

Results And Data Analysis

RESULTS AND DATA ANALYSIS

MASTER SHEET

Table (1): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in fullterm non-septic neonates.

Fullterm Non-septic Neonates							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
unit	µg/dl	µg/dl	Mg/dl	µg/dl	Mg/dl	mg/dl	Mm
1	217.6	311	224	108.3	1080	23	2.3
2	175.9	388	279	122.3	1090	39	2.4
3	200.2	349	231	126.4	1010	33	2.1
4	98.9	431	254	115.2	1080	45	2.32
5	158.9	453	361	107.5	988	39	2.4
6	182.7	429	281	141.1	1030	31	2.3
7	177	299	244	129.2	914	22	2.2
8	88.5	236	232	97.3	980	27	2.1
9	191.4	410	267	88.5	1009	22	2
10	211	287	241	101.5	995	18	2
Mean	170.2	359.3	261.4	113.7	1017.6	29.9	2.2
S.D	43.9	73.5	40.2	16.1	54.6	8.9	0.1

Table (2): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in fullterm septic neonates.

Fullterm Septic Neonates							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
Unit	µg/dl	µg/dl	mg/dl	µg/dl	mg/dl	mg/dl	Mm
1	69.6	305	204	94.5	1081	129	1.9
2	89.5	222	266	112.2	798	223	1.87
3	154.9	291	222	103.1	851	142	1.86
4	78.5	274	230	51.6	842	240	1.89
5	58.3	270	222	21.9	503	149	1.85
6	77.4	271	230	111	843	100	1.84
7	85.4	265	119	61.2	842	149	1.98
8	68.5	195	278	108.9	890	200	1.9
9	87.5	198	251	104.5	503	129	1.87
10	143.9	147	104	92.2	1081	223	1.86
Mean	91.3	243.8	212.6	86.1	823.4	168.4	1.8
S.D	32.1	50.6	57.7	30.7	195.7	48.6	3.9

Table (3): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in preterm non-septic neonates.

Preterm Non-septic Neonates							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
Unit	µg/dl	µg/dl	Mg/dl	µg/dl	mg/dl	mg/dl	Mm
1	198.7	319	193.5	88.3	698	23	1.86
2	211	257.9	154.9	94.5	1075	27	1.9
3	176.9	322	141.8	111.5	1320	20	1.94
4	87	398	186	123.1	798	14	1.75
5	114	236	208	172.9	1088	25	1.64
6	137	203	189	105.4	861	22	2.1
7	76	390	361	133.7	783	29	2.05
8	169	201	185	131	842	19	2.07
9	89.8	166	250	92.3	503	24	1.78
10	215	274	212	376.4	1052	15	1.96
Mean	147.4	276.6	208.1	142.9	902.0	21.8	1.9
S.D	53.6	79.4	61.4	85.8	234.0	4.87	0.1

Table (4): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in preterm septic neonates.

Preterm Septic Neonates							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
unit	µg/dl	µg/dl	mg/dl	µg/dl	mg/dl	mg/dl	mm
1	129.8	291	127	77.8	426	129	1.22
2	71.1	361	266	63.5	555	223	1.23
3	88.5	391	222	57.4	851	142	1.18
4	82.1	389	222	64.6	651	240	1.34
5	80.5	392	366	56.6	842	149	1.35
6	105	286	366	26.9	503	167	1.45
7	73.3	279	230	56.2	843	105	1.44
8	77.5	411	222	52.8	789	85.9	1.35
9	81.2	263	230	66.4	890	135	1.44
10	111.3	269	119	66.2	574	109	1.46
Mean	90.0	333.2	237.0	58.8	692.4	148.4	1.3
S.D	19.1	60.3	82.2	13.3	169.9	49.7	0.1

Table (5): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in non-septic small for date neonates.

