Results

The data were collected, tabulated and statistically evaluated.

Table (1) Comparison between both groups   as regard clinical characteristics

variables	Control group (n = 25)	Preeclamptic group (n = 25)	P vaolue
Age (yrs)	26+5	27+4	>0.05 NS
Gestational age (wks)	39.4+0.7	38+1	<0.001 NS
Parity			
PG	8(32%)	9(36%)	
P1	5(20%)	5(20%)	>0.05 NS
P2	7(28%)	6(24%)	
P3	3(12%)	5(20%)	
P4	2(8%)	0	
Mean + SD	1+0.7	1+0.4	
Systolic blood Pressure	113+8	160+15	<0.001 HS
diastolic blood Pressure	71+6.6	99+10	<0.001 HS

Regarding **age**, there was no significant difference between Preeclamptic groups, the mean (± SD) (27±4 years) in comparison to control group (26±5 years) (table 1).

Regarding **gestational age**, there was no significant difference between Preeclamptic groups, the mean (± SD) (**38±1 w**) in comparison to control group (39.4±0.7 w) (table 1).

Regarding **gravidity and parity**, there was no statistical significant difference between preeclamptic group, the mean (± SD) (1±0.7) in comparison to control group (1±0.4) (table 1).

Regarding **blood pressure**, the mean (± SD) *systolic* blood pressure was (113+8) mmHg in the Control group and (160+15) mmHg in the Preeclamptic group. The mean (± SD) *diastolic* blood pressure was (71+6.6) mmHg in the Control group and (99+10) mmHg in the Preeclamptic group indicating highly statistically significant difference between both groups by using chi-square test(table 1).

Table (2) Comparison between both groups   as regard macroscopic examination of placentae

	Control group (n = 25)	Preeclamptic group (n = 25)	P value
Placental shape			
Oval	8(32%)	11(44%)	**>0.05 NS**
Circular	11(44%)	9(36%)	
Irregular	6(24%)	5(20%)	
Marginal insertion of the cord			
No	24(96%)	19(76%)	**<0.05 S**
Yes	1(4%)	6(24%)	
Placental weight (gm)	511$\pm$117	439$\pm$97	**<0.05 S**
Cotyledon number per placenta	17.8$\pm$2.5	16$\pm$2.1	**<0.05 S**

In this study, in Control group, the number of oval shaped placenta was 8(32%), the number of circular shaped placenta was 11(44%), and the number of irregular shaped placenta was 6 (24%).In Preeclamptic group, the number of oval shaped placenta was 11(44%), the number of circular shaped placenta was 9(36%), and the number of irregular shaped placenta was 5(20%).There is no statistically significant difference between both groups as regard placental shape by using chi-square test(table 2).

In this study, in Preeclamptic group, marginal insertion of the cord was noticed in 6(24%) cases. In Control group, it was seen in only 1(4%) case. Preeclamptic group had higher frequency of marginal cord insertion compared to normal group with statistically significant difference between both groups as regard marginal insertion of the cord by using Fisher exact test (table ٢ and figure 19).
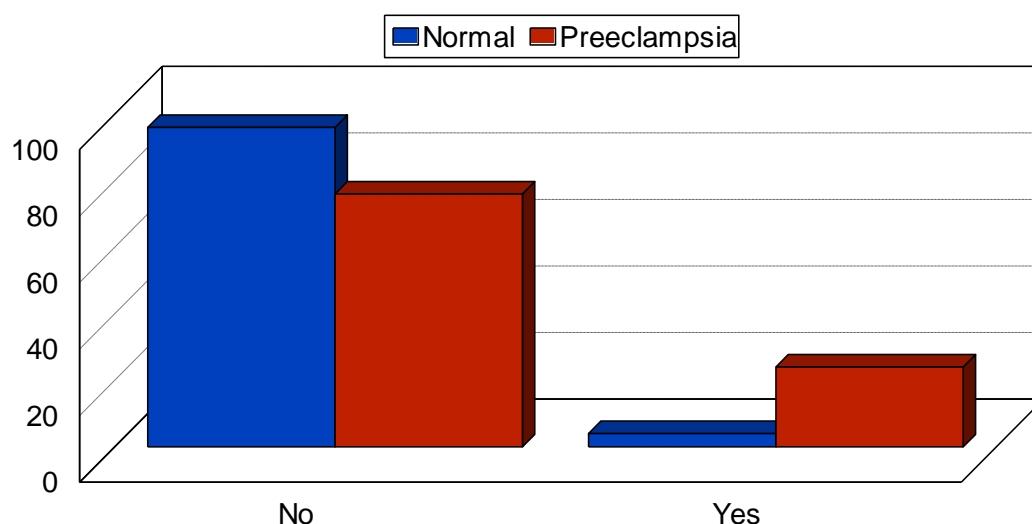

