Results

Table(1)Characters of the studied sample

Variable	No (N= 60)	% (100.0)
Gender		
Male	30	50.0
Female	30	50.0
Residence		55.0
Urban	33	45.0
rural	27	
Age		
Mean ± SD(in months)	34.02±43.5	
Median	12.5 month	
Range	2 m. – 14 ys.	
Inter quartile range (in months)*	8 -36	

This table(1) show equal percent between male and female in studied group and according to locality distribution Urban is55%and rural is 45%. Mean Age of studies group is34.02±43.5months

Table (2)Duration of stay in PICU

Variable	No (N= 60)	
Duration of stay(in days)		
Mean ± SD	8.93±3.99	
Median	7.5	
Range	4-21	
Inter quartile range *	5 – 13	

This table (2)show The range of duration of stay in PICU varied from 4 day to 21 days with mean of 8.93 days

Figure (1) Percentage of gender among the studied sample

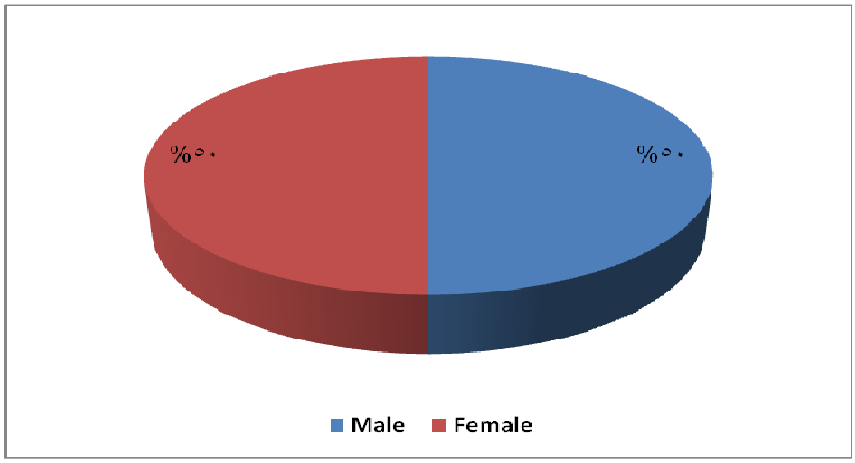
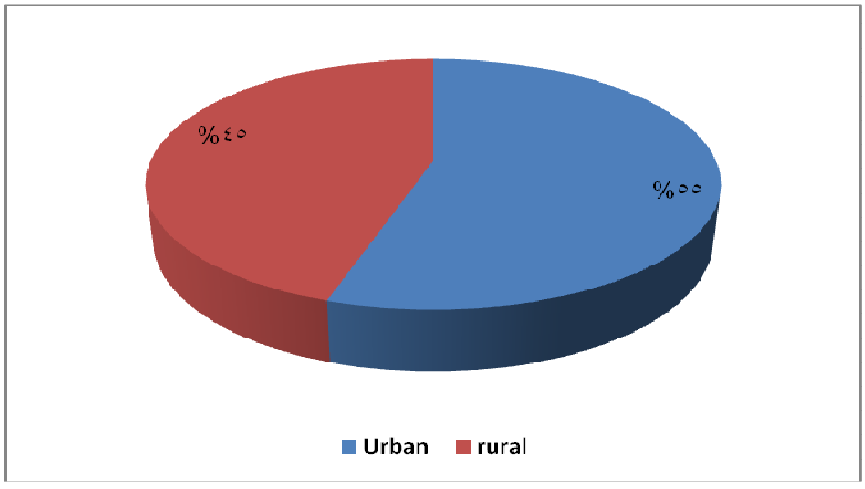


Figure (2) show distribution according to locality



Table(3)Lab. Profile among the studied group

Variable	Mean	± SD	Minimum	Maximum
Serum mg	1.75	0.39	1.2	2.5
Serum Ca	8.03	0.69	6	10
Na	140.35	3.42	135	145
K	3.63	0.55	2.4	4.5
Albumin	3.70	0.54	2.0	4.5
Urea	24.95	3.5	20	32
Serum creatinine	0.63	0.13	0.4	0.8

This table(3) show the mean of serum Mg is 1.75±0.39 SD with lowest serum Mg is 1.2 and maximum is 2.5, mean of serum Ca is8.03±0.69 SD , mean of serum K is 3.63 ±0.55 SD, mean of serum Albumin is3.70± 0.13 mean of serum Urea is24.95±3.5 SD, mean of serum is creatinine is0.63±0.13SD