Non-septic Small For Date Neonates							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
Unit	µg/dl	µg/dl	Mg/dl	µg/dl	mg/dl	mg/dl	mm
1	203	318	213	98	718	21	1.96
2	206	259	165	114	1055	29	1.78
3	181	320	149.4	95	1310	19	2.07
4	83	400	188	128	810	13	2.04
5	117	233	206	103	1060	23	2.0
6	134	206	359	128	890	20	1.7
7	78	386	180	146	788	27	1.76
8	167	205	240	72	838	21	1.91
9	91	161	192	366	501	20	1.9
10	214	279	220	110	1050	19	1.88
Mean	147.4	276.7	211.2	136.0	902.0	21.2	1.9
S.D	53.4	79.2	58.3	83.3	225.3	4.4	0.1

Table (6): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in small for date septic neonates.

Small For Date Septic Neonates							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
Unit	µg/dl	µg/dl	Mg/dl	µg/dl	mg/dl	mg/dl	mm
1	163	197	141	69.5	937	15	0.34
2	155	176	187	48.5	846	21	0.6
3	107	185	97	55.1	544	18	0.54
4	77.1	286	217	87.1	851	14	0.52
5	91.5	204	240	52.6	842	11	0.62
6	105	366	204	23.9	503	16	0.56
7	90.8	217	221	45.5	843	21	0.48
8	78.4	261	208	52.4	842	20	0.58
9	111	268	227	76.6	890	18	0.65
10	175.4	206	187	64.5	503	11	0.7
Mean	115.4	236.6	192.9	57.5	760.1	16.5	0.5
S.D	35.9	58.7	43.5	17.7	170.9	3.7	0.1

Table (7): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in non-septic neonates with RDS.

Non-septic Neonates With RDS							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
Unit	µg/dl	µg/dl	mg/dl	µg/dl	mg/dl	mg/dl	mm
1	212	269	215	105	1031	17	1.8
2	93	170	203	73	529	22	1.7
3	165	200	220	364	835	18	1.9
4	80	380	201	140	785	30	1.8
5	130	201	370	133	880	16	1.6
6	123	237	200	101	1069	17	2.1
7	80	408	190	125	809	23	2.2
8	184	312	144	93	1210	19	1.8
9	201	270	160	111	1156	21	1.9
10	208	308	211	97	720	28	2.0
Mean	147.6	275.5	211.4	134.2	902.4	21.1	1.8
S.D	53.0	78.0	60.7	83.1	211.7	4.7	0.1

Table (8): Iron, TIBC, transferrin, Zinc, T. IgG, T. IgM and Chemotaxis in septic neonates with RDS.

Septic Neonates With RDS							
	Iron	TIBC	Transferrin	Zinc	T.IgG	T.IgM	Chemotaxis
Normal Range	100-250	100-400	130-275	70-120	650-1600	< 25	
Unit	µg/dl	µg/dl	mg/dl	µg/dl	mg/dl	mg/dl	Mm
1	89.5	281	129	96	841	48	0.78
2	104.3	135	215	50.5	842	63	0.89
3	76.8	361	182	57.6	845	65	0.94
4	52	392	268	68.4	250	55	0.86
5	78	337	241	52.5	851	49	0.85
6	66.3	185	200	84	1090	50	0.89
7	78.5	299	114	54.6	842	48.9	0.9
8	61.6	384	236	37.5	503	38.5	0.81
9	111	233	199	114	843	58.6	0.84
10	73.5	393	270	71.5	842	55.7	0.86
Mean	79.1	300.0	205.4	68.6	774.9	53.1	0.8
S.D	18.2	91.0	52.9	23.4	231.4	7.9	4.6

Tables (9): Mean levels of Iron, TIBC, Transferrin, Zinc, IgG, IgM & chemotaxis in septic and non septic neonates