Figure (19): Comparison between Study and Control groups as regard marginal insertion of the cord.

In the present study the mean (± SD) weight of the placenta was (511±117) gm in the Control group and (439±97) gm in the Preeclamptic group

by using unpaired t-test. Preeclampsia group had lower placental weight compared to normal group with statistically significant difference in between (table 2 and figure 20).

In the present study the mean ($\pm$ SD) number of cotyledons per placenta was (17.8$\pm$2.5) in the Control group and (16$\pm$2.1) in the Preeclamptic group by using unpaired t-test. Preeclampsia group had lower cotyledon number compared to normal group with statistically significant difference in between (table 2 and figure 22).
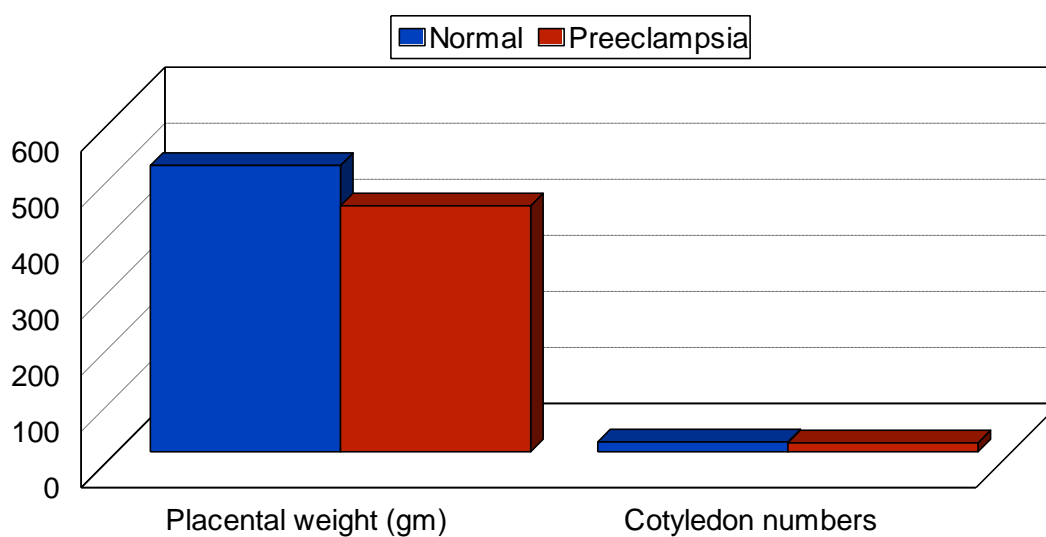

Figure (20): Comparison between Study and Control groups as regard placental weight and cotyledon numbers per placenta.