Figure(3)show Mean value of studied dvariables

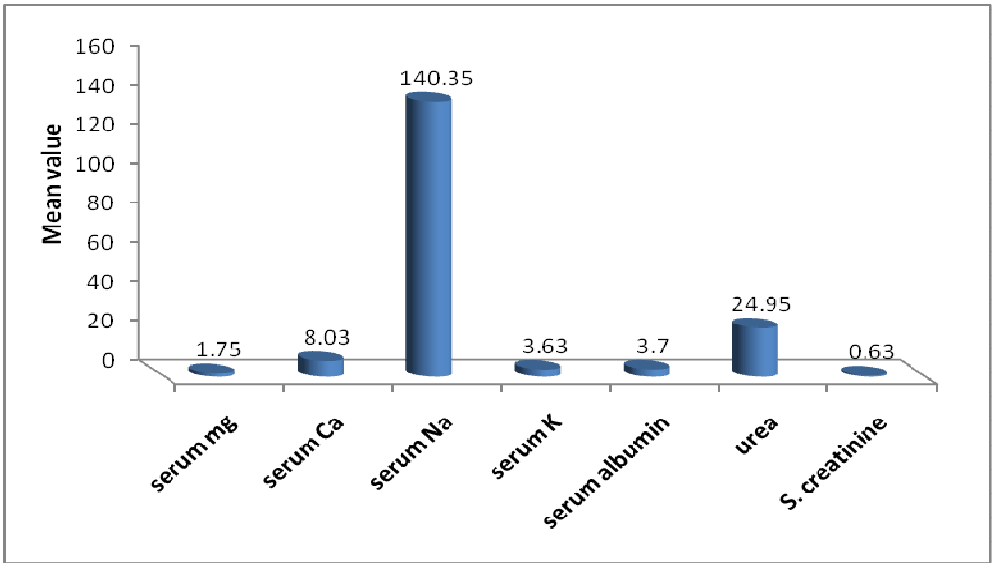


Table (4) results of Serum level of Mg in studied group

Serum level of Mg Statistic	Normal (N=30)	Hypomagnesemia (N=30)	St. "t'	P
Mean	2.07	1.44	10.1	<0.001
±SD	0.29	0.17		
Range	1.8-2.5	1.2-1.79		

This table(4)show50% (30/60) patients had hypomagnesemia, and 50%(30/60) had normal serum magnesium levels with (P<0.001)highly significant

Table(5) results of Serum level of Ca in studied group

Serum level of Ca Statistic	Normocalcemia (N=43)	Hypocalcemia (N=17)	St. "t'	P
Mean	9.13	7.86	10.6	<0.001
±SD	0.35	0.56		
Range	9-10	6-7.7		

This table**(5)**show 43 cases had normocalcemia and17cases had Hypocalcemia with (P<0.001)highly significant

Table(6) results of Serum level of Na in studied group

Serum level of Na Statistic	Normal Na (N=60)	Hyponatremia (N=0)	St. "t'	P
Mean	140.3500	-----	--------	--------
±SD	3.42387	------		
Range	135-145	-------		

This table show normal Serum level of Na in studied group

Table(7) results of Serum level of K in studied group

Serum level of K Statistic	Normal K (N=49)	Hypokalemia (N=11)	St. "t'	P
Mean	3.85	2.65	12.2	<0.001
±SD	0.30	0.24		
Range	3.5-4.5	2.4-3.0		

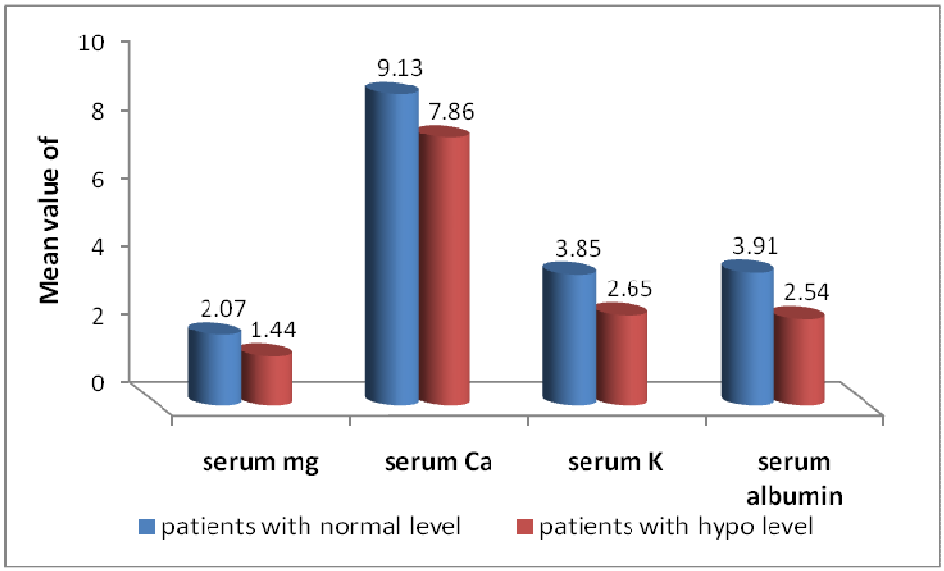
This table(7)show 49 case had Normal K level and 11cases had Hypokalemia with (P<0.001)highly significant

Table(8) results of Serum level of albumin in studied group

Serum level of albumin Statistic	Normal (N=51)	Hypo albuminemia (N=9)	St. "t'	P
Mean	3.91	2.54	15.1	<0.001
±SD	0.24	0.30		
Range	3.5-4.5	2-3		

this table(8)show 51 cases had normal albumin level and 9 cases had with hypo albuminemia (p<0.001)highly significant

Figure (4)show mean value of studied vriables in relation to normal and low level



Table(9)Relation between magnesium level and S.Ca level

Ca level			Mg		
			Normo magnesmia	Hypo magnesemia	Total
	Normal	Count	25	18	43
		% within S mg	83.3%	60.0%	71.7%
	Hypocalcemia	Count	5	12	17
		% within Smg	16.7%	40.0%	86.7%
Total		Count	30	30	60
		% within Smg	100.0%	100.0%	100.0%

X^2= 4.02 **P=0.045**

This table(9)show Of 30 patients with hypomagnesemia 12 (40%) also had hypocalcemia. Of 30 patients with normal magnesium levels, 5 (16.7%) had hypocalcemia. The incidence of hypocalcemia is significantly higher in patients with hypomagnesemia ($p<0.05$).