	Type of Neonates	No	Mean	S.D.	Range	P-Value	Significance
Iron µg/dl	Septic	40	93.9	29.6	52.0 - 175.4	0.001*	H.S
	Non Septic	40	153.1	50.1	76.0 - 217.6		
TIBC µg/dl	Septic	40	278.4	76.0	135.0 - 411.0	0.2	N.S
	Non Septic	40	297.0	82.9	161.0 - 453.0		
Transferrin mg/dl	Septic	40	211.9	60.6	97.0 - 366.0	0.4	N.S
	Non Septic	40	223.0	58.1	141.8 - 370.0		
Zinc µg/dl	Septic	40	67.7	24.3	21.9 - 114.0	0.001*	H.S
	Non Septic	40	131.7	71.2	720.0 - 376.4		
T.IgG mg/dl	Septic	40	762.7	192.0	250 - 1090	0.001*	H.S
	Non Septic	40	931.0	194.8	501 - 1320		
T.IgM mg/dl	Septic	40	96.6	72.6	11 - 240	0.001*	H.S
	Non Septic	40	23.5	6.9	13 - 45		
Chemotaxis mm	Septic	40	1.1	0.5	0.34 - 1.98	0.001*	H.S
	Non Septic	40	1.9	0.2	1.60 - 2.40		

TIBC : Total Iron binding capacity

H.S : Highly significant

No : Number

N.S : Non significant

SD : Standard Deviation

***** : Statistically Significant

Table (9): show statistically significant difference between septic and non septic neonates as regard iron, zinc, T.IgG, T. IgM and chemotaxis as there is decreased levels in them in septic than in non-septic neonates except in IgM in which there is increased IgM in septic than non septic neonates. There is also no statistically significant difference in TIBC & transferrin between septic & non septic neonates.

Table (10): Mean zinc, IgG, IgM & chemotaxis in neonates with deficient and with normal iron levels.

	Type of Neonates As regard Iron level	No.	Mean	S.D.	Range	P-Value	Significance
Zinc µg/dl	Deficient	38	89.0	55.9	21.9 – 366.0	0.14	N.S
	Normal	42	109.4	66.0	23.9 – 376.4		
T.IgG mg/dl	Deficient	38	777.1	180.1	250 – 1090	0.004 *	H.S
	Normal	42	909.9	217.0	426 – 1320		
T.IgM mg/dl	Deficient	38	82.8	71.7	11 – 240	0.002 *	H.S
	Normal	42	39.4	45.9	11 – 223		
Chemotaxis mm	Deficient	38	1.4	0.5	0.4 – 2.3	0.06	N.S
	Normal	42	1.6	0.5	0.3 – 2.4		

H.S : Highly significant

N.S : Non significant

*** Means statistically significant**

Table (10): Show statistically significant difference between neonates with deficient and with normal iron levels in immunoglobulin as there is statistically significant decrease in T.IgG in iron deficient neonates than neonates with normal iron levels and there is also statistically significant increase in T.IgM in iron deficient neonates than neonates with normal iron levels.

Table (11): Mean Iron, TIBC, Transferrin, IgG, IgM & Chemotaxis in neonates with deficient and with normal zinc levels.

	Type of Neonates as regard zinc level	No.	Mean	S.D.	Range	P-Value	Significance
Iron µg/dl	Deficient	26	92.6	30.3	52.0 – 175.4	0.001*	H.S
	Normal	54	138.4	51.8	66.3 – 217.6		
TIBC µg/dl	Deficient	26	291.1	80.5	135 – 411	0.79	N.S
	Normal	54	286.0	79.8	147 – 453		
Transferrin mg/dl	Deficient	26	213.6	64.6	97.0 – 366	0.69	N.S
	Normal	54	219.3	57.1	104 – 370		
T.IgG mg/dl	Deficient	26	718.3	181.2	250 – 937	0.001*	H.S
	Normal	54	908.7	195.5	426 – 1320		
T.IgM mg/dl	Deficient	26	90.2	73.8	11 – 240	0.002*	H.S
	Normal	54	45.5	52.0	13 – 223		
Chemotaxis mm	Deficient	26	1.0	0.4	0.3 – 1.9	0.001*	H.S
	Normal	54	1.8	0.4	0.5 – 2.4		

H.S : Highly significant

N.S : Non significant

*** Means statistically significant**

Table (11): show, statistically significant difference between neonates with deficient and with normal zinc level in: iron level, Immunoglobulin G&M and chemotaxis as there is statistically significant decrease in iron level in zinc deficient neonates. There is also statistically significant decrease in T.IgG & increase in T.IgM & decrease in chemotaxis in zinc deficient than neonates with normal zinc. There is no statistically significant difference between zinc deficient & neonates with normal zinc as regard TIBC and transferrin

Table (12): Number of septic and non septic neonates with deficient & with normal iron levels.

