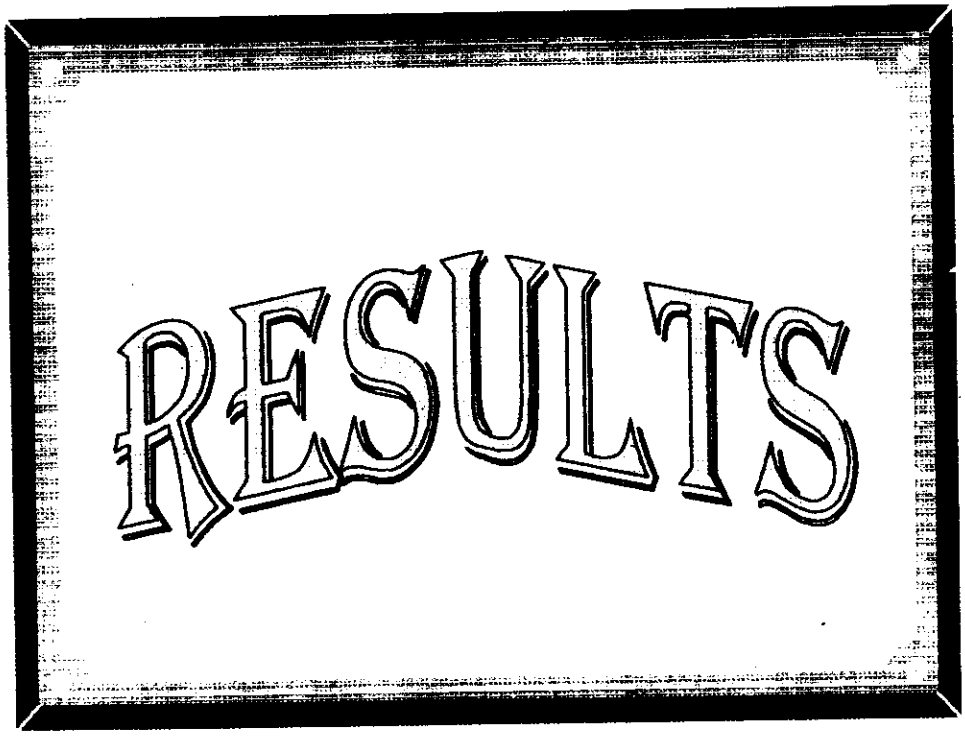
RESULTS

RESULTS

These are shown in tables 1-19 and figures 1-3.

Table (1) shows the clinico-epidemiological data of control and study cases. Both groups are comparable as regards age, parity and gestational age, but there is significant difference as regards systolic blood pressure ($p < 0.001$) and diastolic blood pressure ($p < 0.001$).

Table (2) shows serum insulin (mean ± SD) in study and control cases (μU/mL) Serum insulin is significantly higher in study cases compared with control cases ($p < 0.05$) (one blood sample was lost on examination).

Table (3) shows serum insulin in control and study cases at different age groups (mean ± SD). There is no statistical change neither between control and study cases at different age groups nor between different age groups of control and study cases.

Table (4) shows serum insulin levels in control and study cases at different gestational age groups (mean ± SD).

There is no statistical change neither between control and study cases at different gestational age groups nor between different age groups of study cases.

In control cases, serum insulin level is significantly increased in gestational age groups III compared to gestational age groups I and II ($p < 0.05$).

Table (1) : Clinico-epidemiological Data.

	Control (n = 40)	Study (n = 40)	p
Age (mean ± SD) (Years)	**22.25 ± 4.840**	**23.65 ± 3.774**	> 0.05
Parity	**Primipara**	**Primipara**	> 0.05
Systolic Blood Pressure (mm/Hg)	**113.25 ± 9.167**	**155.75 ± 29.69**	< 0.001*
Diastolic Blood Pressure (mm/Hg)	**72.5 ± 7.763**	**105.0 ± 11.767**	< 0.001*
Gestational Age (Weeks)	**35.025 ± 4.891**	**34.40 ± 4.247**	> 0.05

* Significant change

Laboratory Finding

Table (2) : Serum insulin (Mean ± SD) in study and control cases (μU/mL)

	Control (n=40)	Study (no=39)	T-value	P-value
Insulin	**22.863 ± 62.271**	**28.90 ± 71.121**	**2.825**	**< 0.05***