Figer (5) Relation between magnesium level and S.Ca level

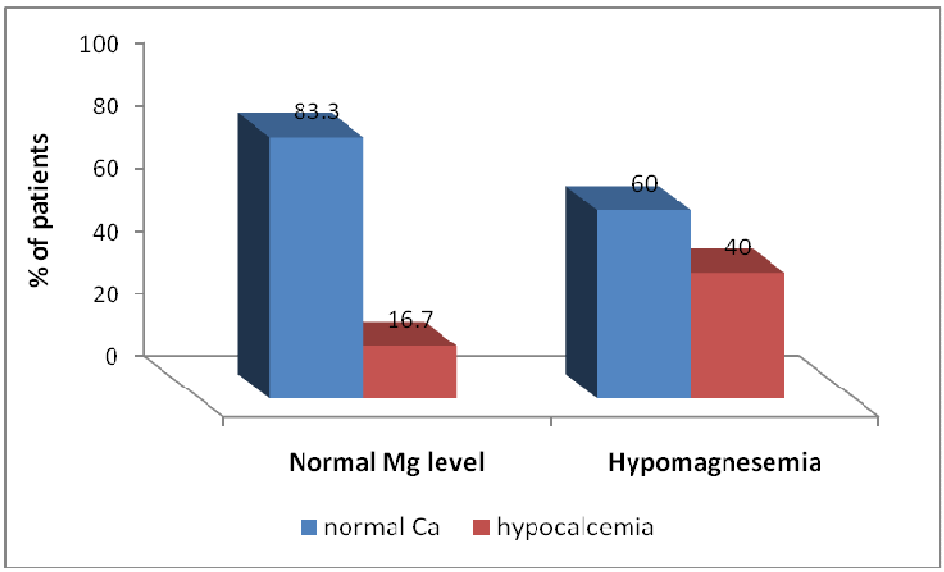
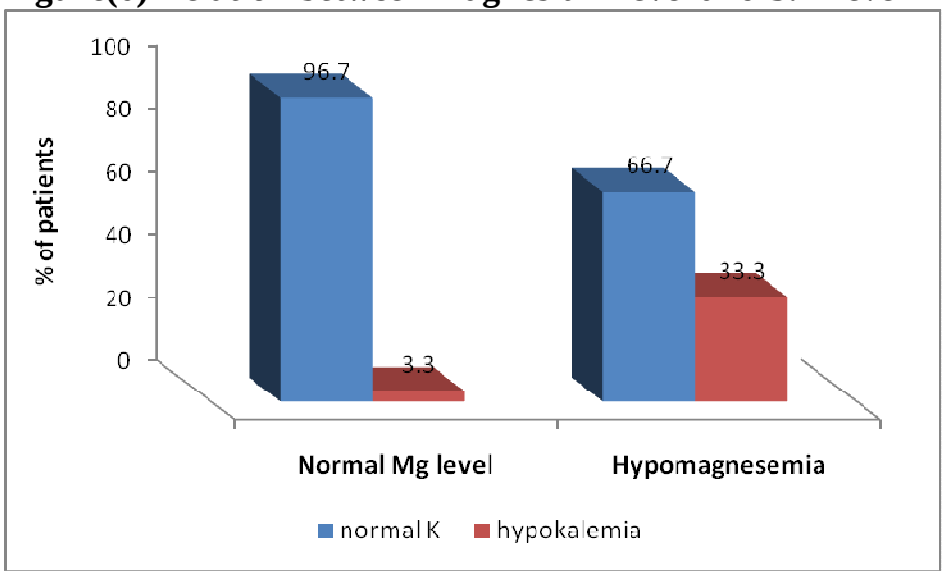


Table (10)Relation between magnesium level and S.K level

K			Mg		
			Normo Magnesmia	Hypo Magnesemia	Total
	Normal	Count	29	20	49
		% within mgS	96.7%	66.7%	81.7%
	hypokalemia	Count	1	10	11
		% within mgS	3.3%	33.3%	18.3%
	Total	Count	30	30	60
		% within mgS	100.0%	100.0%	100.0%

X^2= 9.02 **P=0.003**

Figure(6) Relation between magnesium level and S.K level



The table(10)&figer(6)show Of 30 patients with hypomagnesemia 10 (33.3%) also had hypokalemia. Of 30 patients with normal magnesium levels,1 (3,3%) had hypokalemia. The incidence of hypokalemia is significantly higher in patients with hypomagnesemia ($p<0.05$).

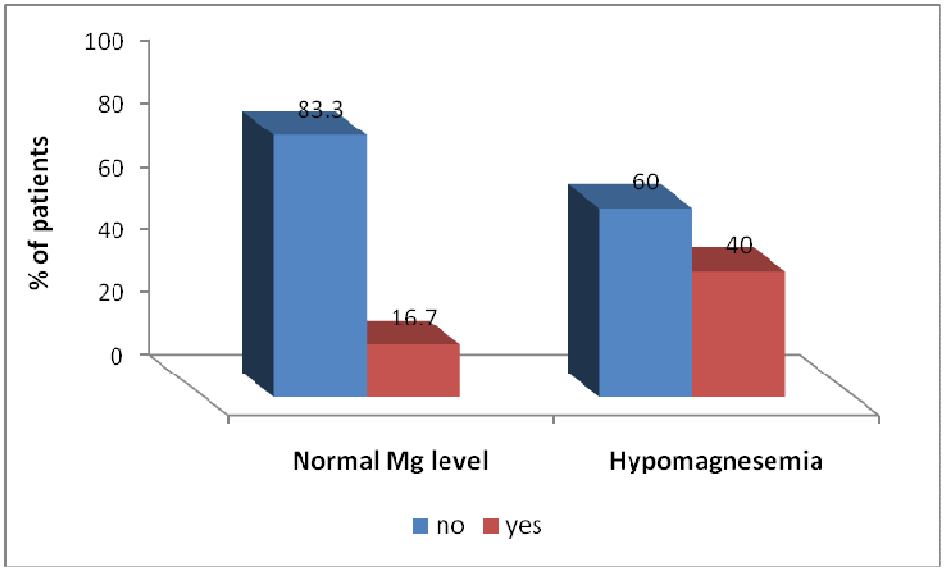
Table(11)Relation between magnesium level and need for ventillation

