STATISTICAL ANALYSIS
RESUILTS

The study consists of thirty full term neonates distributed in two groups:

a- contorol group : 10 neonates .

b- case group : 20 neonates :

1- mild cases : 6 neonates

2- moderate cases : 7 neonates

3- severe cases : 7 neonates

1-DISCRIPTIVE STUDY

CASES AND CONTROL

Table [15]:Sex distribution in both cases and control

Sex	Frequency	Percent	Frequency	Percent
	Cases		Control	
Male	10	50%	5	50%
Female	10	50%	5	50%
Total	20	100%	10	100%

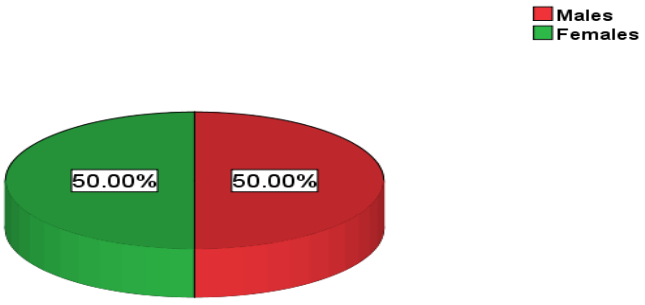


Figure [6]: Sex of both cases and control

Table [16]: Range and mean of gestational age, birth weight, prolactin and growth hormone serum levels in both cases and control

Study group	Birth Weight range	Birth Weight mean	Gestational age range	Gestational age mean	GH Range ng\ml	GH mean	Prolactin range m.i.u \mL	Prolactin mean
Control	2.8-3.7 kg	3.24	37-39 w	37.5	2.3-7.4	4.62	162-650	446.6
Mild cases	3-3.7 kg	3.3	37-38 w	37.5	3.12- 7.1	5.47	950-1321	1176.8
Moderate cases	3.2-3.7 kg	3.46	37- 39 w	37.7	11.6-20	14.1	1350-1880	1650.3
Severe cases	3-3.8 kg	3.44	37-39 w	37.7	1.1-20	6.23	1980-3296	2509.3

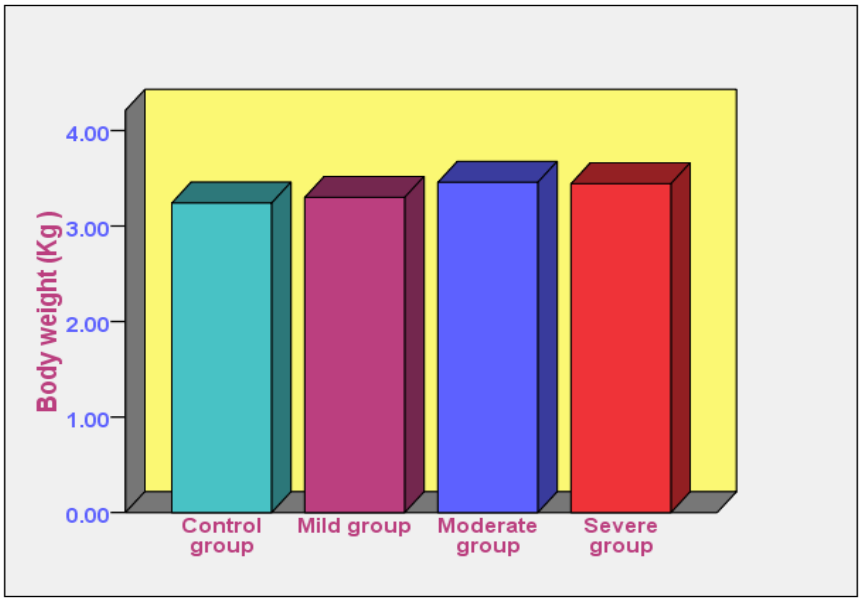
2- COMPARATIVE STUDY

A-CASES AND CONTROL :

Table [17] : Comparison between cases and control regarding birth weight

	Group	N	Range	Mean	Std.Deviation	t	p
Birth weight	control	10	2.8-3.7 kg	37.5	.3098	.396	>.05
	mild cases	6	3-3.7 kg	37.5	.2608		
	control	10	2.8-3.7 kg	37.٥	.310	1.672	>.05
	moderate cases	7	3.2-3.7 kg	37.7	.172		
	control	10	2.8-3.7 kg	37.5	3.24	1.409	>.05
	severe cases	7	3-3.8 kg	37.7	3.44		

Figure [7]: Birth weight of both cases and control.

