Results

General characters of the studied groups:

Table (1): Descriptive data of the studied groups regarding sex, gestational age (GA), weight (Wt), Apgar score and blood gases.

Variables	Control group (n=10)	Full term hypoxic group (n=15)	Preterm hypoxic group (n=15)
Sex			
Male	5 50%	9 60%	10 66.7%
Female	5 50%	6 40%	5 33.3%
GA (wks)	37.1±0.4	37.7±7	32.9±3.3
Wt (kg)	3.6±0.3	3.1±0.3	2.1±0.7
Apgar score			
1 min.	5.7±0.5	3.2±0.8	3.1±0.9
5 min.	8.7±0.5	5.4±1.1	5.1±1.3
pH	7.4±0.1	7.1±0.3	7.1±0.1
HCO3	20.7±2.4	13.5±3.9	11.4±4.5

Table (2): Comparison between the three studied groups regarding the level of Isoprostane (IsoPs).

IsoPs level ng/ml / Study groups	$\bar{X}$ ± SD	t	p
- Full term group (n = 15)	47 ± 31.3	t1 = 5.92	< 0.001
- Preterm group (n=15)	43.36 ± 28.3	t2 = 5.81	< 0.001
- Control group (n=10)	0.07 ± 0.01		

t_1 = full term vs. control

t_2 = preterm vs. control

There is significant difference between the full term hypoxic ischemic group and preterm hypoxic ischemic group compared to control group regarding the level of Isoprostane ($p<0.001$).

Table (3): Comparison between the full term hypoxic group and preterm hypoxic group regarding the level of Isoprostane (IsoPs).

IsoPs level ng/ml / Study group	$\bar{X}$ ± SD	t	p
- Full term group (n-15)	47±31.3	0.33	> 0.05
- Preterm group (n=15)	43.36±28.3		

There is no significant difference between the full term hypoxic ischemic group and preterm hypoxic ischemic group regarding the level of Isoprostane ($p>0.05$).

Figure (1): The level of Isoprostane among the studied groups.

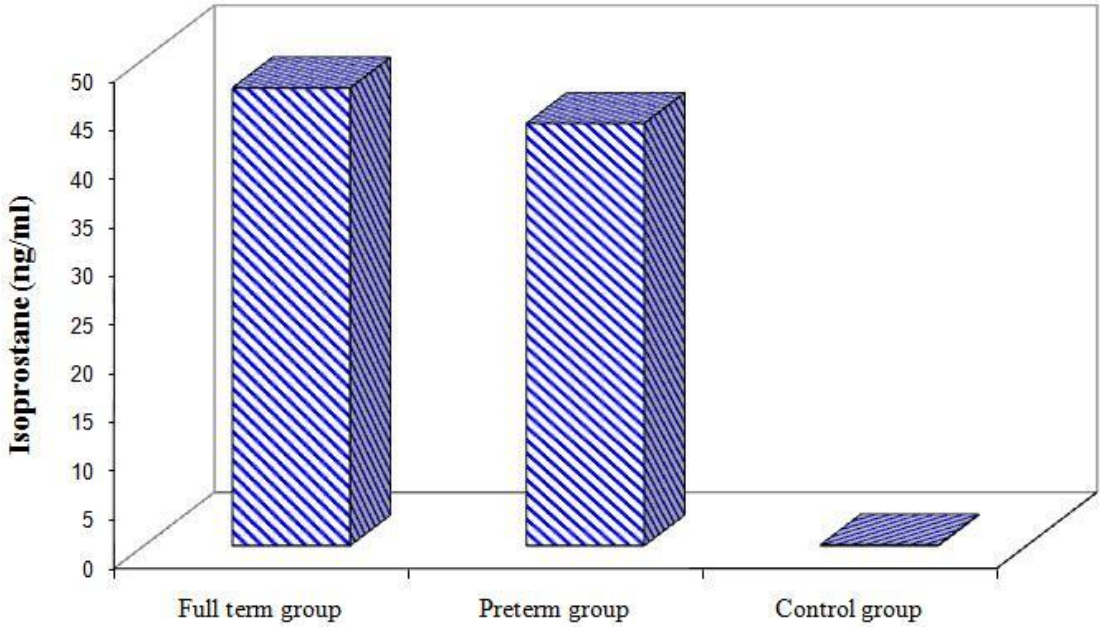

Table (4): Comparison between the diseased groups (Full term and Preterm hypoxic group) and control group according to sex, gestational age, weight, Apgar score at 1 and 5 min., blood gases and Isoprostane.

