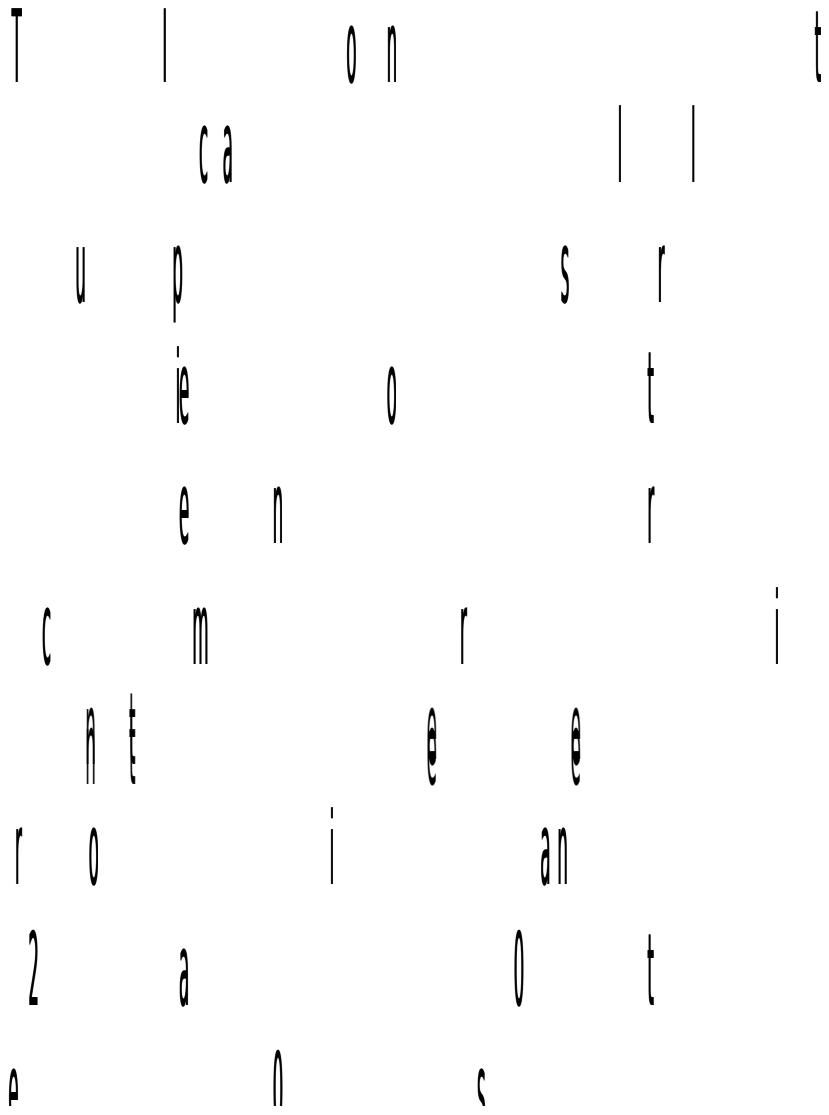
Official title of the study :Efficacy of Oral Bovine Lactoferrin on Prevention of Neonatal Sepsis, Necrotizing Enterocolitis and its effect on CBC in Preterm infants. (stastical analysis)

Date of document 1 June 2019

Results

The results of the the current study are presented in the following tables
and figures:-



NEC = necrotizing enterocolitis, BPD= bronchopulmonary dysplasia
RDS = respiratory distress syndrome

Figure (7): Consort flow chart of studied preterm neonates

Table (13): Demographic data of placebo group and once daily lactoferrin supplemented group:-

Personal data		Placebo group (n=100)		Once daily group (n=100)		Test value	P. value
		No.	%	No.	%		
GA preterm (in weeks)	Nearterm (34-36)	35	35.0	35	35.0	0.225	0.614
	Moderate (32-33)	40	40.0	40	40.0		
	Severe (28-31)	22	22.0	22	22.0		
	Extreme (<28)	3	3.0	3	3.0		
GA (weeks)	Mean±SD	30.47±2.6		30.36±2.7		1.423	0.156
	Range	26 - 36		26 - 36			
Sex	Male	64	64.0	53	53.0	2.060	0.151
	Female	36	36.0	47	47.0		
Order of birth	First	15	15.0	20	20.0	4.032	0.258
	Second	20	20.0	22	22.0		
	Third	31	31.0	19	19.0		
	>third	34	34.0	39	39.0		
Single/Multiple birth	Single	72	72.0	61	61.0	2.244	0.105
	Twins	28	28.0	39	39.0		
	Triple	0	0.0	0	0.0		
Mode of delivery	NVD	65	65.0	54	54.0	2.075	0.150
	CS	35	35.0	46	46.0		
Apgar 1 minute	Median(IQR)	8(7-9)		8(7-9)		6.394	0.371

Apgar 5 minute	Median(IQR)	9(9-10)	9(9-10)	0.959	0.690

Independent samples T Test and Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).
As regards demographic data , there were no significant statistical difference between placebo and oral lactoferrin groups.