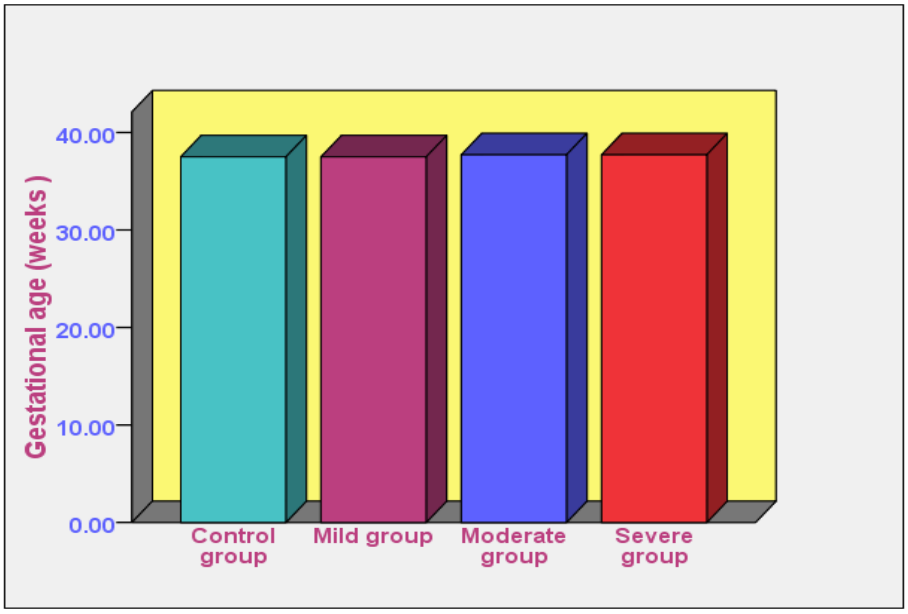


-Both table [17] and figure [7] shows no significant difference regarding birth weight .

Table [18] : Comparison between control and cases regarding gestational age

	Group	N	Range	Mean	Std.Deviation	t	p
Gestational age	control	10	37-39 w	37.5	.707	.000	>.05
	mild cases	6	37-38 w	37.5	.548		
	control	10	37-39 w	37.5	.707	.598	>.05
	moderate cases	7	37-3٩ w	37.7	.755		
	control	10	37-39 w	37.5	.707	.598	>.05
	severe cases	7	37-39 w	37.7	.755		

Figure [8] : Gestational age in both cases and control .

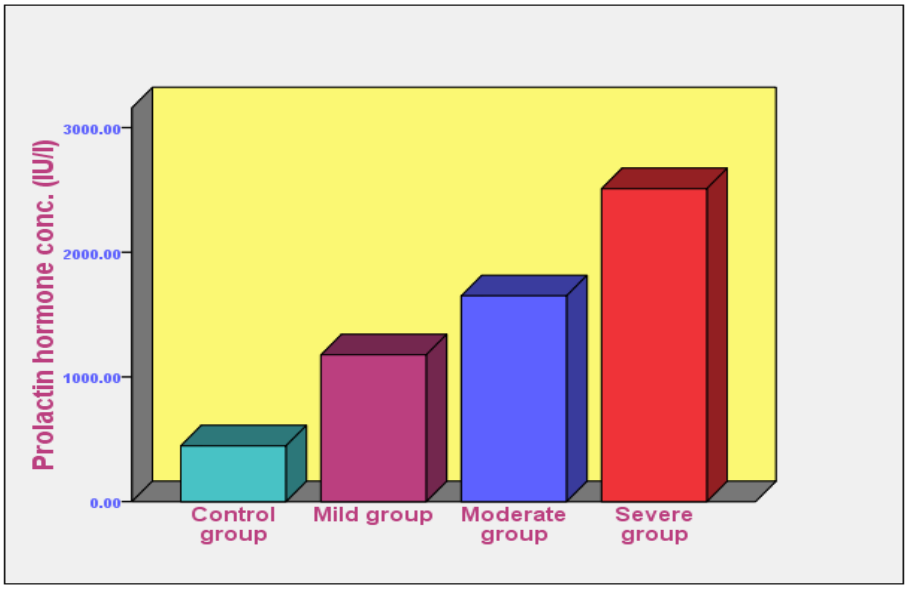


-Both table [18] and figure [8] shows no significant difference regarding gestational age between cases and control .