Variables	Control group (n=10)	Diseased group (n=30)	Test of Significance	p
Sex				
Male	5 50%	19 63.3%	χ^2=0.56	> 0.05
Female	5 50%	11 36.7%		
GA (wks)	37.1±0.4	35.3±5.1	t= 1.92	> 0.05
Wt (kg)	3.6±0.3	2.6±0.5	t= 7.6	<0.001
Apgar score				
1 min.	5.7±0.5	3.15±0.8	t= 11.85	<0.001
5 min.	8.7±0.5	5.25±1.2	t= 12.8	<0.001
pH	7.4±0.1	7.1±0.2	t= 6.2	<0.001
HCO3	20.7±2.4	12.4±4.2	t= 7.7	<0.001
IsoPs ng/ml	0.07±0.01	45.2±29.7	t= 8.32	<0.001

There is no significant difference between the control group and diseased group regarding the sex and gestational age (p>0.05).

There is significant difference between the control group and diseased group regarding the weight, Apgar score at 1 and 5 min., pH, HCO3 and the level of Isoprostane (p<0.001).

Figure (2): Different variables among control and diseased groups.

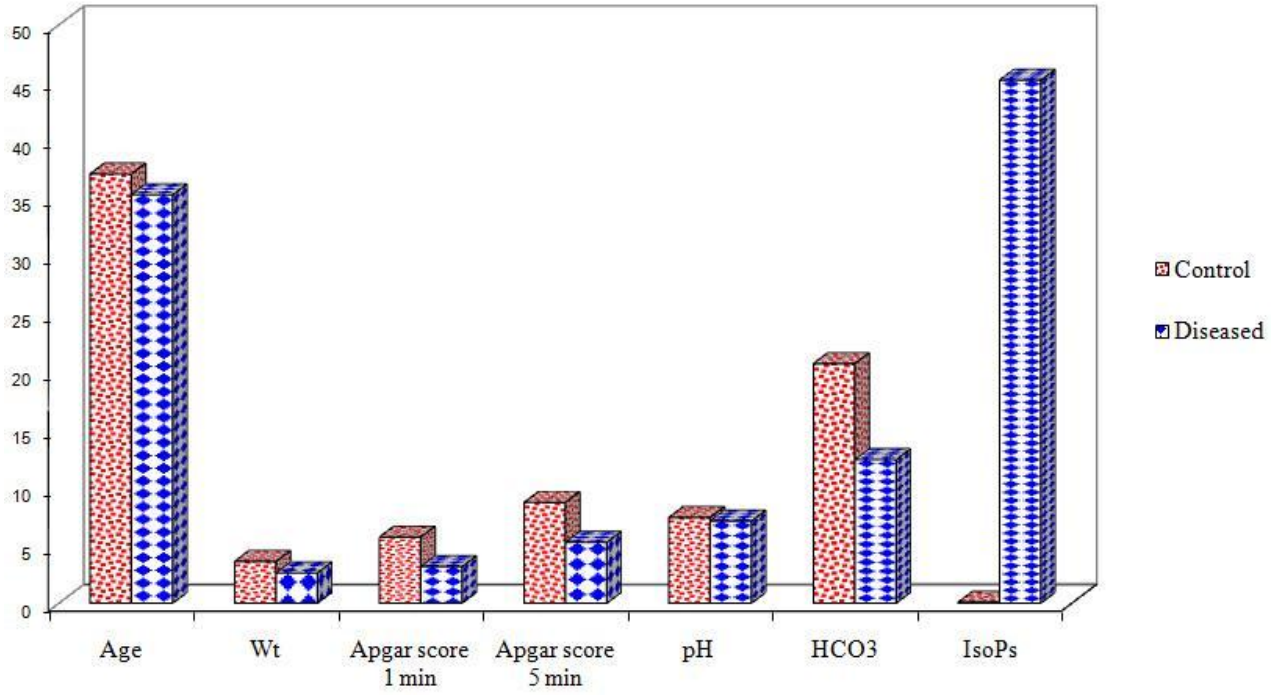

Table (5): Correlation between the level of Isoprostane and different variables among control group.