* Significant change

Table (3): Serum insulin levels in control and study cases at different age groups (Mean± SD) (μU/mL)

Insulin / Age Groups in Years	Control (n = 40)	Study (n = 39)	t	p
Group I ≤ 20 years	22.05 ± 40.06 (n = 4)	7.517 ± 3.068 (n = 5)	0.724	> 0.05
Group II 21 – 25 years	10.937 ± 16.68 (n = 26)	31.29 + 54.517 (n = 20)	1.645	> 0.05
Group III > 25 years	17.9 ± 20.914 (n =10)	36.621 ± 102.358 (n = 14)	0.665	> 0.05
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

P_1 = statistical difference between age groups (I & II)

P_2 = statistical difference between age groups (I & III)

P_3 = statistical difference between age groups (II & III)

Table (4) : Serum insulin levels in control and study cases at different gestational age groups (Mean ± SD) (μU/mL).

Insulin / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 39)	t	p
Group I ≤ 30 weeks	4.471 ± 3.506 (n = 7)	8.757 ± 16.449 (n = 7)	0.674	> 0.05
Group II 31 – 35 weeks	7.21 ± 7.304 (n = 11)	10.908 ± 25.667 (n = 13)	0.496	> 0.05
Group III > 35 weeks	19.641 ± 25.642 (n = 22)	45.62 ± 96.09 (n = 19)	1.172	> 0.05
P_1	> 0.05	> 0.05	---	---
P_2	< 0.05*	> 0.05	---	---
P_3	< 0.05*	> 0.05	---	---

* Significant change

Table (5) shows serum total cholesterol, HDL, LDL, triglycerides, Apo A1 and Apo B in study and control cases (mean ± SD).

There is significantly lowered HDL level ($p < 0.001$) and highly significantly elevated triglycerides level ($p < 0.001$) in study cases compared with control cases. Apo A1 level is highly significantly lowered ($p < 0.001$) and Apo B is highly significantly elevated ($p < 0.001$) in study cases compared with control cases.

Table (6) shows serum total cholesterol levels in control and study cases at different age groups (mean ± SD). There is no statistical change neither between control and study cases at different age groups nor between different age groups of study cases and control cases ($p > 0.05$).

Table (7) shows serum total cholesterol levels in control and study cases at different gestational age (mean ± SD). There is no statistical significant difference neither between control and study cases at different gestational age groups nor between different age groups of study cases and control cases.

Table (8) shows serum triglycerides levels in control and study cases at different age groups (mean ± SD). Serum triglyceride level is significantly increased in study cases compared to control cases at age groups I, II and III ($p < 0.01$, $p < 0.001$ and $p < 0.001$ respectively). There is no significant difference is detected between different age groups of study and control cases ($p > 0.05$).

Table (5): Serum total cholesterol, triglycerides, HDL, LDL, Apo A1 and Apo B in study and control cases (Mean ± SD)

	Control (n=40)	Study (n=40)	T-value	P-value
T.cholesterol (mg%)	186.47±38.352	192.509±58.627	0.545	> 0.05
Triglyceride (mg%)	106.47±34.3097	197.76±76.5796	7.6179	< 0.001*
HDL (mg%)	54.6675±12.9798	43.5525±16.1499	3.393	< 0.01*
LDL (mg%)	110.5085±29.5472	109.404±40.1878	0.140	> 0.05
Apo A1 (g/L)	179.48 ± 40.33	118.44 ± 28.44	7.8228	< 0.001*
Apo B (g/L)	103.18 ± 31.29	164.25 ± 53.49	6.2327	< 0.001*

* Significant change

Table (6): Serum total cholesterol levels in control and study cases at different age groups (Mean ± SD)

Total Cholest. (mg%) / Age Groups in Years	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 20 years	209.875 ± 31.787 (n = 4)	222.85 ± 17.584 (n = 6)	0.744	> 0.05
Group II 21 – 25 years	179.988± 36.589 (n = 26)	183.16 ± 59.084 (n = 26)	0.211	> 0.05
Group III > 25 years	181.821 ± 78.323 (n = 2)	192.87 ± 67.319 (n = 14)	0.361	> 0.05
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

Table (7) : Serum total cholesterol levels in control and study cases at different gestational age (Mean ± SD)