Table [19] : Comparison between control and cases regarding prolactin serum level .

	Group	N	Range [m.i.u \mL]	Mean	Std.Deviation	t	p
Prolactin	control	10	162-650	446.6	194.33	7.889	< **.01**
	mild cases	6	950-1321	1176.8	148.33		
	control	10	162-650	446.6	194.33	12.213	< **.01**
	moderate cases	7	1350-1880	1650.3	208.18		
	control	10	162-650	446.6	194.33	13.106	< **.01**
	severe cases	7	1980-3296	2509.3	445.33		

Figure [9] : Prolactin hormone serum level in both cases and control .

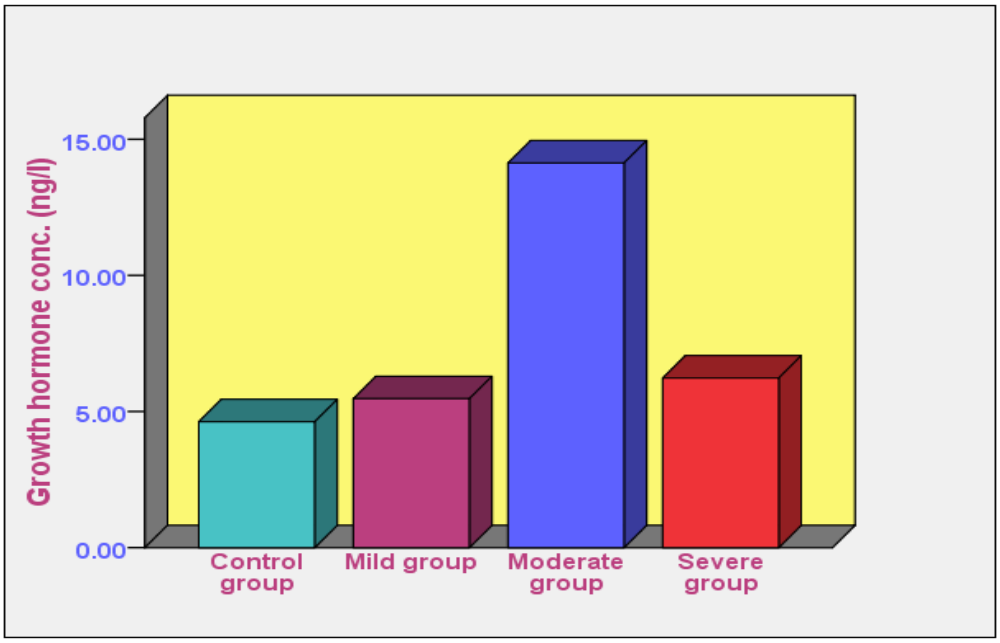


- Table [19]and figure [9] ; show high significant increase[p< .01] in prolactin serum level of cases compared to control group ; and this increase was directly proportional to the severity of HIE .

Table [20] : Comparison between control and cases regarding GH serum level

	Group	N	Range	Mean	Std.Deviation	t	p
GH	control	10	2.3-7.4 ng\ml	4.622	1.558	1.022	>.05
	mild cases	6	3.12-7.1 ng\ml	1176.8	148.33		
	control	10	2.3-7.4 ng\ml	4.62	1.558	8.875	< **.01**
	moderate cases	7	11.6-20 ng\ml	14.129	2.859		
	control	10	2.3-7.4 ng\ml	4.62	1.558	1.409	>.05
	severe cases	7	1.1-20 ng\ml	6.228	8.014		

Figure [10] : Growth hormone serum levels in both cases and control .