IsoPs level ng/ml / Variables	"r"	p	Significance
Gestational age	-0.046	> 0.05	NS
Birth weight	-0.267	> 0.05	NS
Apgar score			
1 min.	-0.252	> 0.05	NS
5 min.	-0.265	> 0.05	NS
pH	-0.031	> 0.05	NS
HCO3	-0.061	> 0.05	NS

There is no significant correlation between Isoprostane level and gestational age, birth weight, Apgar score at 1 and 5 minutes, pH or HCO3 ($p>0.05$).

Table (6): Correlation between the level of Isoprostane and different variables among the full term hypoxic group.

IsoPs level ng/ml / Variables	"r"	p	Significance
Gestational age	-0.059	> 0.05	NS
Birth weight	-0.115	> 0.05	NS
Apgar score			
1 min.	-0.105	> 0.05	NS
5 min.	-0.324	> 0.05	NS
pH	-0.219	> 0.05	NS
Hco3	-0.252	> 0.05	NS

There is no significant correlation between the level of Isoprostane at gestational age and birth weight in the full term hypoxic group.

There is no significant correlation between the level of Isoprostane and values of Apgar score at 1 and 5 min. in the full term hypoxic group.

Also there is no significant correlation between the level of Isoprostane and blood gases in the full term hypoxic group.

Figure (3): Correlation coefficient between the level of Isoprostane and gestational age in full term hypoxic ischemic group.

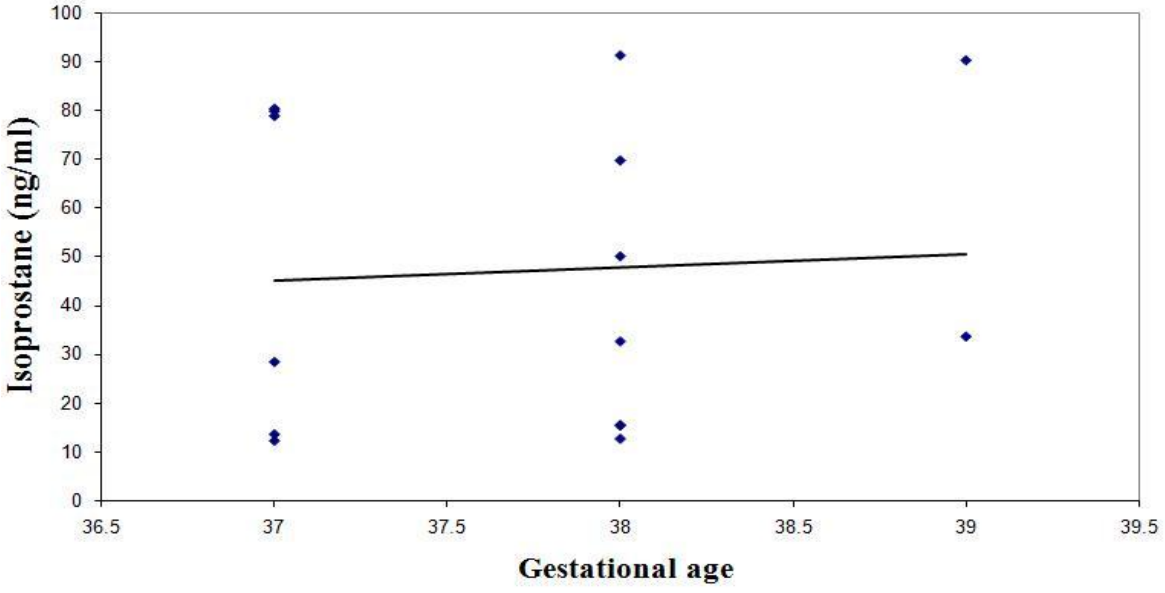

Table (7): Correlation between the level of Isoprostane and different variables among the preterm hypoxic group.

IsoPs level ng/ml / Variables	"r"	p	Significance
Gestational age	-0.296	> 0.05	NS
Birth weight	-0.246	> 0.05	NS
Apgar score			
1 min.	- 0.183	> 0.05	NS
5 min.	- 0.231	> 0.05	NS
pH	-0.318	> 0.05	NS
HCO3	-0.297	> 0.05	NS

There is no significant correlation between the level of Isoprostane at gestational age and birth weight in the preterm hypoxic group.