Total Cholest. (mg%) / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 30 weeks	175.586 ± 51.372 (n = 7)	192.457 ± 61.746 (n = 7)	0.556	> 0.05
Group II 31 – 35 weeks	189.964 ± 41.885 (n = 11)	218.238 ± 55.620 (n = 13)	1.480	> 0.05
Group III > 35 weeks	186.959 ± 34.075 (n = 24)	175.80 ± 56.126 (n = 20)	0.823	> 0.05
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

Table (8): Serum triglyceride levels in control and study cases at different age groups (Mean ± SD)

Triglyceride (mg%) / Age Groups in Years	Control (n = 40)	Study (n = 40)	t	p
Group I < 20 years	97.6 ± 19.201 (n = 4)	221.0 ± 65.428 (n = 6)	4.348	< 0.01*
Group II 20 – 25 years	103.345± 36.427 (n= 26)	186.34 ± 64.663 (n = 20)	5.164	< 0.001*
Group III > 25 years	117.32 ± 34.48 (n = 10)	203.54 ± 74.48 (n = 14)	3.799	< 0.001*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (9) shows serum triglyceride levels in control and study cases at different gestational age groups (mean ± SD). In study cases, serum triglycerides is significantly increased at gestation at age group I, II and III as compared to control cases ($p < 0.01$, $p < 0.001$ and $p < 0.001$ respectively). There is no statistically significant difference is detected between different gestational age groups of study and control cases ($p > 0.05$

Table (10) shows serum HDL levels in control and study cases at different age groups (mean ± SD). Serum HDL is significantly decreased in age group II of study cases compared with control cases ($p < 0.01$). There is no significant difference is detected between different age groups of study and control cases.

Table (11) shows serum HDL levels in control and study cases at different gestational age groups (Mean ± SD). Serum HDL in study cases of gestational age group III is significantly lowered than control cases ($p< 0.001$). There is no significant difference is detected between different gestational age groups of study and control cases ($p > 0.05$).

Table (12) shows serum LDL levels in control and study groups at different age groups (mean ± SD). There is no statistical change between control and study cases at different age groups.

In study cases, serum LDL levels is significantly increased in age group I compared to age group II ($p < 0.05$).

In control cases, serum LDL levels is significantly increased in age group I compared to age group II ($p < 0.05$).

Table (9): Serum triglyceride levels in control and study cases at different gestational age groups (Mean ± SD)

Triglycerides (mg%) / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 30 weeks	99.214 ± 21.386 (n = 7)	171.0 ± 57.917 (n = 7)	3.076	< 0.01*
Group II 31 – 35 weeks	10.327 ± 30.338 (n = 11)	208.31 ± 75.10 (n = 13)	4.459	< 0.001*
Group III > 35 weeks	108.85 ± 39.921 (n = 22)	203.436 ± 68.90 (n = 20)	5.403	< 0.001*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (10): Serum HDL levels in control and study cases at different age groups (Mean ± SD)

HDL (mg%) / Age Groups in Years	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 20 years	60.45 ± 11.519 (n = 4)	51.05 ± 9.247 (n = 6)	1.365	> 0.05
Group II 21 – 25 years	65.458 ± 13.646 (n = 26)	42.025 ± 17.829 (n = 20)	2.798	< 0.01*
Group III > 25 years	62.15 ± 27.868 (n = 10)	42.52 ± 15.947 (n = 14)	2.005	> 0.05
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (11) : Serum HDL levels in control and study cases at different gestational age groups (Mean ± SD)

HDL (mg%) / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 30 weeks	50.786 ± 16.298 (n = 7)	46.757 ± 16.349 (n = 7)	0.421	> 0.05
Group II 31 – 35 weeks	52.918 ± 13.967 (n = 11)	47.477 ± 13.275 (n = 13)	0.973	> 0.05
Group III > 35 weeks	62.732 ± 19.313 (n = 22)	39.885 ± 16.658 (n = 20)	4.115	< 0.001*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (12): Serum LDL levels in control and study groups at different age groups (mean ± SD)

LDL (mg%) / Age Groups in Years	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 20 years	129.83 ± 18.513 (n = 4)	127.6 ± 11.336 (n = 6)	0.215	> 0.05
Group II 21 – 25 years	99.581 ± 31.323 (n = 26)	103.857 ± 39.44 (n = 20)	0.398	> 0.05
Group III > 25 years	107.546 ± 35.285 (n = 2)	109.501 ± 48.199 (n = 14)	0.115	> 0.05
P_1	< 0.05*	< 0.05*	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (13) shows serum LDL levels in control and study cases at different gestational age groups (mean ± SD).