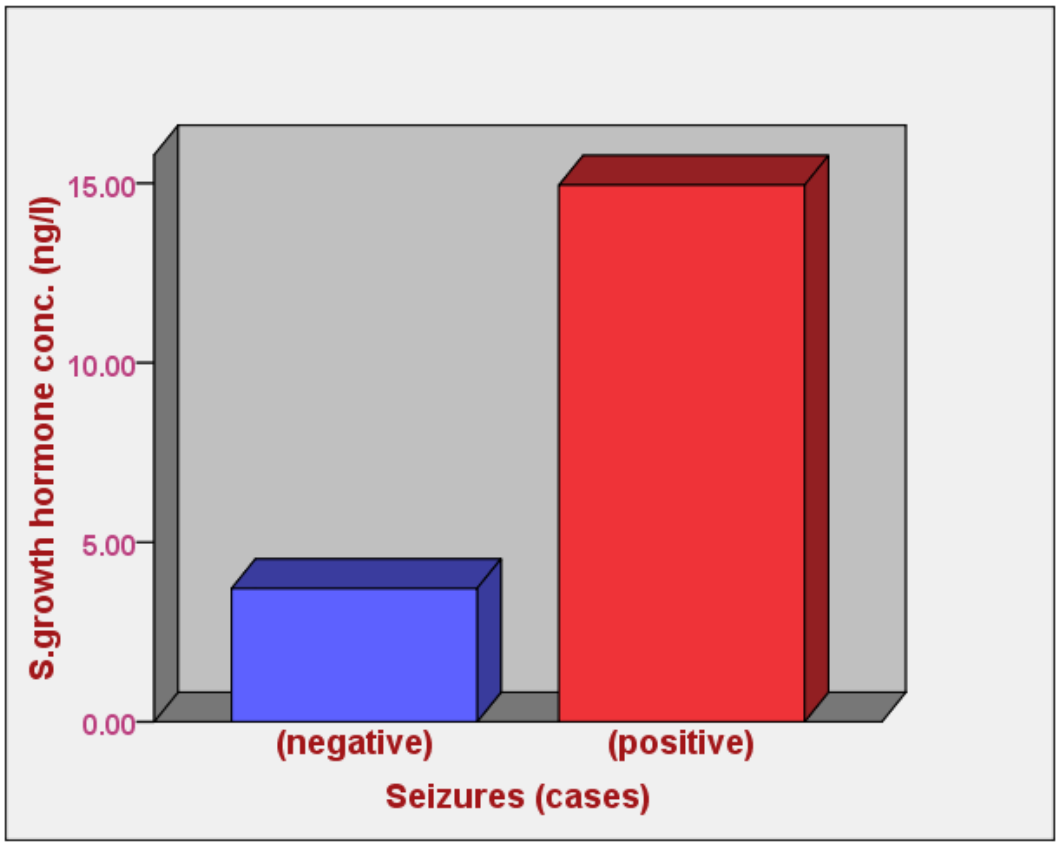
- Table [20]and Figure [10] show:
  1- High significant increase [p< .01] in GH serum level of moderate cases compared to control group .
  2- No significant differenc in GH serum level of both mild and severe cases compared to control group .

2- COMPARATIVE STUDY

B-COMPARISON BETWEEN CASES REGARDING SEIZURES :

Table [21] : Comparison between cases regarding seizures occurrence and serum levels of GH.

	Seizures	N	Mean	Std.Deviation	t	p
GH	Negative	11	3.711	2.365	9.105	**<.01**
	Positive	9	14.944	3.156		



Figure[11]: GH serum levels in cases regarding seizures occurrence .

- Table [21] and figure[11] shows high significant increase[p< ,01] of GH serum level in cases suffered of seizures .

Table [22] : Comparison between cases regarding seizures occurrence and serum levels prolactin .