Table (14): Comparison between placebo group and once daily lactoferrin supplemented group regarding maternal and obstetric data:

Maternal history		**Placebo (n=100)**		**Lactoferrin (n=100)**		**Test value**	**P. value**
		No.	**%**	**No.**	**%**		
Maternal Age (years)	Mean±SD	28.65±6.52		28.43±6.67		1.645	0.102
	Range	19 - 47		19 - 45			
Maternal DM	Positive	8	8.0	12	12.0	0.500	0.050
	Negative	92	92.0	88	88.0		
Maternal HTN	Positive	11	11.0	14	14.0	0.183	0.669
	Negative	89	89.0	86	86.0		
Anti partum Hemorrhage	Positive	3	3.0	14	14.0	6.429	0.011*
	Negative	97	97.0	86	86.0		

Independent samples T Test and Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).
This table shows that there is significant statistical higher incidence of anti-partum hemorrhage among placebo group than in oral lactoferrin supplemented group.

Table (15):- Comparison between placebo group and once daily lactoferrin supplemented group as regarding anthropometric measures and vital data upon admission:

Examination on admission		Placebo group (n=100)		Once daily group (n=100)		Test value	P. value
		No.	%	No.	%		
Birth weight (on centile)	5th - 95th	90	90.0	88	88.0	0.826	0.662
	<5th	5	5.0	8	8.0		
	>95th	5	5.0	4	4.0		
Birth weight (kilogram)	Mean±SD	1.55±0.55		1.45±0.45		1.062	0.29
Length at birth (on centile)	5th - 95th	87	87.0	90	90.0	0.475	0.69
	<5th	7	7.0	5	5.0		
	>95th	6	6.0	5	5.0		
Length at birth (Centimeter)	Mean±SD	42.20±3.6		40.11±3.7		2.940	0. 64
	Range	36 - 48		36 - 48			
Head circumferance (on centile)	5th - 95th	98	98.0	98	98.0	0.225	0.614
	<5th	2	2.0	2	2.0		
	>95th	0	0.0	0	0.0		
Head	Mean±S	30.40±1.		30.50±1.8		1.28	0.202

circumferance (Centimeter)	D	75	5	1	
	Range	26 - 34	26 - 34		
Temperature	Mean±SD	36.30±0.30	36.40±0.40	0.289	0.773
	Range	36.8 - 37.2	36.8 - 37.1		
Heart rate	Mean±SD	120.8±14.2	118.6±16.68	1.318	0.189
	Range	80 - 146	86 - 154		
Respiratory rate	Mean±SD	48.3±10.80	46.5±10.4	0.485	0.628
	Range	36 - 62	34 - 64		
Systolic blood pressure	Mean±SD	62.2±6.2	62.6±7.8	0.524	0.601
	Range	48 - 78	46 - 78		
Diastolic blood pressure	Mean±SD	38.4±8.6	36.6±7.6	0.604	0.546
	Range	26 - 50	26 - 52		

Independent samples T Test and Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).
The table shows that there was non significant statistical difference between placebo group and once daily lactoferrin supplemented group as regarding anthropometric measures and vital signs.

Table (16): Comparison between placebo group and once daily lactoferrin supplemented group regarding development of clinical signs of sepsis according to Tollner score:

		Placebo group (n=100)		Once daily group (n=100)		Test value	P. value
		No.	%	No.	%		
Skin color	Normal	84	84.0	92	92.0	9.430	0.009**
	Moderate change	7	7.0	8	8.0		
	Sever change	9	9.0	0	0.0		
Temp instability	Positive	13	13.0	6	6.0	2.094	0.148
	Negative	87	87.0	94	94.0		
Respiratory signs O2 requirement	Normal	59	59.0	54	54.0	8.583	0.035
	O2	18	18.0	26	26.0		
	CPAP	10	10.0	8	8.0		
	IMV	13	13.0	12	12.0		
Apnea	Positive	18	18.0	10	10.0	2.035	0.154
	Negative	82	82.0	90	90.0		
Inter and subcostal retraction	Positive	36	36.0	30	30.0	0.565	0.452
	Negative	64	64.0	70	70.0		
Teachypnea	Positive	34	34.0	30	30.0	0.207	0.650
	Negative	66	66.0	70	70.0		
Cyanosis	Positive	13	13.0	10	10.0	0.197	0.658
	Negative	87	87.0	90	90.0		
Grunting	Positive	18	18.0	11	11.0	1.452	0.228