Table (3) Comparison between both groups   as regard microscopic examination of placentae

	Control group (n = 25)	Preeclamptic group (n = 25)	P value
Placental infarctions			**<0.001 HS**
No	20(80%)	5(20%)	
Yes	5(20%)	20(80%)	
placental atherosis			
No	24(96%)	13(52%)	
Yes	1(4%)	12(48%)	**<0.001 HS**
Tenney-Parker changes			**<0.001 HS**
No	23(92%)	5(20%)	
Yes	2(8%)	20(80%)	
Haylinized areas			**<0.05 S**
No	24(96%)	19(76%)	
Yes	1(4%)	6(24%)	

In this study, in Preeclamptic group, the occurrence of placental infarctions has been noted in 20(80%) cases. In Control group, it was seen in only 5(20%) cases. preeclamptic group had higher frequency of placental infarctions compared to normal group with statistically high significant difference in between by using Fisher exact test(table 3 and figure 21).
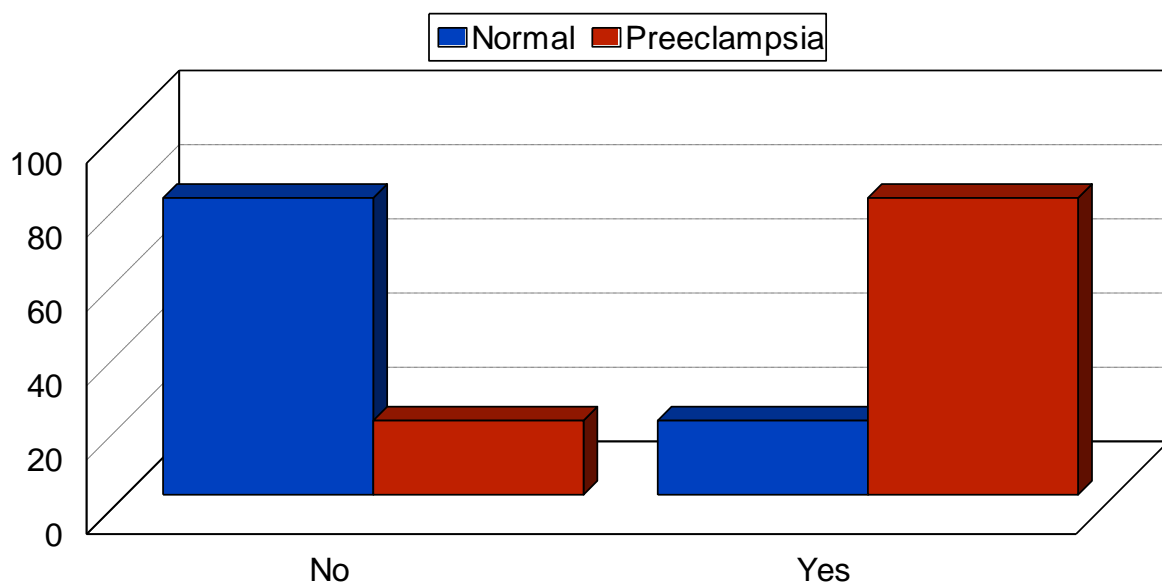

Figure (21): Comparison between Study and Control groups as regard presence of placental infarctions.

In this study, in Preeclamptic group, the occurrence of placental atherosis has been noted in 12(48%) cases. In Control group, it was seen in only 1(4%) case. Preeclamptic group had higher frequency of placental atherosis compared to normal group with statistically high significant difference in between by using Fisher exact test (table 3 and figure 22).
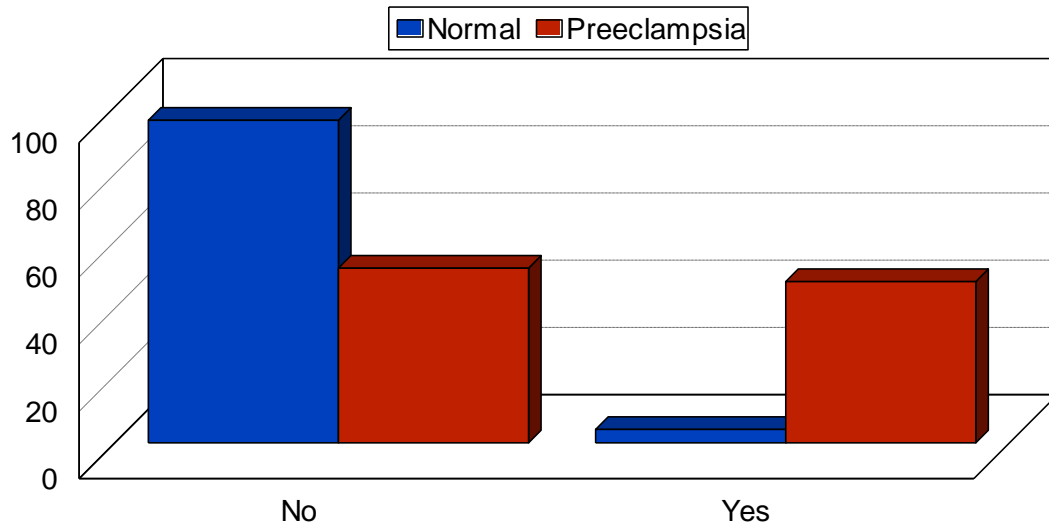
Figure (22): Comparison between Study and Control groups as regard presence of placental atherosis.