	Seizures	N	Mean	Std.Deviation	t	p
Prolactin	Negative	11	1.696	633.95	.884	>.05
	Positive	9	1.948	635.747		

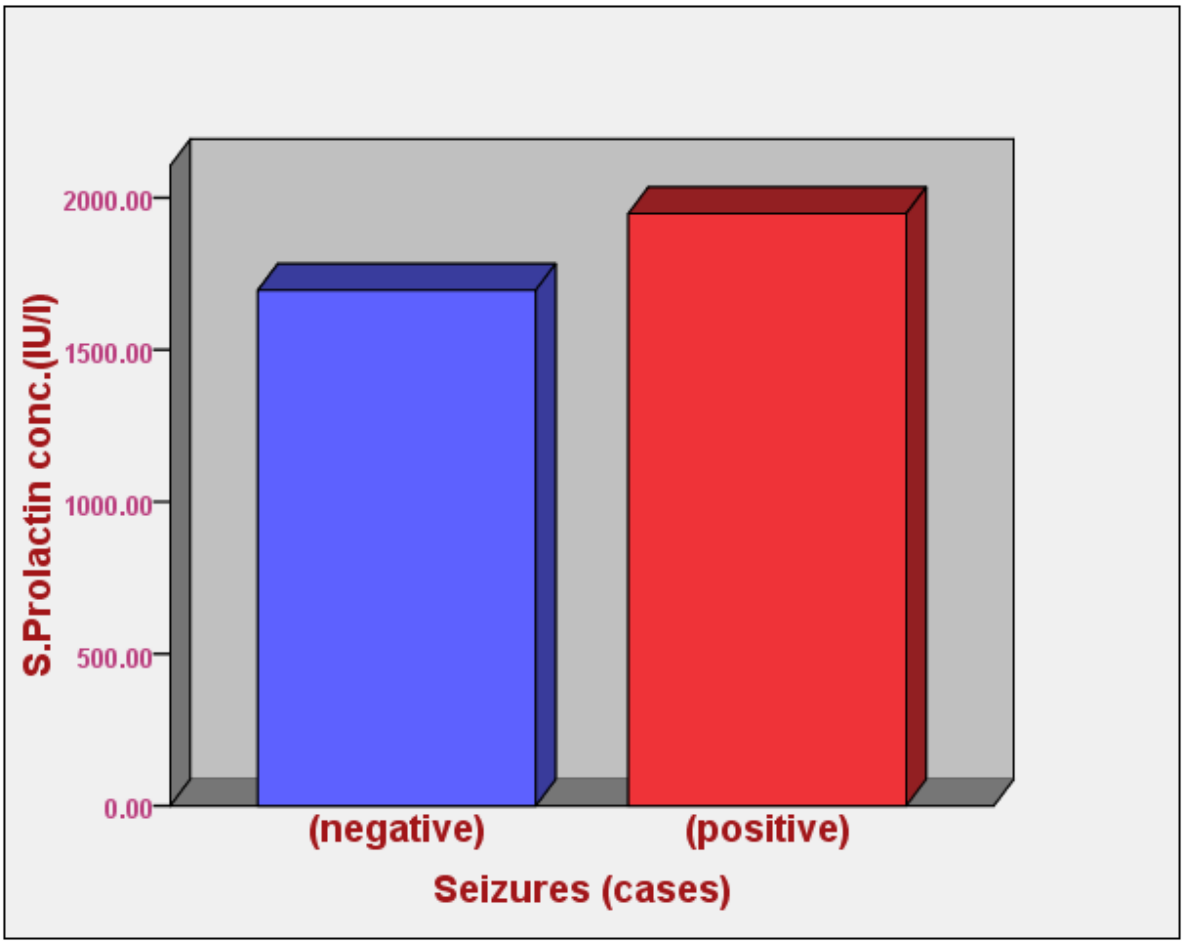


Figure [12] : prolactin serum levels in cases regarding seizures .