Need for ventillation			Mg		
			Normo magnesmia	Hypo Magnesemia	Total
	No	Count	25	18	43
		% within mgS	83.3%	60.0%	71.7%
	Yes	Count	5	12	17
		% within mgS	16.7%	40.0%	28.3%
Total		Count	30	30	60
		% within mgS	100.0%	100.0%	100.0%

X^2= 4.02 **P=0.045**

This table(11) show that 40% (12/30) patients with hypomagnesemia needed mechanical ventilatory support, while in normomagnesemic group 16.7%(5/30) needed ventilatory support.the difference is statistically significant (p<0.05)

Figure (7) Relation between magnesium level and need for ventilation



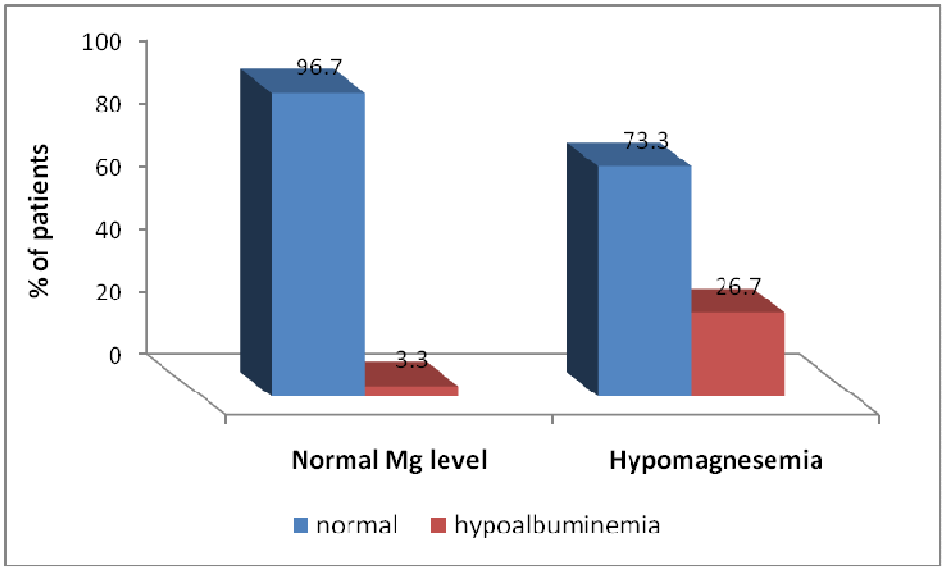
Table(12) Relation between magnesium level and S. albumin level

S. albumin level			Mg		
			Normo magnesmia	Hypo magnesemia	Total
	Normal	Count	29	22	51
		% within mgS	96.7%	73.3%	85.0%
	hypoalbuminemia	Count	1	8	9
		% within mgS	3.3%	26.7%	15.0%
Total		Count	30	30	60
		% within mgS	100.0%	100.0%	100.0%

X^2= 4.7 **P= 0.03**

This table(12) show that 8 patients had low serum albumin level of which 30 (50%) had low serum magnesium levels and 1 (3.3%) had normal magnesium levels. Twenty tow patients had normal serum albumin level of which 30 (50%) had hypomagnesemia and 29 patients had normal serum albumin level in30 patients with normomagnesemia. The incidence of hypomagnesemia was significantly higher in hypoalbuminemic patients ($p<0.05$).

Figer (8) Relation between magnesium level and S. albumin level



Table(13)Kidney functions among the studied group

Serum level / Variable	Normal		abnormal	
	No	%	No	%
Urea	60	100.0	0	0.0
S. creatinine	60	100.0	0	0.0

Table(14) Mean values of kidney function and duration of ventillation among the studied group according to serum mg

Group / Variable	Normal mg (N=30)		Hypo-magnesemia (N=30)		St."t"	p
	Mean	SD	Mean	SD		
Urea	24.97	3.59	24.93	3.38	0.4	0.97
S. creatinine	0.623	0.138	0.630	0.134	0.4	0.97
Duration of ventilation(days) **(N=17)**	5.2	1.1	7.3	1.8	2.4	0.03

This table show that no significant statical value in kidney function in relation to Mg level. The mean duration of ventilatory assistance for the hypomagnesemic group was 7.3±1.8 days . while in normomagnesemic group mean duration of ventilatory assistance is5.2±1.1days this mean that hypomagnesemic group need longer duration of mechanical ventilation than normomagnesemic group.this difference is statistically significant ($p<0.05$).