There is no significant correlation between the level of Isoprostane and values of Apgar score at 1 and 5 min. in the preterm hypoxic group.

Also there is no significant correlation between the level of Isoprostane and blood gases in the preterm hypoxic group.

Figure (4): Correlation coefficient between the level of Isoprostane and gestational age in preterm hypoxic ischemic group.

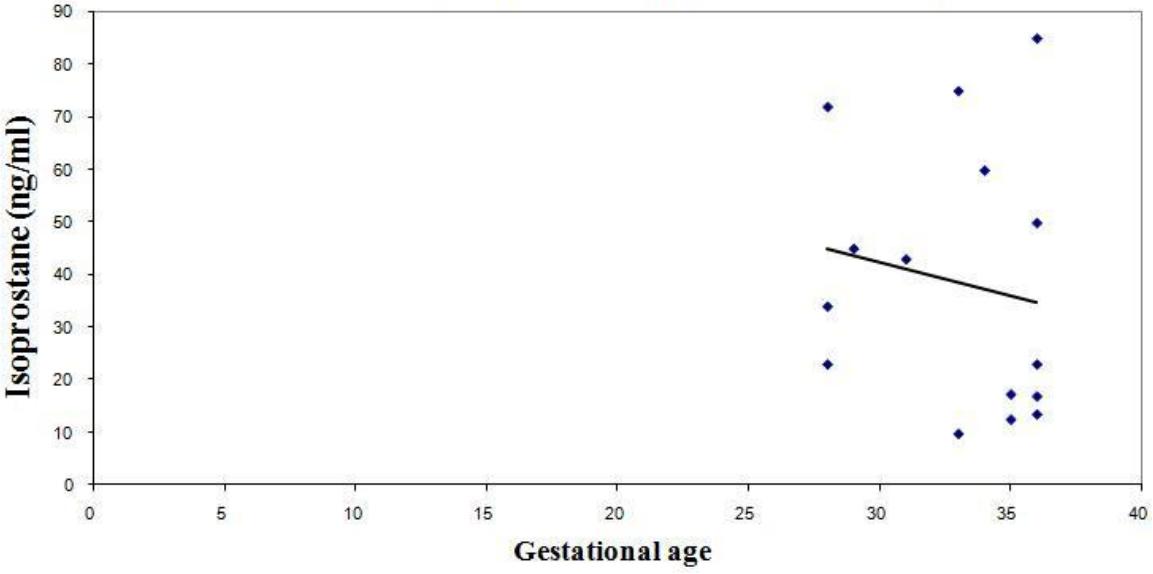

Table (8): Comparison between the level of Isoprostane and sex in the control group, full term hypoxic group and preterm hypoxic group.

Group / Variable	Control Group		Full term Group		Preterm Group	
	Male n=5	**Female n=5**	**Male n=9**	**Female n=6**	**Male n=10**	**Female n=5**
IsoPs level ng/ml	0.08±0.02	0.06± 0.02	56.4±31.6	32.97±27.4	44.6±26.9	51.9±28.4
t	1.58		1.53		0.48	
p	> 0.05		> 0.05		> 0.05	

There is no significant difference between Isoprostane level in males and females in the control group ($p>0.05$).

There is no significant difference between the level of Isoprostane in males and females in the full term hypoxic group ($p>0.05$).

There is no significant difference between the level of Isoprostane in males and females in the preterm hypoxic group ($p>0.05$).

Figure (5): The level of Isoprostane among the Control group according to Sex.