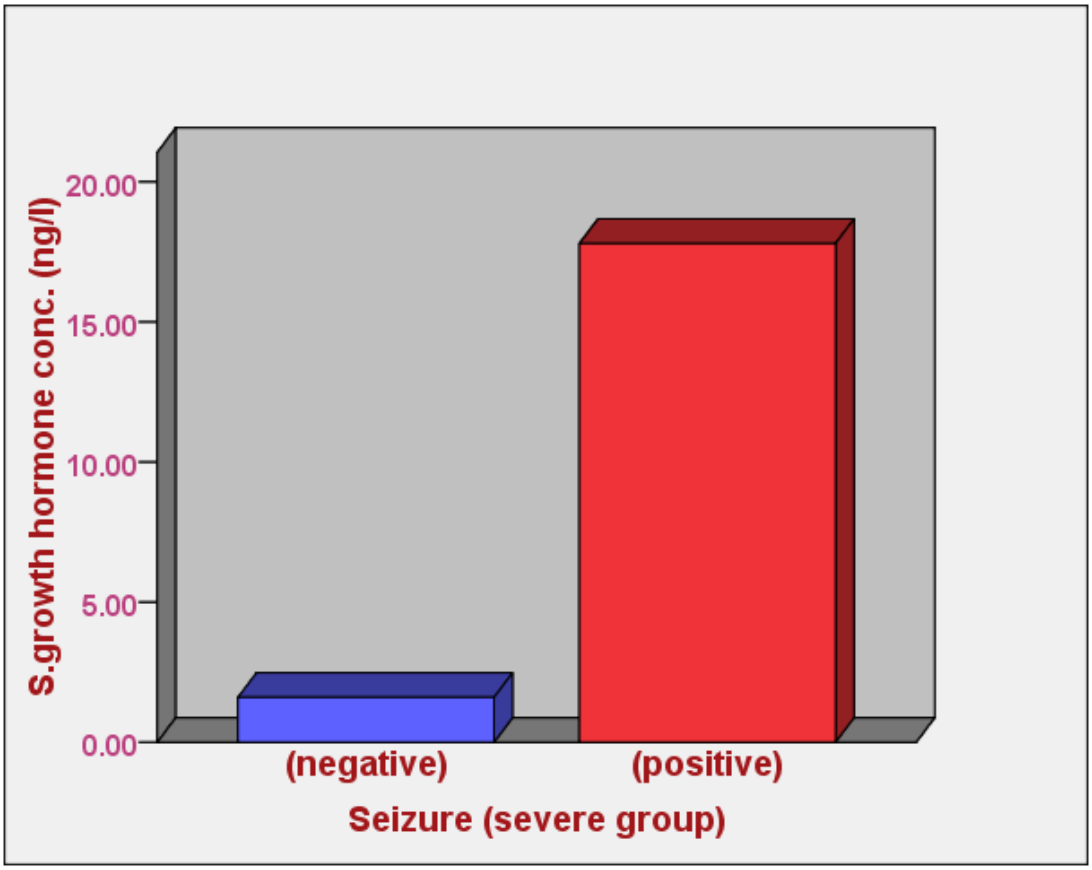
- Table [22] and figure [12] shows no significant difference [p>,05] of prolactin serum level in cases suffered of seizures .

2-COMPARATIVE STUDY

C-COMPARISON BETWEEN SEVERE CASES REGARDING SEIZURES :

Table [23] : Comparison between severe cases regarding seizures and serum levels of GH.

	Seizures	N	Mean	Std.Deviation	t	p
GH	Negative	5	1.6	.43589	1.20897	**<.01**
	Positive	2	17.8	3.11127		