Figure (9) kidney functions in relation to mg level

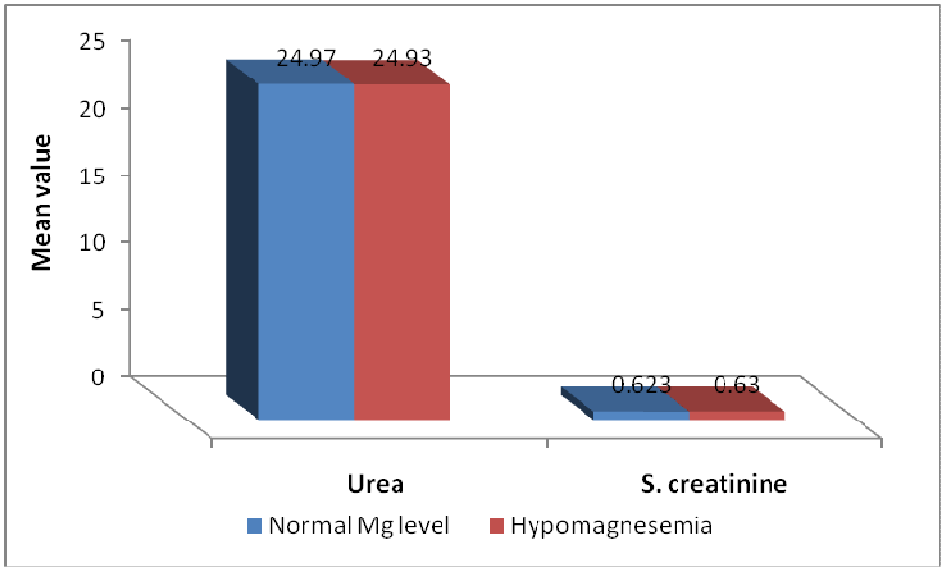
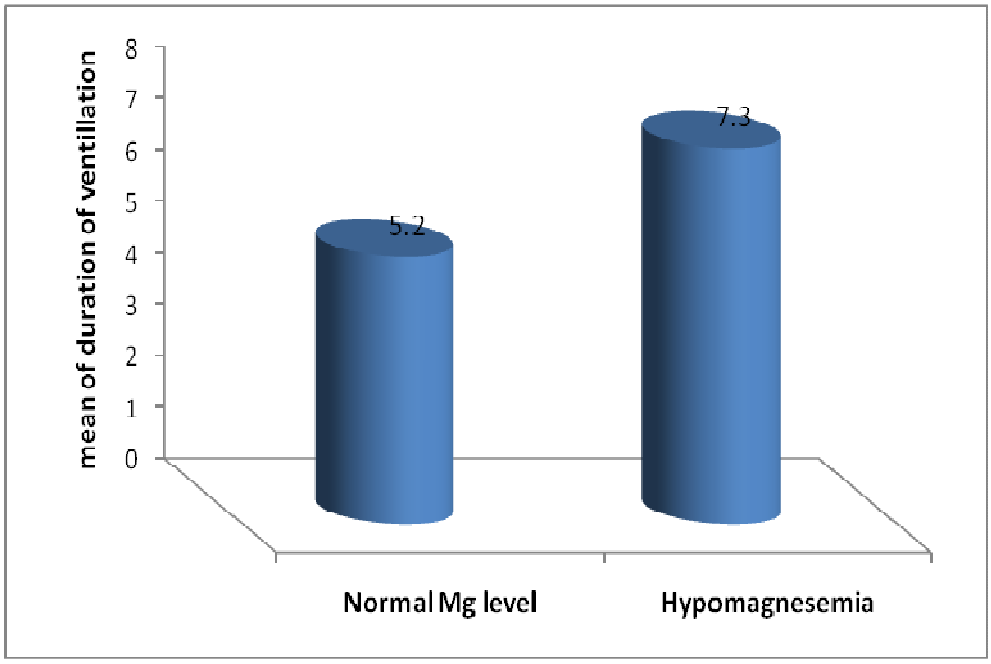


Figure (10)Mean Duration of ventilation in relation to Mg level



Table(15) Serum creatinine according to serum mg level

Creatinine			Mg		
			Normal	Hypo magnesemia	Total
	Normal	Count	60	0	60
		% within Smg	100%	0.0%	100.0%
	abnormal	Count	0	0	0
		% within Smg	0.0%	0.0%	0.0%
Total		Count	30	30	60
		% within mgS	100.0%	100.0%	100.0%