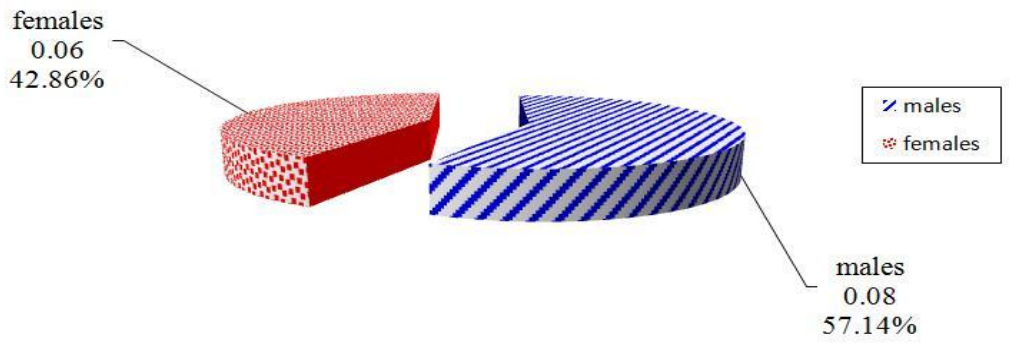

Figure (6): The level of Isoprostane among the Full term hypoxic ischemic group according to Sex.

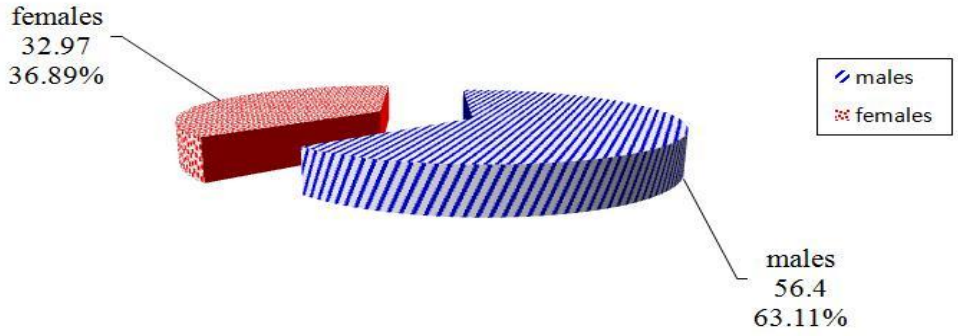

Figure (7): The level of Isoprostane among the Preterm hypoxic ischemic group according to Sex.

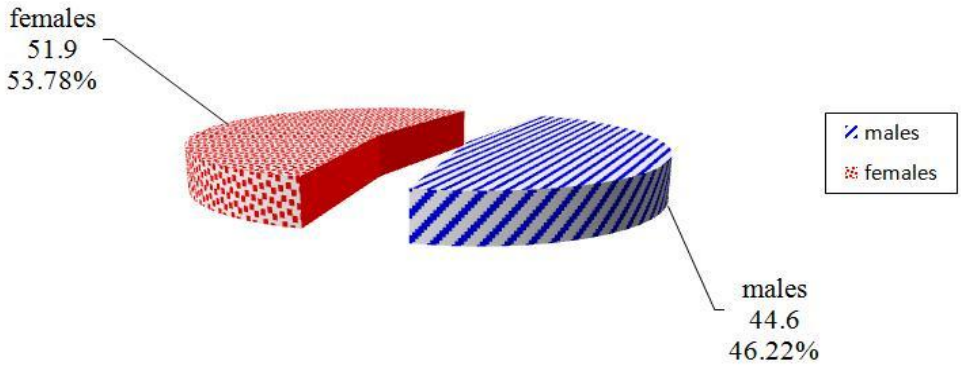

Table (9): Comparison between the level of Isoprostane and patients with different stages of hypoxic ischemic encephalopathy (HIE) in diseased group.

	Stage I		Stage II		Stage III		t	p
	n.	$\overline{X}$ ± SD	n.	$\overline{X}$ ± SD	n.	$\overline{X}$ ± SD		
Level of Isoprostane ng/ml	10	14±2.1	7	26.5±11.2	13	75.4±8.1	t_1 = 2.92 t_2 = 19.6 t_3 = 10.4	< 0.001 < 0.001 < 0.001

t_1 = I vs. II t_2 = I vs. III t_3 = II vs. III

There is significant difference between stage I and stage II HIE (p<0.001).
There is significant difference between stage I and stage III HIE (p<0.001).
There is significant difference between stage II and stage III HIE (p<0.001).

Figure (8): Level of Isoprostane among patients with different stages of HIE.