There is no statistical difference neither between control and study cases at different gestational age groups nor between different gestational age groups of control cases ($p > 0.05$).

In study cases, serum LDL levels is significantly decreased in gestational age group III compared to gestational age group II ($p < 0.05$).

Table (14) shows serum Apo A1 levels in control and study cases at different age groups (mean ± SD).

Serum Apo A1 is significantly lowered in age groups I, II and III of study cases compared with control cases ($p < 0.01$, $p < 0.001$ and $p < 0.001$ respectively).

There is no statistical difference between different age groups of study cases and control ($p > 0.05$).

Table (15) shows serum Apo A1 levels in control and study grouops at different gestational age groups (mean ± SD).

Serum Apo A1 level is significantly lowered in study cases compared to control cases at gestational age groups I, II and III ($p < 0.01$, $p < 0.001$ and $p < 0.001$ respectively).

In study cases, serum Apo A1 level is significantly increased at gestational age groups III compared to gestational age group I.

In control cases, no significant difference is detected between different gestational age groups.

Table (13): Serum LDL levels in control and study cases at different gestational age groups (Mean ± SD).

LDL (mg%) / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 30 weeks	103.814 ± 34.879 (n = 7)	111.5 ± 37.833 (n = 7)	0.395	> 0.05
Group II 31 – 35 weeks	104.902 ± 29.028 (n = 11)	129.108 ± 41.801 (n = 13)	1.666	> 0.05
Group III > 35 weeks	103.921 ± 33.658 (n = 22)	108.959 ± 41.217 (n = 20)	0.748	> 0.05
P_1	> 0.05	< 0.05*	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	< 0.05*	---	---

* Significant change

Table (14): Serum Apo A1 levels in control and study cases at different age groups (Mean ± SD)

Apo A1 (g/L) / Age Groups in Years	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 20 years	2.028 ± 0.343 (n = 4)	1.1 ± 0.228 (n = 6)	4.756	< 0.01*
Group II 21 – 25 years	1.727 ± 0.400 (n = 26)	1.199 ± 0.338 (n = 20)	4.847	< 0.001*
Group III > 25 years	1.879 ± 0.418 (n = 10)	1.191 ± 0.237 (n = 14)	4.694	< 0.001*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

Table (15): Serum Apo A1 levels in control and study groups at different gestational age groups (Mean ± SD)

Apo A1 (g/L) / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 30 weeks	1.631± 0.544 (n = 7)	1.01 ± 0.240 (n = 7)	2.742	< 0.01*
Group II 31 – 35 weeks	1.88 ± 0.399 (n = 11)	1.152 ± 0.246 (n = 13)	5.264	< 0.001*
Group III > 35 weeks	1.845 ± 0.335 (n = 22)	1.241 ± 0.293 (n = 20)	6.261	< 0.001*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	< 0.05*	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (16) shows serum Apo B levels in control and study cases at different age groups (mean ± SD).

In study cases, serum Apo B level is significantly increased in age group II and III compared to control cases ($p < 0.001$) and ($p < 0.01$) respectively.

There is no statistical change between different age groups of control and study cases.

Table (17) shows serum Apo B levels in control and study cases at different gestational age groups (mean ± SD).

In study cases, serum Apo B is significantly increased at gestational age group III compared to control cases ($p < 0.05$). There is no statistical difference between different gestational age groups of control and study cases.

Table (18) shows no direct correlation between serum insulin levels and serum total cholesterol ($r = 0.20655$; $p > 0.05$), HDL ($r = 0.31025$; $p > 0.05$), LDL ($r = 0.27011$; $p > 0.05$) and serum Apo B ($r = 0.3247$; $p > 0.05$). Meanwhile there is direct correlation between serum insulin and serum triglycerides levels ($r = 0.4997$; $p = < 0.05$) and serum Apo A1 ($r = 0.5116$; $p < 0.05$).

