Mean	11.76	4.3925	4.2087	1.734

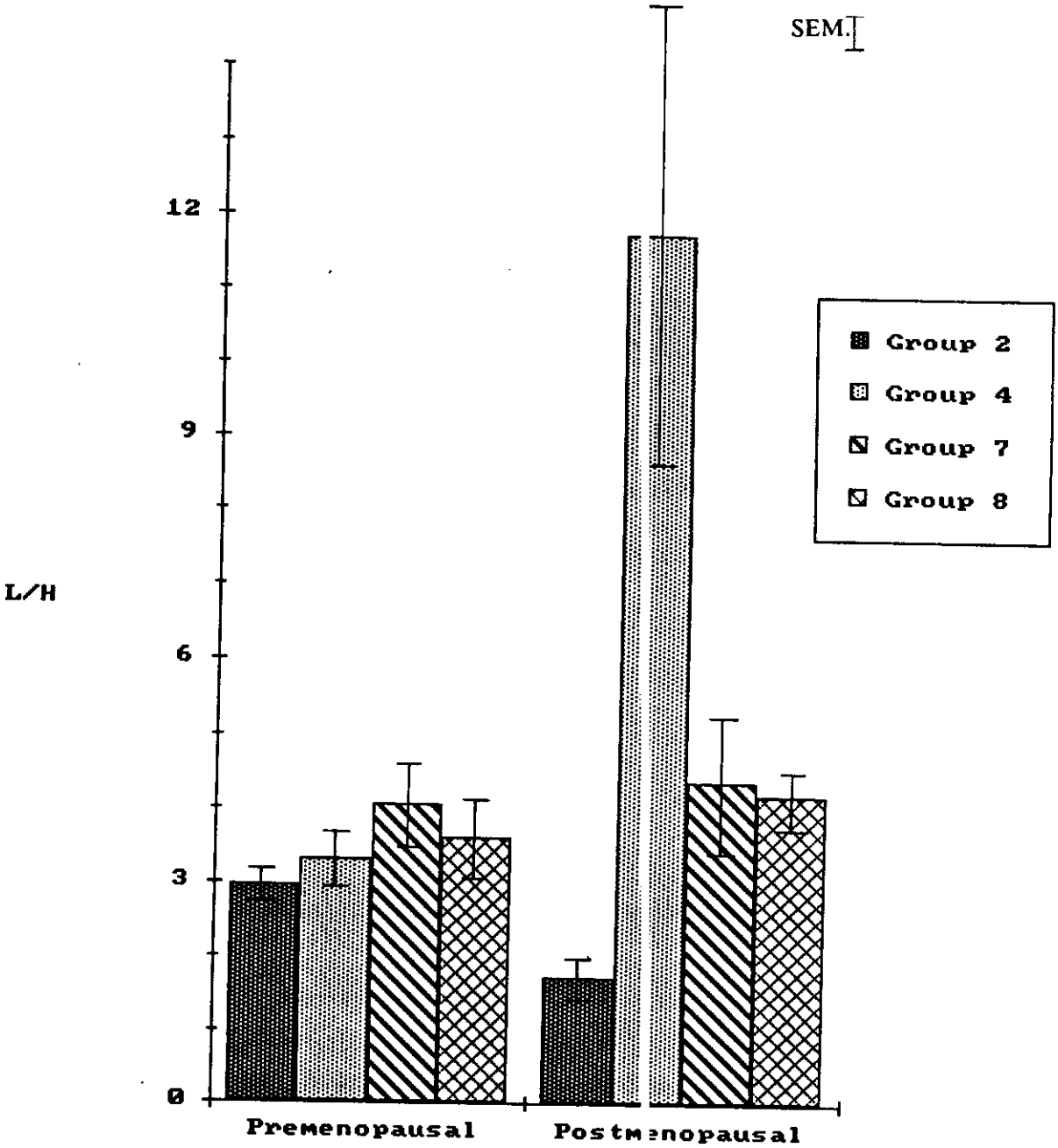


Fig. (60): Mean values of LDL cholesterol/HDL cholesterol in the 4 female groups.