		Type		Total	Significance
		Septic (No.)	Non-Septic (No.)		
Iron Status	Deficient	27	11	38	0.001*
	Normal	13	29	42	
Total		40	40	80	

* Means significant statistically

Table (12): show statistically significant increased number of septic neonates with iron deficiency in relation to septic neonates with normal iron.

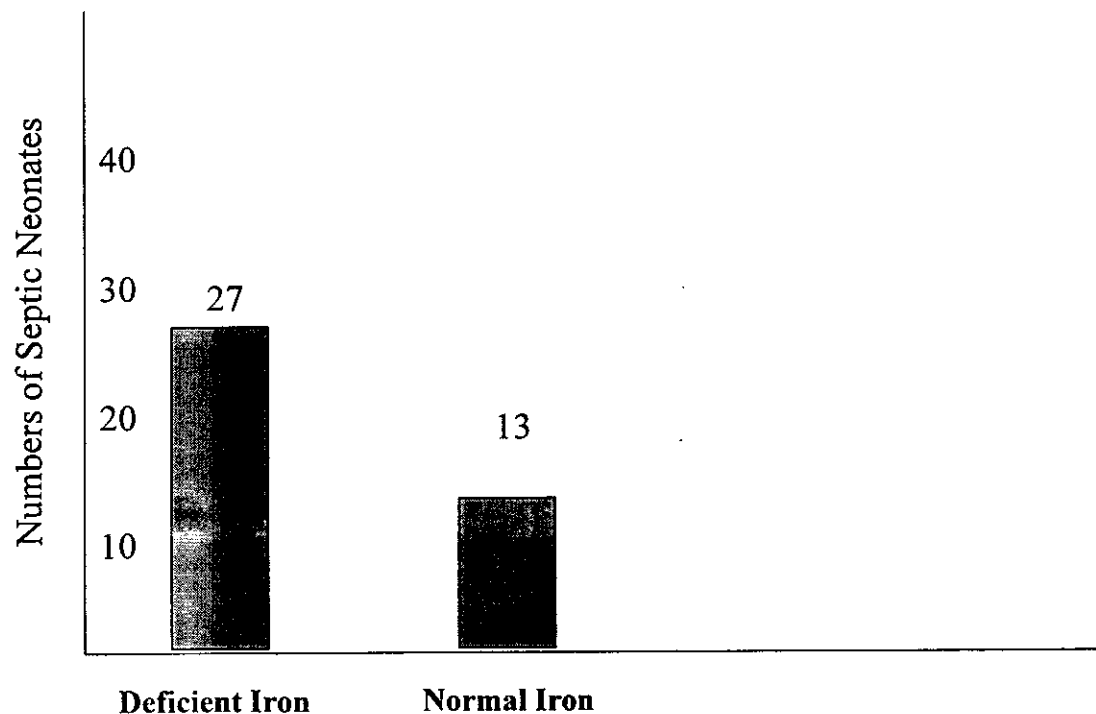


Fig (1) Comparison Between No. of Normal and Deficient Iron Septic Neonates

Table (13) : Comparison between septic neonates with deficient and with normal iron levels.

Type of neonate	Septic neonate	%	Significance
Deficient Iron	27	67.5 %	0.001* Significant
Normal Iron	13	32.5 %	
Total	40	100 %	

Table (13): Show that 67.5 % of septic neonates are iron deficient and 32.5 % of septic neonates are with normal iron levels

Table (14): Comparison between iron deficient septic and non septic neonates.