In the present study, in Preeclamptic group, the presence of Tenny Parkers changes has been noted in 20(80%) cases. In Control group, it was seen in 2(8%) cases. Preeclamptic group had higher frequency of placental Tenny Parkers changes compared to normal group with statistically high significant difference in between by using Fisher exact test (table 3 and figure 23).
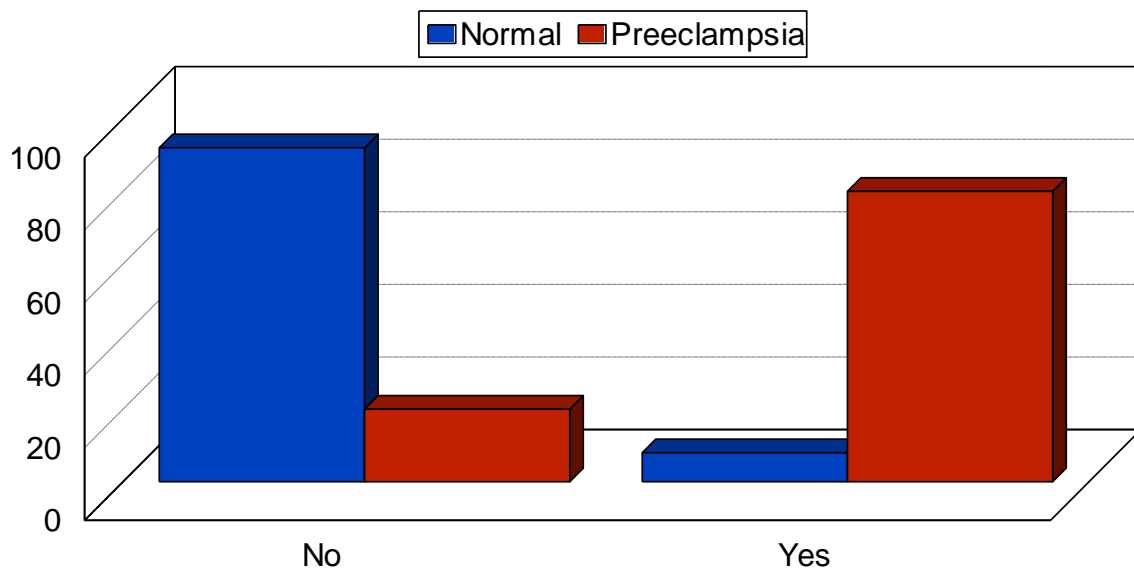

Figure (23): Comparison between Study and Control groups as regard presence of Tenney-Parker changes.