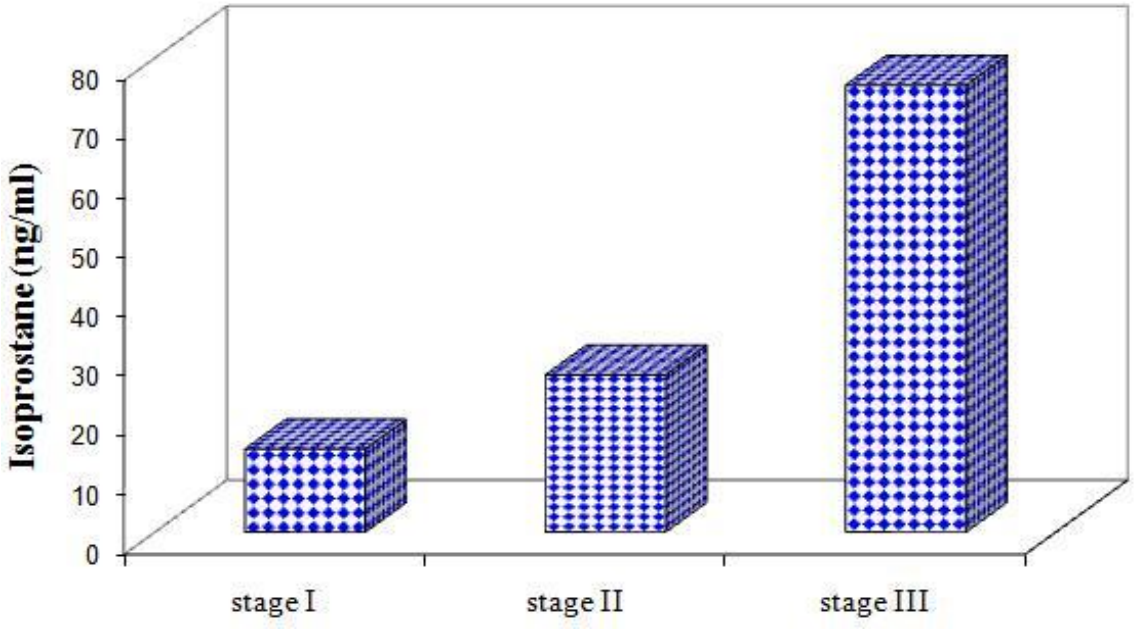

Table (10): Comparison between the level of Isoprostane and patients with different stages of HIE in full term hypoxic group.

	Stage I		Stage II		Stage III		F	t	p
	n.	$\bar{X}$ ± SD	n.	$\bar{X}$ ± SD	n.	$\bar{X}$ ± SD			
Level of Isoprostane ng/ml	5	14±1.5	4	36.3±9.5	6	81.7±8.01	131.1	t_1 = 4.65 t_2 = 20.3 t_3 = 7.87	< 0.001 < 0.001 < 0.001

t_1 = I vs. II t_2 = I vs. III t_3 = II vs. III

There is significant difference between stage I and stage II HIE (p<0.001).

There is significant difference between stage I and stage III HIE (p<0.001).

There is significant difference between stage II and stage III HIE (p<0.001).

Figure (9): The level of Isoprostane among full term group according to stages of HIE.