	Septic neonate	Nonseptic neonate	Total	Significance
Iron Deficient neonates	27	11	38	0.001* (Significant)
%	71 %	29 %	100%	

Table (14): Show that 71% of iron deficient neonate are septic and only 29 % of them are non septic.

Table (15): Number of septic and non septic neonates with deficient & with normal zinc

		Type		Total	Significance
		Septic (No.)	Non-Septic (No.)		
Zinc Status	Deficient	26	0	26	0.001*
	Normal	14	40	54	
Total		40	40	80	

* Means significant statistically

Table (15): Show that 100 % of neonates with zinc deficiency are septic.

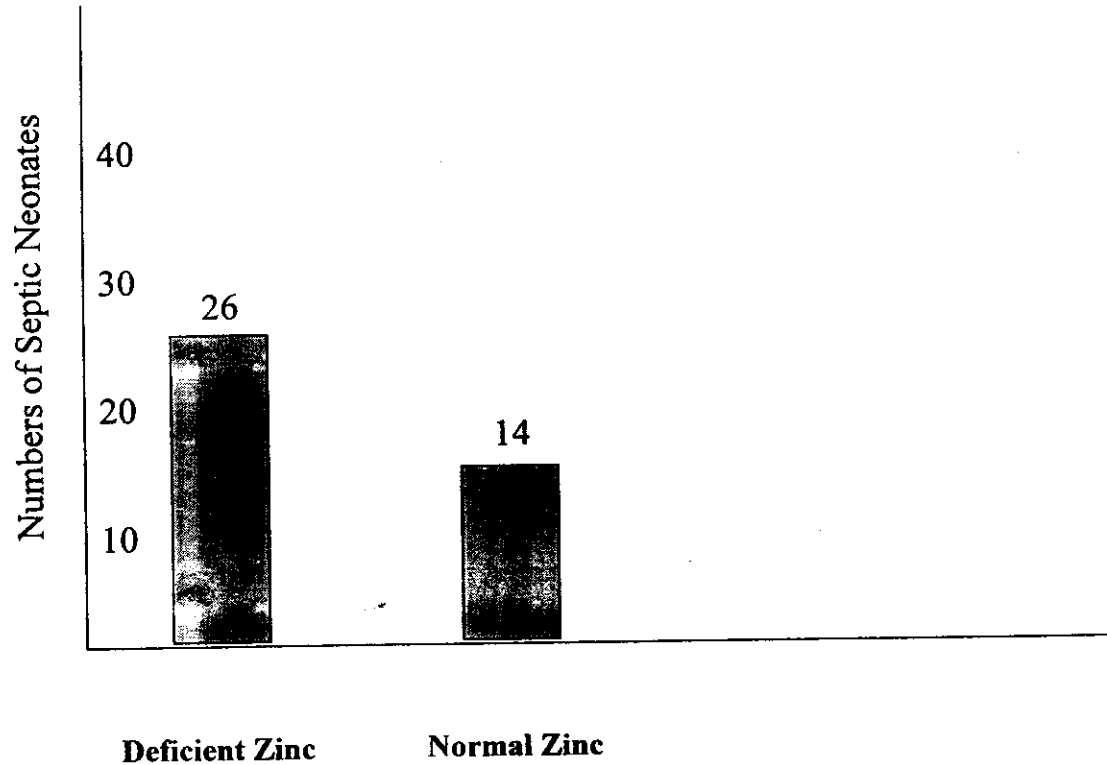


Fig (2) Comparison Between No. of Normal and Deficient Zinc Septic Neonates

Table (16): Comparison between septic neonates with deficient and with normal zinc levels.

Type of neonate	Septic neonate	%	Significance
Deficient Zinc	26	65 %	0.001* Significant
Normal Zinc	14	35 %	
Total	40	100 %	

Table (16): Show that 65% of septic neonates are zinc deficient and only 35 % of zinc are with normal zinc level.