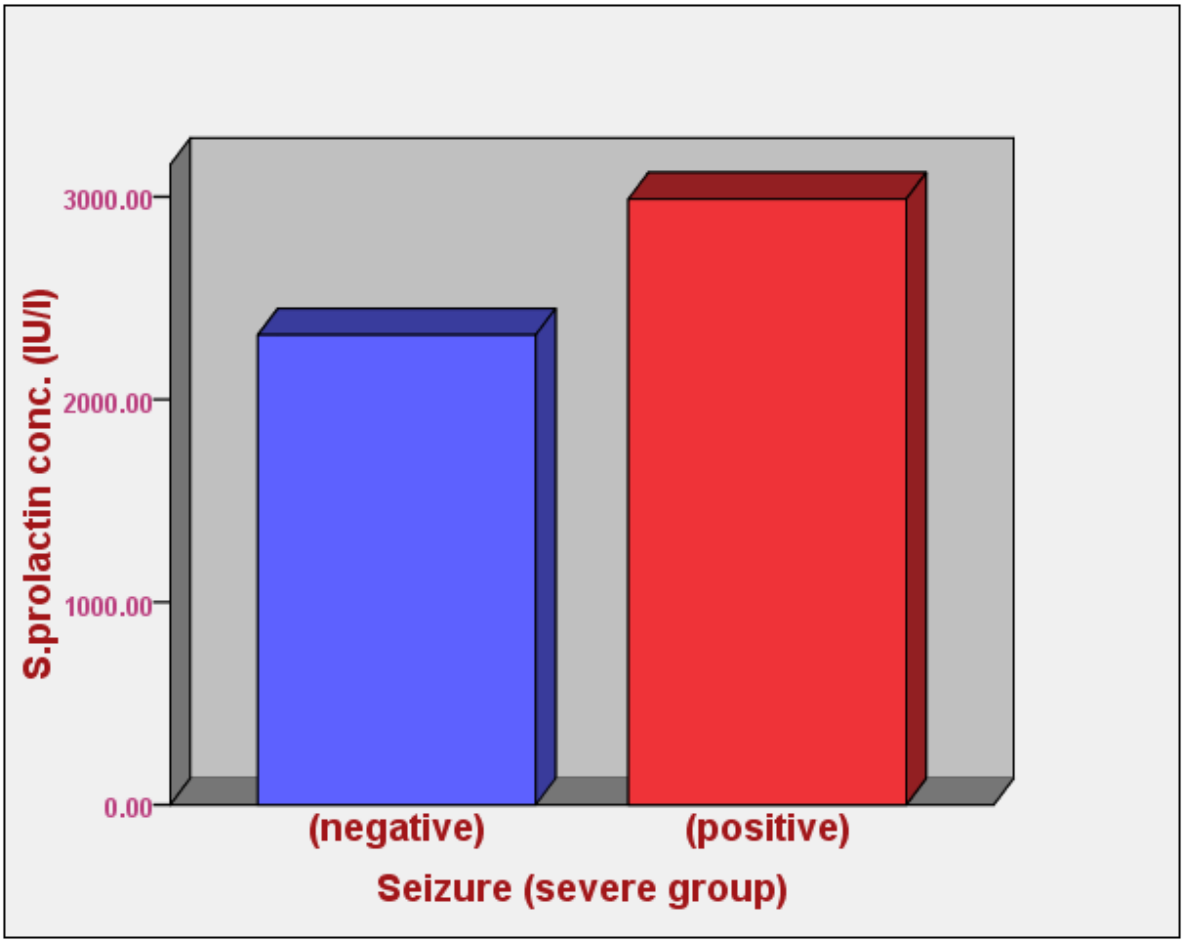


Figure[13]: GH serum levels in severe cases regarding seizures .

- Table [23] and figure[13] shows high significant increase[p< ,01] of GH serum level in severe cases suffered of seizures .

Table [24] : Comparison between severe cases regarding seizures and serum levels of prolactin .

	Seizures	N	Mean	Std.Deviation	t	p
Prolactin	Negative	5	2317.8	299.38721	277.04915	>.05
	Positive	2	2988	435.57778		