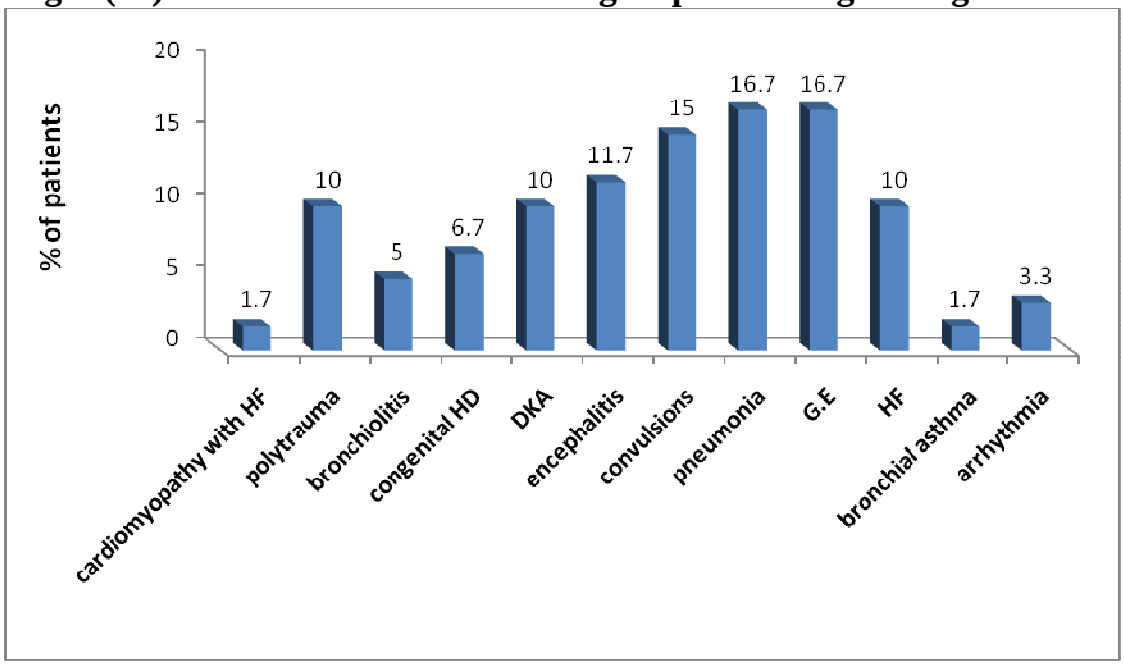
X^2 = 0.0 **P=1.0**

This table (15)show the relation between serumMg&serum creatinine in studies group is not with statically significant value (p=1.0).

Table(16) Distribution of the studied group according to diagnosis

Diagnosis	No (N=60)	% (100.0)
cardiomyopathy with HF	1	1.7
polytrauma	6	10.0
bronchiolitis	3	5.0
congenital HD	4	6.7
DKA	6	10.0
encephalitis	7	11.7
convulsions	9	15.0
pneumonia	10	16.7
G.E	10	16.7
HF	6	10.0
bronchial asthma	1	1.7
arrhythmia	2	3.3

Figer (11) Distribution of the studied group according to diagnosis

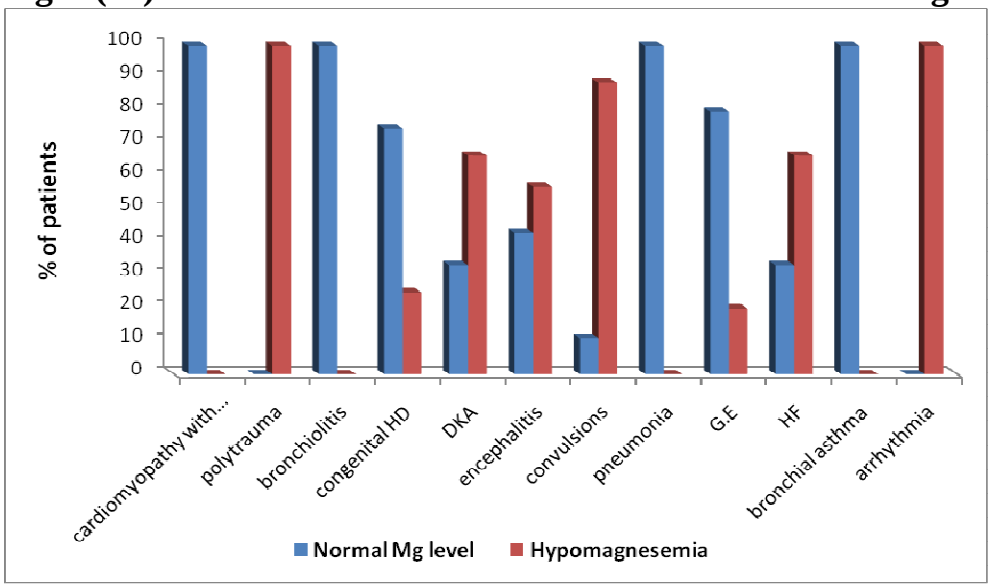


Table(17) The studied group according to level of serum mg & diagnosis

Diagnosis		Serum mg		Z	P
		Normal (N=30)	Hypo magnesemia (N=30)		
Cardiomyopathy with HF	No.	1	0	-------	------
	% row	100.0%	.0%		
Polytrauma	No.	0	6	------	------
	% row	.0%	100.0%		
Bronchiolitis	No.	3	0	------	------
	% row	100.0%	.0%		
Congenital HD	No.	3	1	1.55	>0.05
	% row	75.0%	25.0%		
DKA	No.	2	4	0.75	>0.05
	% row	33.3%	66.7%		
Encephalitis	No.	3	4	0.62	>0.05
	% row	42.9%	57.1%		
Convulsions	No.	1	8	3.7	<0.001
	% row	11.1%	88.9%		
Pneumonia	No.	10	0	-------	------
	% row	100.0%	.0%		
G.E	No.	8	2	2.8	<0.01
	% row	80%	20%		
HF	No.	2	4	0.19	>0.05
	% row	33.3%	66.7%		
Bronchial asthma	No.	1	0	------	------
	% row	100.0%	.0%		
Arrhythmia	No.	0	2	-----	------
	% row	.0%	100.0%		

This table(17)show that hypomagnesemia is frequently assosciated with Convulsionswith($p<0.001$)which is highly signeficant,polytruma and diabetic ketoascidosis(dka)

Figer (12)PERCENT OF DISEASES IN RELATION TO Mg level



Table(18) Mean value of serum mg according to diagnosis

Diagnosis	Serum mg			F	P
	N	Mean	Std. Deviation		
Cardiomyopathy with HF	1	1.86		3.8	=0.001
Polytrauma	6	1.37	0.14		
Bronchiolitis	3	2.24	0.38		
Congenital HD	4	1.66	0.30		
DKA	6	1.68	0.40		
Encephalitis	7	1.71	0.44		
Convulsions	9	1.53	0.21		
Pneumonia	10	2.12	0.28		
G.E	10	1.92	0.38		
HF	6	1.48	0.27		
Bronchial asthma	1	2.47			
Arrhythmia	2	1.58	0.0		

This table show no statically significant value in mean value of serum mg according to diagnosis (p=0.001).