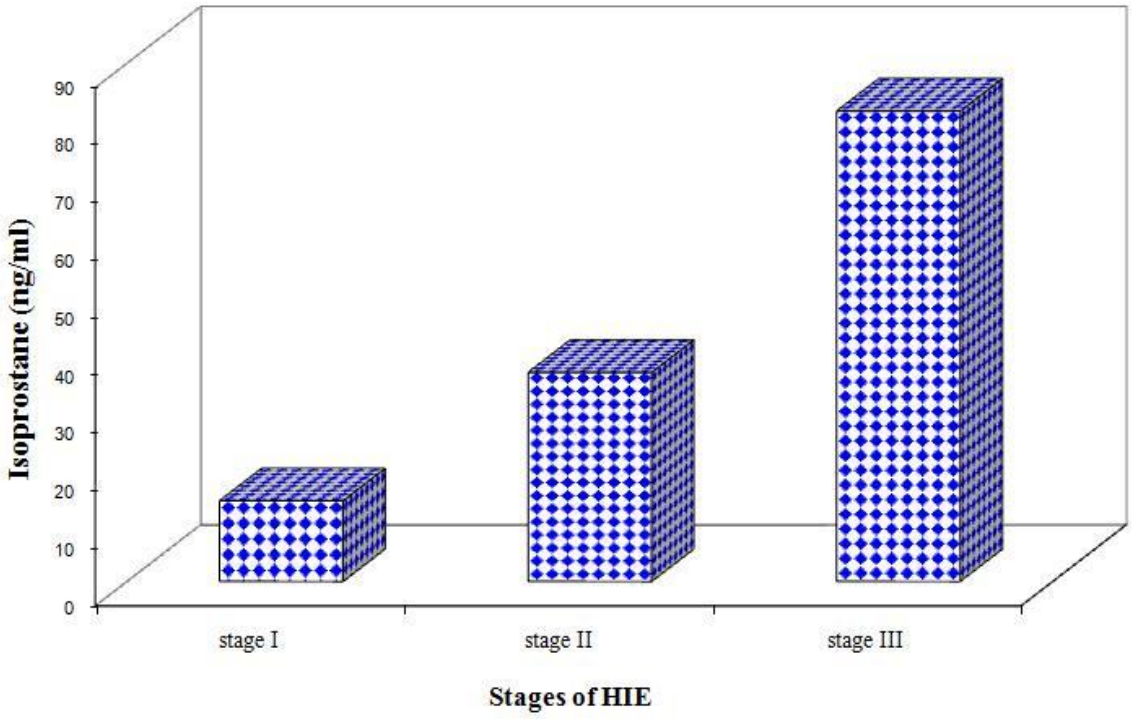

Table (11): Comparison between the level of Isoprostane and patients with different stages of HIE in preterm hypoxic group.

	Stage I		Stage II		Stage III		F	t	p
	n.	$\bar{X}$ ± SD	n.	$\bar{X}$ ± SD	n.	$\bar{X}$ ± SD			
Level of Isoprostane ng/ml	5	14±3.1	3	48.3±12.4	7	70.0±8.2	73.4	t_1 = 4.70 t_2 = 16.5 t_3 = 2.78	< 0.001 < 0.001 < 0.001

t_1 = I vs. II t_2 = I vs. III t_3 = II vs. III

There is significant difference between stage I and stage II HIE (p<0.001).

There is significant difference between stage I and stage III HIE (p<0.001).

There is significant difference between stage II and stage III HIE (p<0.001).

Figure (10): The level of Isoprostane among preterm group according to stages of HIE.