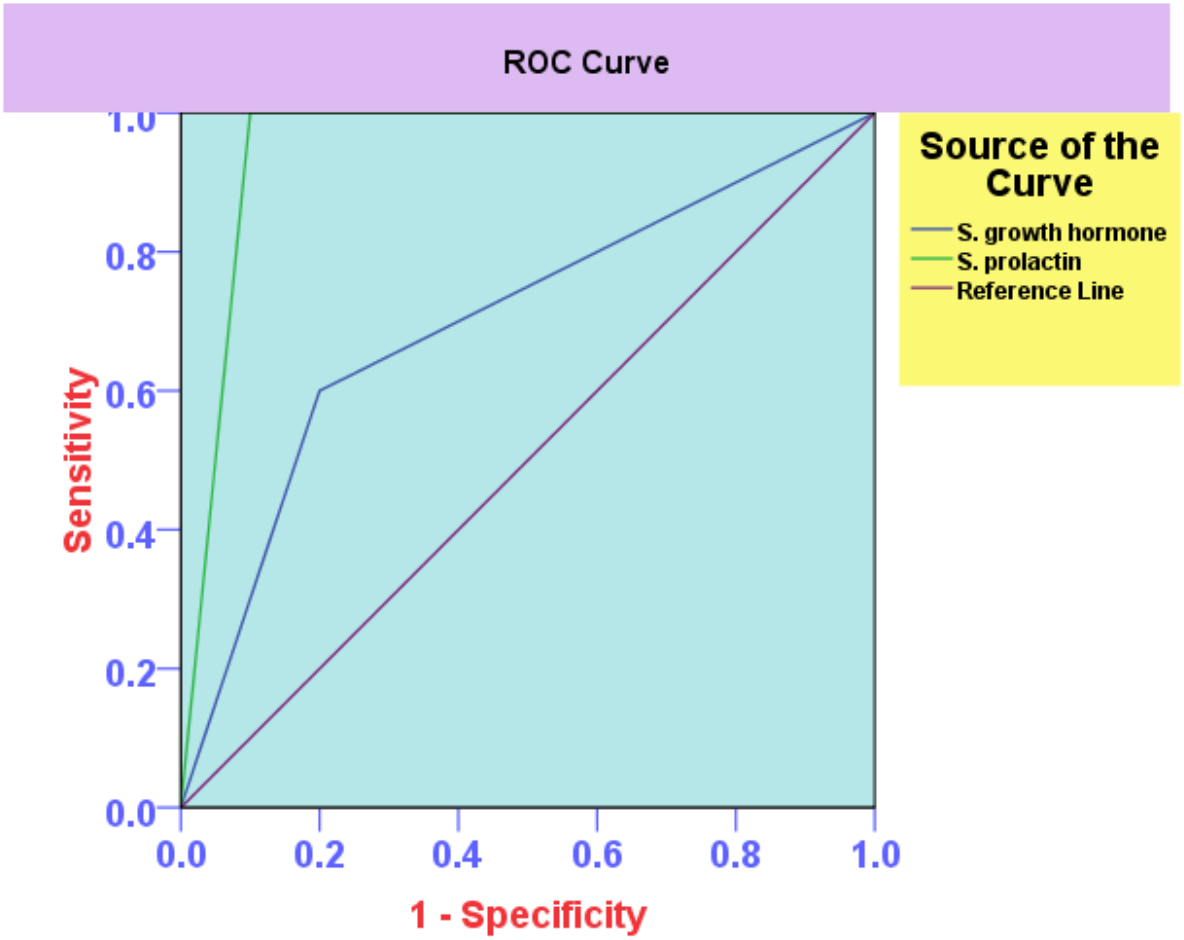


Figure[14]: prolactin serum levels in severe cases regarding seizures .

- Table [24] and figure[14] shows no significant difference [p>,05] of prolactin serum level in severe cases suffered of seizures .

Table[25] : Declaring specificity and sensitivity of GH and prolactin to HIE diagnosis using area under the ROC curve .

Test variable	Area under the curve
GH	70%
Prolactin	95%



Figure[15]: ROC curve showing specificity and sensitivity of GH and prolactin to HIE diagnosis .

Table[25] and figure[15] ;show that prolactin is more specific and sensitive to HIE diagnosis than GH as it has bigger area under the ROC curve than GH .

Table [26] :Specificity , sensitivity, positive predictive value and negative predictive value :

	Disease present	No disease present
Positive	a	b
Negative	c	d

Sensitivity = a / (a+c)
Specificity = d/ (b+d)
positive predictive value =a/ (a+c)
negative predictive value = d/ (c+d)

Table [27] :Specificity , sensitivity, positive predictive value and negative predictive value of GH regarding HIE diagnosis .

	Disease present	No disease present
Positive	12	2
Negative	8	8

Table [27] : shows :

3- GH sensitivity regarding HIE diagnosis =60%
4- GH specificity regarding HIE diagnosis= 80%
5- GH positive predictive value regarding HIE diagnosis =85,7%
6- GH negative predictive value regarding HIE diagnosis = 50%

Table [28] :Specificity , sensitivity, positive predictive value and negative predictive value of prolactin regarding HIE diagnosis .

	Disease present	No disease present
Positive	20	1
Negative	0	9

Table [28] : shows :

1-Prolactin sensitivity regarding HIE diagnosis =100%
2-Prolactin specificity regarding HIE diagnosis= 90%
3-Prolactin positive predictive value regarding HIE diagnosis =95%
4-Prolactin negative predictive value regarding HIE diagnosis = 100%

-Table [27]and table [28] ; show that prolactin is more sensitive and specific for HIE diagnosis than GH .