In this study, in Preeclamptic group, the occurrence of placental hyalinized areas has been noted in 6(24%) cases. In Control group, it was seen in only 1(4%) cases. Preeclamptic group had higher frequency of placental hyalinized areas compared to normal group with statistically significant difference in between by using Fisher exact test (table 3 and figure 24).
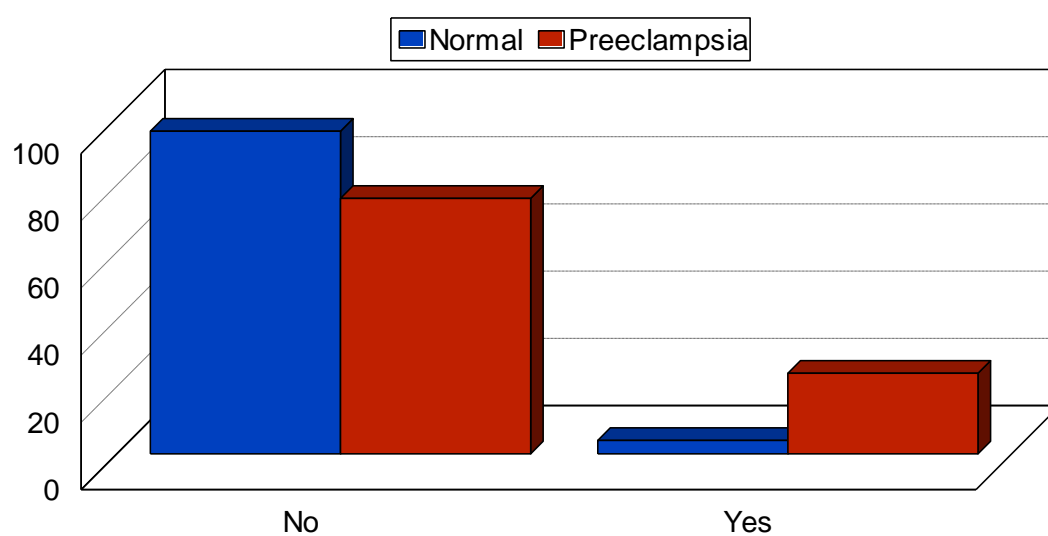

Figure (24): Comparison between Study and Control groups as regard presence of haylinized areas.

In the present study, in Control group, the mean±SD of endoglin level was (5.1±2.7) ng/ml and range was from (1.8-12). In Preeclamptic group, it was (9.1±4) ng/ml and range was from (4.3-17). Preeclamptic group had higher endoglin level compared to normal group with statistically *highly significant* difference in between by using **Mann Whitney tes**t (table 4 and figure 25).

Table (4) Comparison between both groups   as regard soluble endoglin (ng/ml)

Soluble Endoglin (ng/ml)	Control group (n = 25)	Preeclamptic group (n = 25)	z	P value
Mean ± SD	5.1±2.7	9.1±4	**4**	**<0.001 HS**
Range	1.8-12	4.3-17		

This table shows that preeclampsia group had higher endoglin level compared to normal group with statistically highly significant difference in between by using **Mann Whitney tes**t.
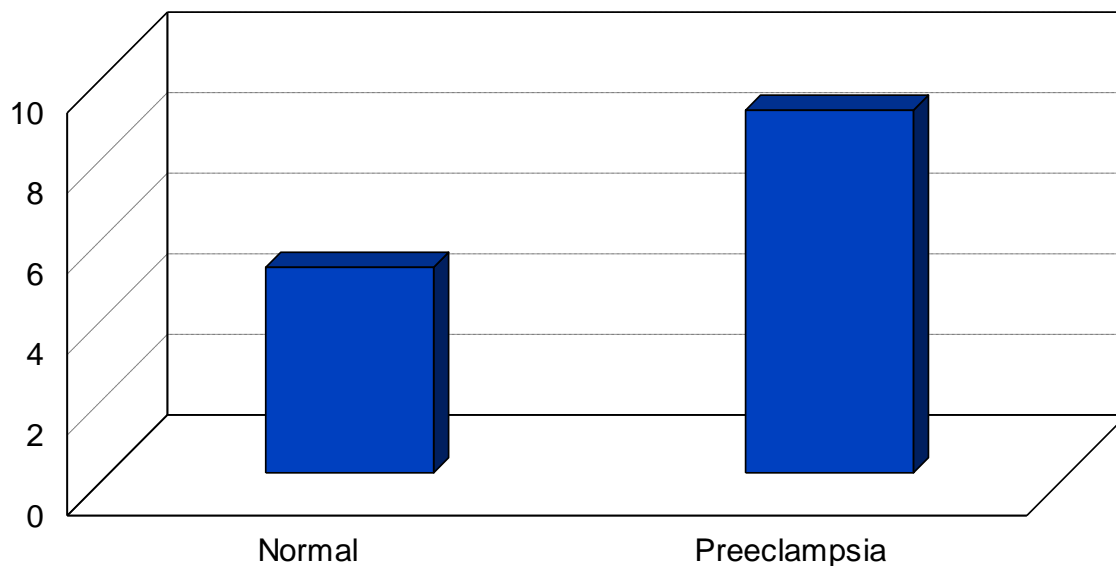