Figer (13) Mean value of serum mg according to diagnosis

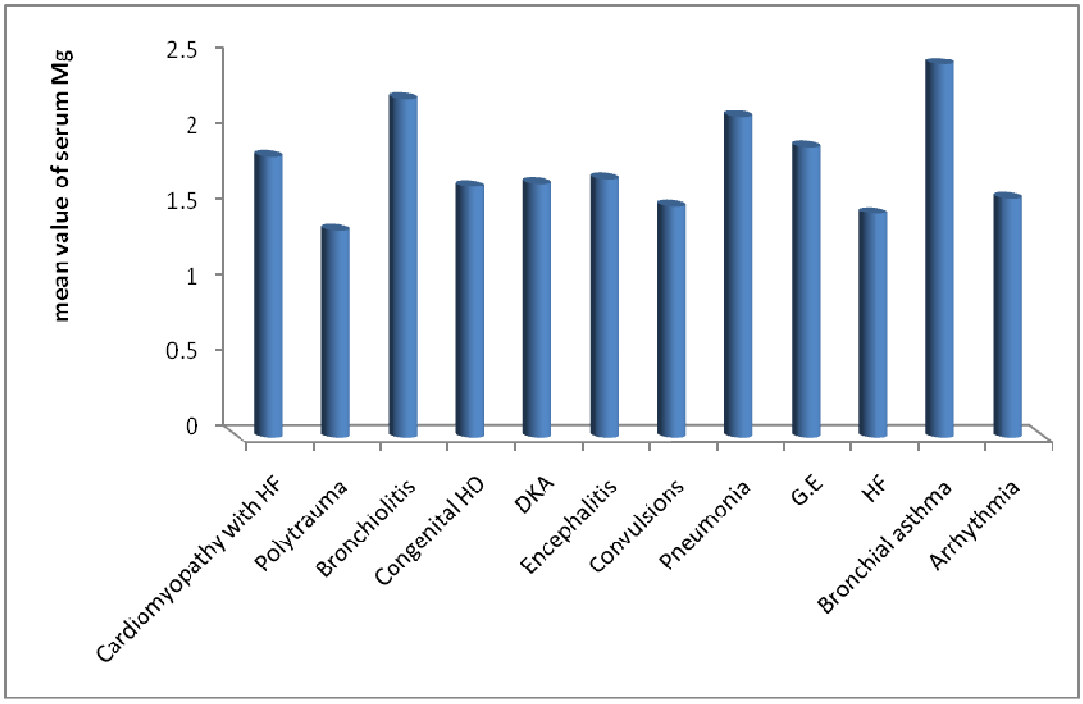
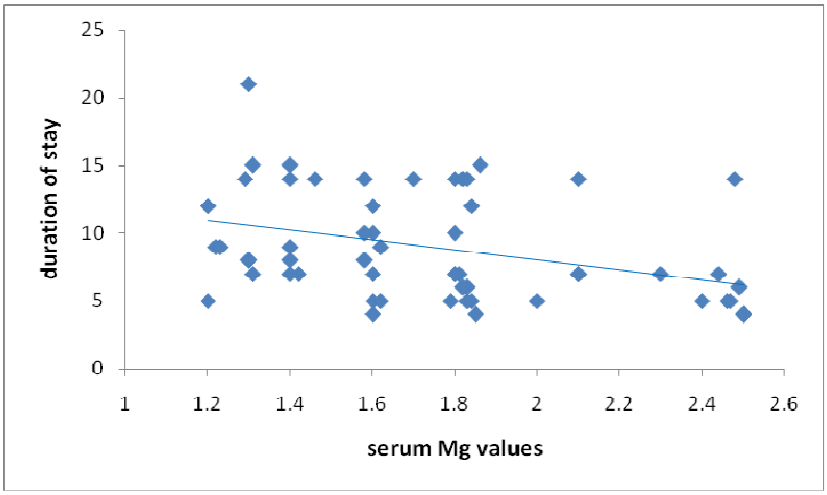


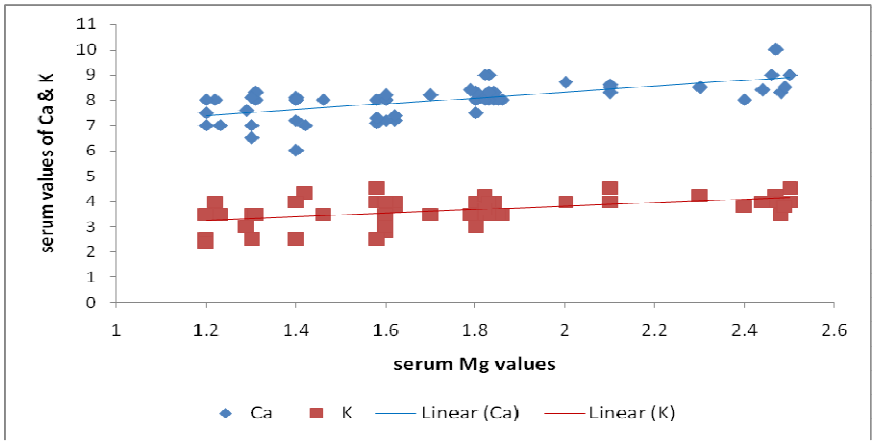
Table (19)Correlation between seum mg & some studied variables