Table (16): Serum Apo B levels in control and study cases at different age groups (Mean ± SD)

Apo B (g/L) / Age Groups in Years	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 20 years	1.203 ± 0.270 (n = 4)	1.255 ± 0.735 (n = 6)	0.158	> 0.05
Group II 21 – 25 years	0.983 ± 0.336 (n= 26)	1.58 ± 0.566 (n = 20)	4.184	< 0.001*
Group III > 25 years	1.108 ± 0.257 (n = 10)	1.675 ± 0.549 (n = 14)	3.380	< 0.01*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (17): Serum Apo B levels in control and study cases at different gestational age groups (Mean ± SD)

Apo B (g/L) / Gestational Age Groups in Weeks	Control (n = 40)	Study (n = 40)	t	p
Group I ≤ 30 weeks	0.871 ± 0.369 (n = 7)	1.397 ± 0.647 (n = 7)	1.835	> 0.05
Group II 31 – 35 weeks	1.109 ± 0.320 (n = 11)	1.610 ± 0.520 (n = 13)	1.602	> 0.05
Group III > 35 weeks	1.022 ± 0.304 (n = 22)	1.675 ± 0.518 (n = 20)	2.094	< 0.05*
P_1	> 0.05	> 0.05	---	---
P_2	> 0.05	> 0.05	---	---
P_3	> 0.05	> 0.05	---	---

* Significant change

Table (18): Correlation between insulin and lipids among study cases

Lipids \ Insulin	r	p
T. cholest	**0.20655**	**> 0.05**
HDL	**0.31025**	**> 0.05**
LDL	**0.27011**	**> 0.05**
Triglycerides	**0.4997**	**< 0.05***
Apo A1	**0.5116**	**< 0.05***
Apo B	**0.3247**	**> 0.05**

* Significant change

r = correlation coefficient.

p > 0.05 = insignificant.

p < 0.05 = significant.

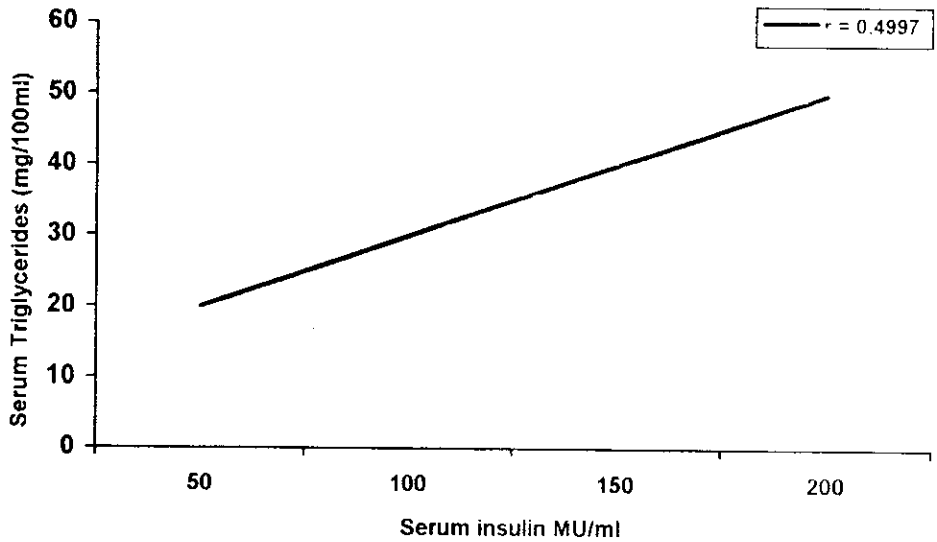

***Figure (1)** : Scatteplot showing serum insulin levels and serum triglycerides in preeclampsia patient.*

In figure (1) it is shown that with increase in serum insulin levels there is an increase in serum triglycerides levels. This means a positive linear correlation is present between serum insulin levels and serum triglycerides levels which is found to be statistically significant ($p < 0.05$) as the corresponding correlation coefficient "r" = 0.4997.