Figure (25): Comparison between Study and Control groups as regard Solube endoglin level (ng/ml).

Table (5) Relation between endoglin versus placental histopathological changes among controls

Histopathology	Endoglin		X²	P
	≥5.5	<5.5		
Shape of placenta			1.8	>0.05
Oval	3(50%)	5(26.3%)		NS
Circular	2(33.3%)	9(47.4%)		
Irregular	1(16.7%)	5(26.3%)		
Marginal insertion of the cord			#	>0.05
No	6(100%)	18(94.7%)		NS
Yes	0	1(5.3%)		
Placental infarctions			#	>0.05
No	3(50%)	17(89.5%)		NS
Yes	3(50%)	2(10.5%)		
Placental atherosis			#	>0.05
No	6(100%)	18(94.7%)		NS
Yes	0	1(5.3%)		
Tenney-Parker changes			#	>0.05
No	5(83.3%)	18(94.7%)		NS
Yes	1(16.7%)	1(5.3%)		
haylinized areas			#	>0.05
No	6(100%)	18(94.7%)		NS
Yes	0	1(5.3%)		

This table shows no statistically significant relation between endoglin versus placanetal histopathology among controls by using chi-square test.

 # Fisher

Table (6) Relation between endoglin versus placental histopathological changes among cases

Histopathology	Endoglin		X^2	P
	≥5.5	<5.5		
Shape of placenta			0.8	>0.05
Oval	7(38.9%)	4(57.1%)		NS
Circular	7(38.9%)	2(28.6%)		
Irregular	4(22.2%)	1(14.3%)		
Marginal insertion of the cord			#	>0.05
No	14(77.8%)	5(71.4%)		NS
Yes	4(22.2%)	2(28.6)		
Placental infarctions			#	>0.05
No	3(16.7%)	2(28.6%)		NS
Yes	15(83.3%)	5(71.4%)		
Placental atherosis			#	>0.05
No	9(5%)	4(57.1%)		NS
Yes	9(50%)	3(42.9%)		
Tenney-Parker changes			#	>0.05
No	5(27.8%)	0		NS
Yes	13(72.2%)	7(100%)		
haylinized areas			#	>0.05
No	13(72.2%)	6(85.7%)		NS
Yes	5(27.8%)	1(14.3%)		

This table shows no statistically significant relation between endoglin versus placental histopathology among cases by using chi-square test.

 # Fisher exact

Table (7) Correlation between endoglin versus other variables among cases

Variables	P
Age	>0.05
Parity	>0.05
Gestational age	>0.05
Systolic blood pressure	**<0.05 S**
diastolic blood pressure	**<0.05 S**
Placental weight	>0.05
Cotyledon numbers	>0.05

This table shows   statistically significant *positive correlation* between endoglobin versus systolic and diastolic by using Spearman correlation test. No significant correlation versus other variables.

Table (8) Correlation between endoglin versus other variables among controls

Variables	Endoglin	
	r	p
Age	-0.12	>0.05
Parity	0.10	>0.05
Gestational age	-0.24	>0.05
Systolic blood pressure	-0.20	>0.05
diastolic blood pressure	-0.07	>0.05
Placental weight	-0.12	>0.05
Cotyledon numbers	0.13	>0.05

This table shows no   statistically significant correlation between endoglin versus different variables by using Spearman correlation test.