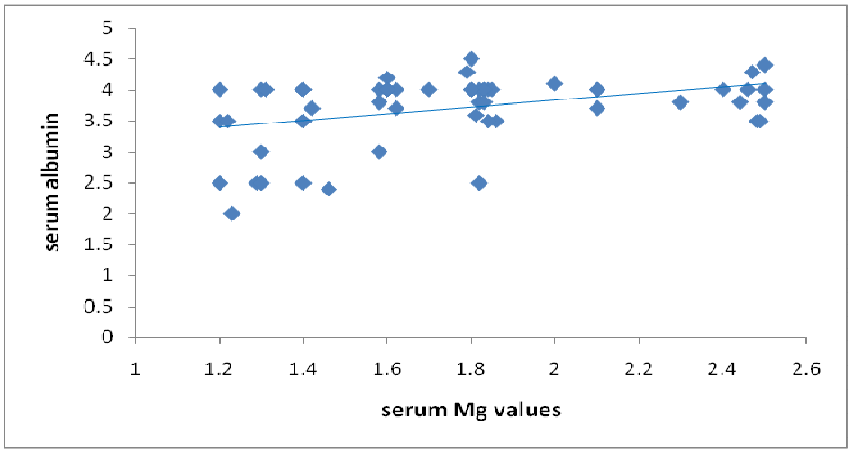
Serum mg with	r	P
Serum Ca	0.671	<0.001
Na	0.007	0.958
K	0.492	<0.001
Albumin	0.391	0.02
Duration of ventillation	0.044	0.89
Duration of stay	-0.366	0.004

This table (19)show that the correlation between serum Mg and serum Ca &K is statically highly significant with ($p<0.001$)

Figures (14),(15)&(16) Correlation between seum mg & some studied variables







TABLE(20) Relation between magnesium level and Age of patient and Duration of stay

Group Variable	Normal mg (N=30)		Hypo-magnesemia (N=30)		St."t"	p
	Mean	**SD**	**Mean**	**SD**		
Age (in months)	29.0	35.2	39.3	50.5	0.89	0.38
Duration of stay	7.97	3.85	9.9	3.96	1.9	0.06

The mean duration of stay in PICU of patients with low serum magnesium was 9.9±3.96 days while that of patients with normal serum magnesium was 7.97±3.85 days . The difference was not statistically significant (p>0.05).

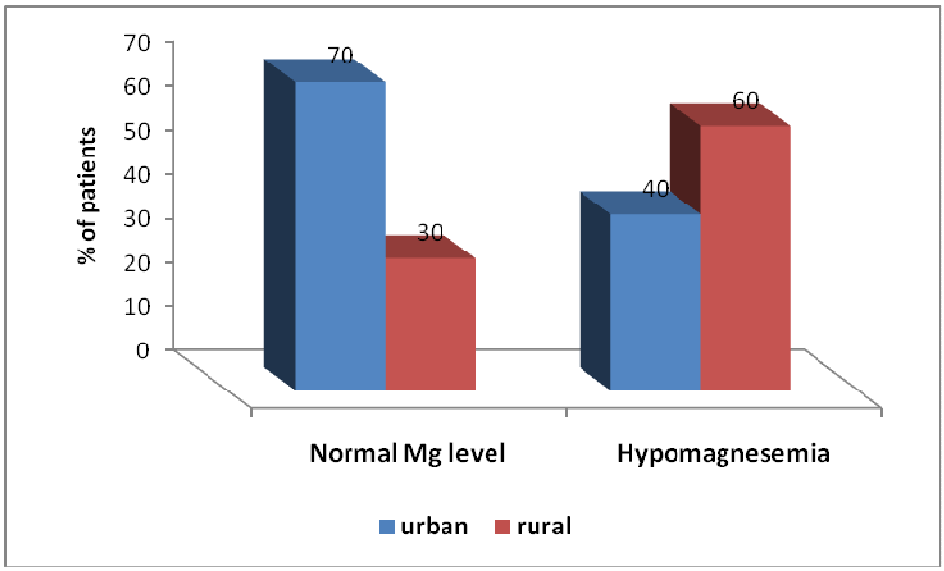
Table(21) Relation between magnesium level and Residence of cases

Residence			Mg		
			normal	Hypo magnesemia	Total
	urban	Count	21	12	33
		% within mgS	70.0%	40.0%	55.0%
	rural	Count	9	18	27
		% within mgS	30.0%	60.0%	45.0%
Total		Count	30	30	60
		% within mgS	100.0%	100.0%	100.0%

X^2 = 5.5 **P=0.02**

this table(21) show that 40.0% of hypo magnesemia are urban and 60.0% are rural with (p<0.05) statistically significant .

Figer (17) Relation between magnesium level and Residence of cases



Table(22) **Relation between magnesium level and Gender**

Gender			Mg		
			normal	Hypo magnesemia	Total
	Male	Count	15	15	30
		% within mgS	50.0%	50.0%	50.0%
	female	Count	15	15	30
		% within mgS	50.0%	50.0%	50.0%
Total		Count	30	30	60
		% within mgS	100.0%	100.0%	100.0%

X^2 = 0.0 **P=1.0**

This table(23) show that no dfference in sex distribution among studied casese between normo and hypomagnesemic group.

Table(23) Relation between magnesium level and Mortality

Mortality	Normal		Hypo magnesemia		Total	
	No.	%	No.	%	No.	%
Yes	2	6.7	7	30.4	9	15.0
No	28	93.3	23	69.6	51	85.0
Total	30	100.0	30	100.0	60	100.0

X^2 = 3.3 **P=0.07**

Yes=+ve mortality

No=-ve mortality

This table(24) show that the mortality rate in hypomagnesemic group was 30.4% (7/30); whereas in normomagnesemic group was 6.7% (2/30).this defference was not statistically significant(p>0.05).

Figer (18) Relation between magnesium level and Mortality