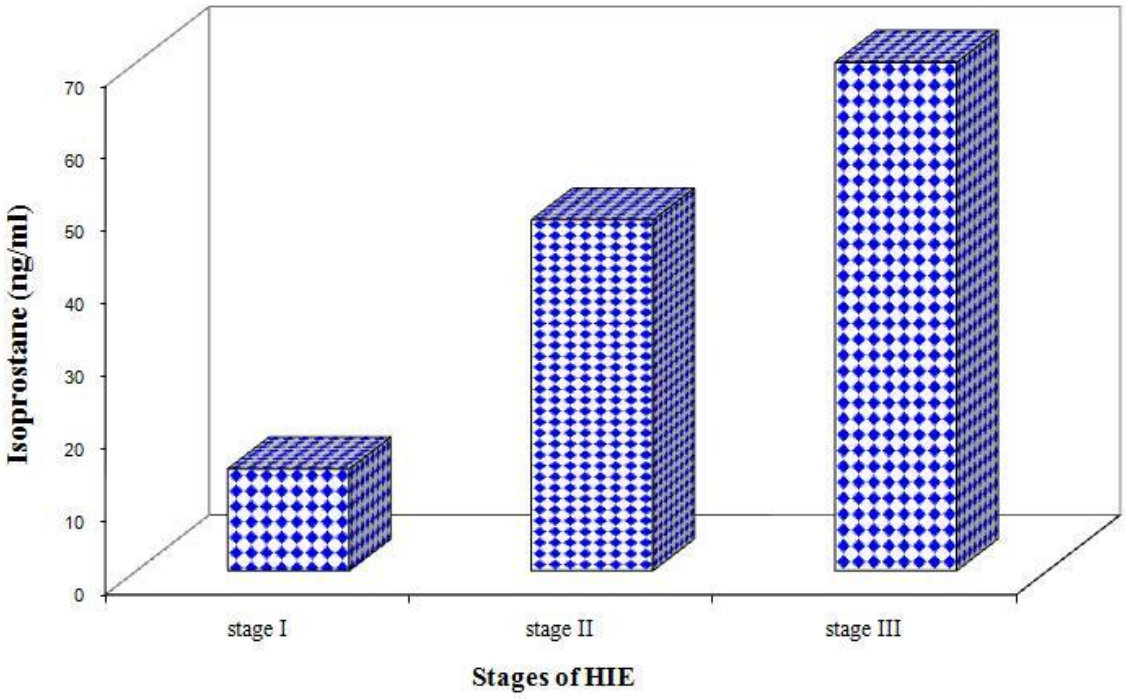

Table (12): Comparison between the level of Isoprostane and patients with different outcome (survivors and non survivors) in the full term hypoxic group.

	Survivor (n= 12)	**Non survivor (n = 3)**	**t**	**p**	**significance**
The level of Isoprostane (ng/ml)	47.4±30.9	45.5±39.8	0.08	> 0.05	NS

There is no significant difference between the level of Isoprostane in survivors and non survivors in full term hypoxic group (p>0.05).

Figure (11): The level of Isoprostane among full term group according to the outcome of HIE.

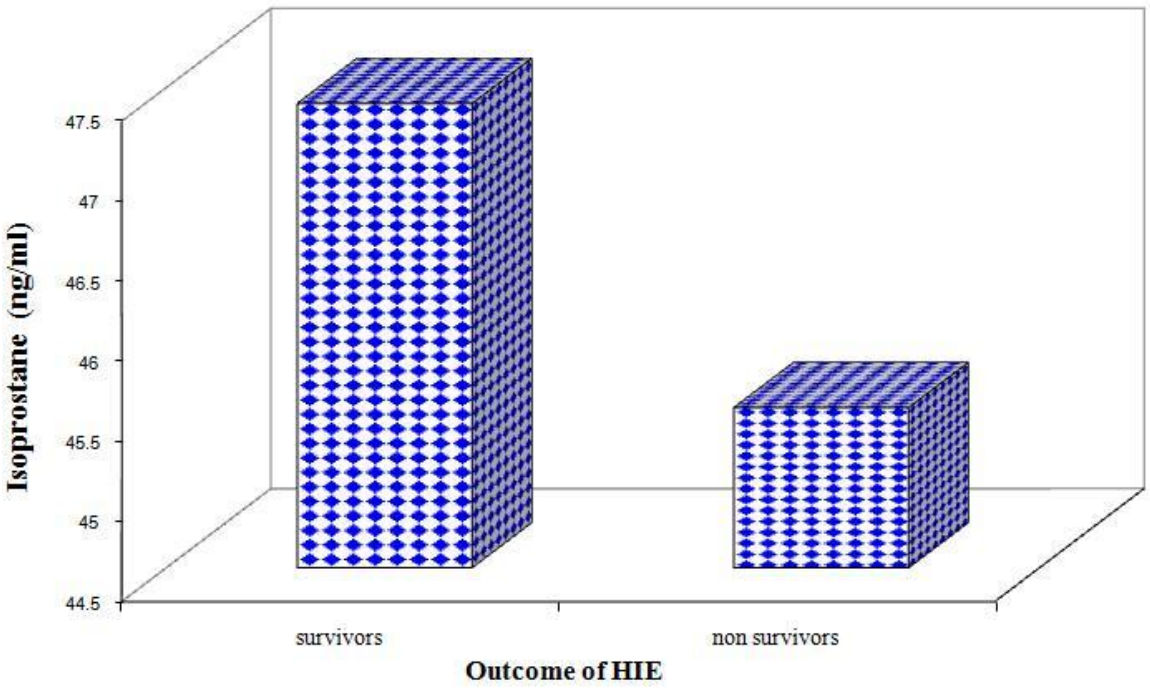

Table (13): Comparison between the level of Isoprostane and patients with different outcome (survivors and non survivors) in the preterm hypoxic group.

	Survivor (n= 11)	**Non survivor (n = 4)**	**t**	**p**	**Significance**
The level of Isoprostane (ng/ml)	51.6±26.9	34.2±24.4	1.19	> 0.05	NS

There is no significant difference between the level of Isoprostane in survivors and non survivors in preterm hypoxic group (p>0.05).

Figure (12): The level of Isoprostane among preterm group according to the outcome of HIE.