Table (17): Comparison between zinc deficient septic and non septic neonates.

	Septic neonate	Nonspetic neonate	Total	Significance
Zinc Deficient neonates	26	0	26	0.001* (Significant)
%	100 %	0 %	100%	

Table (17): Show that 100% of zinc deficient neonate are septic and none of them are non septic.

The following tables comparing four non septic groups in order to identify if there is a role of prematurity on serum iron and zinc levels with subsequent effect on immunity

Table (18): Comparison between iron level in four non septic groups.

Significance of iron level ug/dl	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	170.2	43.9	147.4	53.6	147.4	53.4	147.6	53.0
Full term	--		0.3		0.3		0.3	
Pre-term	0.3		--		0.9		0.9	
Small for date	0.3		0.9		--		0.9	
Neonates e RDS	0.3		0.9		0.9		--	

Table (18) : show no statistically significant difference between four non septic groups as regards iron level.

Table (19): Significance of TIBC level in four non septic groups.

Significance of TIBC level ug/dl	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	359.3	73.5	276.6	79.4	276.7	79.2	275.5	78.0
Full term	--		0.02*		0.02*		0.02*	
Pre-term	0.02*		--		1.0		0.9	
Small for date	0.02*		1.0		--		0.9	
Neonates e RDS	0.02*		0.9		0.9		--	

* Means Statistically Significant

Table (19) : show statistically significant difference between non septic full term & pre-term neonates in T.I.B.C.

Table (20): Significance of Transferrin level in four non septic groups.

Significance of Transferrin level mg/dl	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	261.4	40.2	208.1	61.4	211.2	58.3	211.4	60.7
Full term	--		0.04*		0.05		0.05	
Pre-term	0.04*		--		0.09		0.8	
Small for date	0.05		0.9		--		0.9	
Neonates e RDS	0.05		0.8		0.05		--	

Table (20): show statistically significant difference between non septic full term & pre-term neonates in transferrin level.

Table (21) : Significance of Zinc level in four non septic groups.

Significance of Zinc level ug/dl	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	113.7	16.1	142.9	85.8	136.0	83.3	134.2	83.1
Full term	--		0.3		0.5		0.5	
Pre-term	0.3		--		0.8		0.7	
Small for date	0.5		0.8		--		0.9	
Neonates e RDS	0.5		0.7		0.9		--	

This table (21): show no statistically significant difference between four non septic groups as regard Zinc level.

Table (22) : Significance of T.IgG level in four non septic groups.

Significance Of T.IgG level mg/dl	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	1017	54.6	902	234	902	225	902	211
Full term	--		0.1		0.1		0.1	
Pre-term	0.1		--		1.0		0.9	
Small for date	0.1		1.0		--		0.9	
Neonates e RDS	0.1		0.9		0.9		--	

This table (22): show no statistically significant difference between four non septic groups as regard T.IgG level.

Table (23) : Significance of T.IgM level in four non septic groups.

Significance of T.IgM level mg/dl	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	29.9	8.9	21.8	4.8	21.2	4.4	21.1	4.7
Full term	--		0.005*		0.003*		0.003*	
Pre-term	0.005*		--		0.8		0.7	
Small for date	0.003*		0.8		--		0.9	
Neonates e RDS	0.003*		0.7		0.9		--	

This table (23): show statistically significant difference between non septic full term & pre-term neonates in T.IgM which indicate that prematurity plays a role in the level of T.IgM.

Table (24) : Significance of Chemotaxis level in four non septic groups.

Significance of Chemotaxis level mm	Full term		Pre-term		Small for date		Neonates e RDS	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	2.2	0.1	1.9	0.1	1.9	0.1	1.8	0.1
Full term	--		0.001*		0.001*		0.001*	
Pre-term	0.001*		--		0.9		0.7	
Small for date	0.001*		0.9		--		0.7	
Neonates e RDS	0.001*		0.7		0.7		--	

This table (24): show statistically significant difference between non septic full term & pre-term neonates in Chemotaxis.