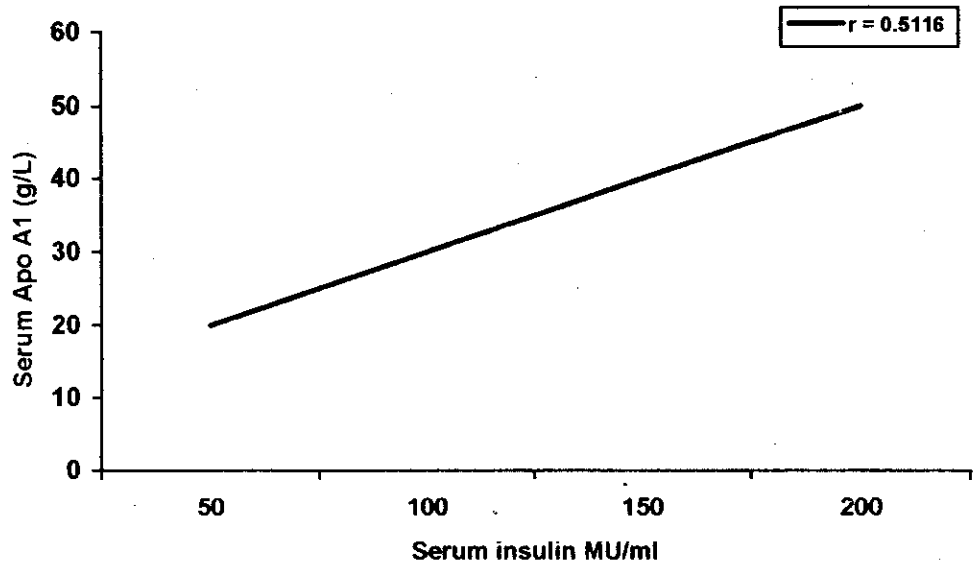

***Figure (2)** : Scatteplot showing serum insulin levels and serum ApoA1 in preeclampsia patients.*

In figure (2) it shown that with increase in serum insulin levels there is an increase in serum ApoA1 levels. This means a positive linear correlation is present between serum insulin levels and serum ApoA1 levels which is found to be statistically significant ($p < 0.05$) as the corresponding correlation coefficient "r" = 0.5116.

Table (19): Multiple regression analysis of blood pressure and serum lipids.

Variables	Reg. Coefficient	S.E.	F value	p
Apo A1	22.314	5.382	12.480	< 0.01
Triglycerides	21.063	5.962	11.936	< 0.01
LDL	5.413	2.0.61	6.862	< 0.05
Constant	191.360			

R = 0.207

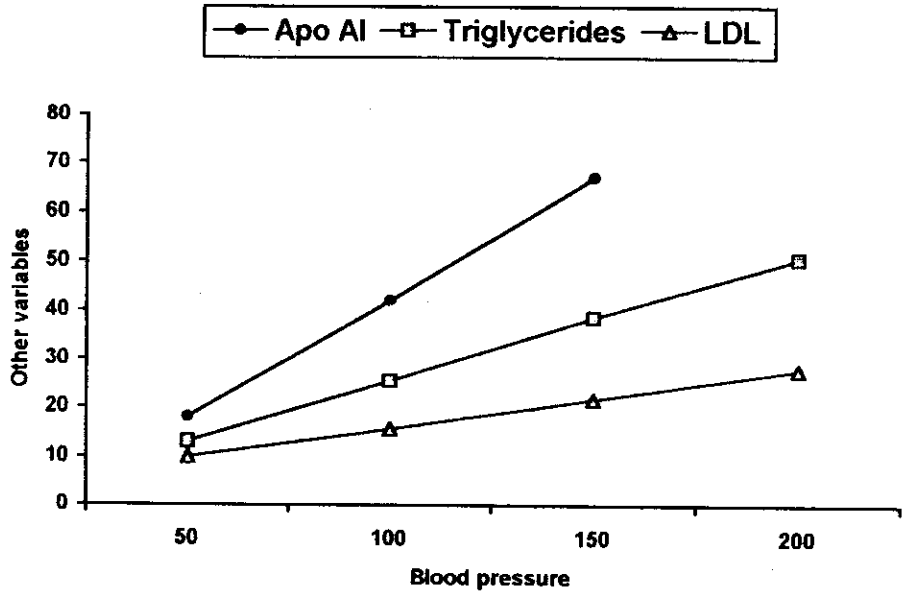

***Figure (3)** : Multiple regression curve*

In figure (3) it is shown that serum ApoAI is most affected by increase of blood pressure which is found to be statistically significant ($P < 0.01$) as the Regression Coefficient = 22.314, serum triglycerides is more affected by increase in blood pressure which found to be statistically significant ($P < 0.01$) as the Regression Coefficient = 21.063 and serum LDL is less affected by increase in blood pressure which is found to be statistically significant ($P < 0.01$) as the Regression Coefficient = 5.413.