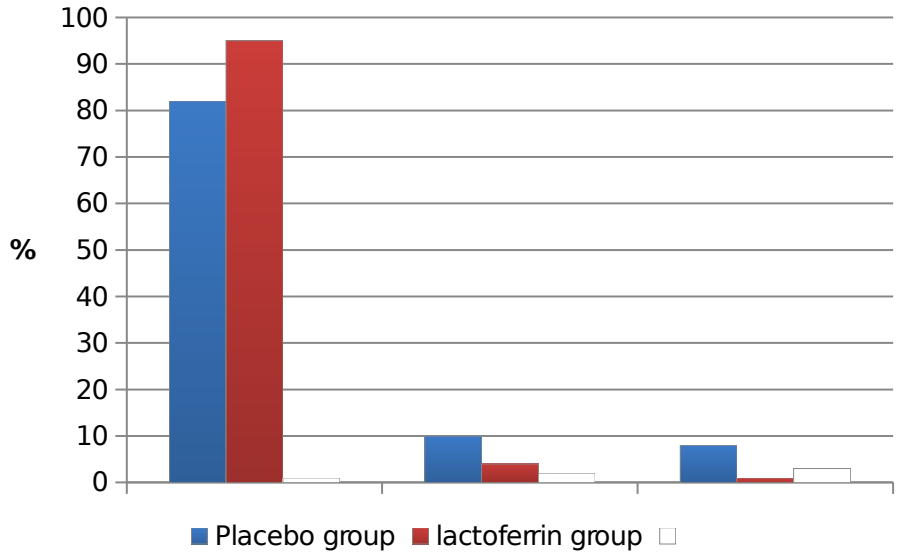
		Placebo group (n=100)		Once daily group (n=100)		Test value	P. value
		No.	%	No.	%		
	Negative	82	82.0	89	89.0		
Circulatory signs Bradycardia	Positive	12	12.0	10	10.0	0.051	0.820
	Negative	88	88.0	90	90.0		
Weak pulse	Positive	14	14.0	9	9.0	33.745	<0.001**
	Negative	86	86.0	91	91.0		
Shock	Positive	6	6.0	2	2.0	0.207	0.650
	Negative	94	94.0	98	98.0		
CFT	Normal	80	80.0	92	92.0	7.670	0.022*
	Impaired	11	11.0	2	2.0		
	Considerably impaired	9	9.0	6	6.0		
Hypotension	Positive	11	11.0	7	7.0	0.549	0.459
	Negative	89	89.0	93	93.0		
GIT signs Abdominal distension	Positive	16	16.0	7	7.0	3.144	0.076
	Negative	84	84.0	93	93.0		
Feeding intolerance	Positive	31	31.0	12	12.0	9.600	0.002**
	Negative	69	69.0	88	88.0		
Diarrhea	Positive	22	22.0	8	8.0	6.627	0.010*
	Negative	78	78.0	92	92.0		
Hepatomegaly	0 - 2 cm	83	83.0	94	94.0	9.969	0.007**
	2 - 4 cm	8	8.0	6	6.0		
	>4 cm	9	9.0	0	0.0		
Bloody stool	Positive	3	3.0	0	0.0	1.484	0.223
	Negative	97	97.0	100	100.0		

		Placebo group (n=100)		Once daily group (n=100)		Test value	P. value
		No.	%	No.	%		
Jaundice	Positive	23	23.0	8	8.0	7.482	.006**
	Negative	77	77.0	92	92.0		
Neurological signs Irritbility	Positive	8	8.0	4	4.0	0.798	0.372
	Negative	92	92.0	96	96.0		
Hypotonia	Normal	74	74.0	98	98.0	24.416	<0.001**
	Hypotonia	13	13.0	2	2.0		
	Floppy	13	13.0	0	0.0		
W.B.C count	Normal Leucocytosis Leucopenia	82 18 0	82.0 18.0 0.0	95 5 0	95.0 5.0 0.0	8.971	0.012*
Shift to left	No Moderate severe	82 10 8	82.0 10.0 8.0	95 4 1	95.0 4.0 1.0	8.971	0.012*
Others blood glucose level	Normal	90	90.0	94	94.0	1.105	0.576
	Hypoglycemia	3	3.0	2	2.0		
	Hyperglycemia	7	7.0	4	4.0		
Petechiae	Positive	6	6.0	2	2.0	1.172	0.279
	Negative	94	94.0	98	98.0		
Thrombocytopenia	Positive	4	4.0	1	1.0	0.002	0.959
	Negative	96	96.0	99	99.0		
DIC	Positive	0	0.0	0	0.0	0.000	0.000
	Negative	100	100.	100	100.0		
Oral fungal infection	Positive	16	16.0	3	3.0	7.977	.005**
	Negative	84	84.0	97	97.0		

		Placebo group (n=100)		Once daily group (n=100)		Test value	P. value
		No.	%	No.	%		
Tollner score	No sepsis	82	82.0	95	95.0	8.971	0.012*
	Observation range	10	10.0	4	4.0		
	Suspicison of sepsis	8	8.0	1	1.0		

Independent samples T Test and Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).
The table shows that oral lactoferrin supplemented group had significant lower Tollner score (signs of sepsis) compared with placebo group .

Figure (8) : Tollner score among the two groups



Showing that there is significant lower incidence of sepsis in lactoferrin supplemented group in comparison with placebo group.

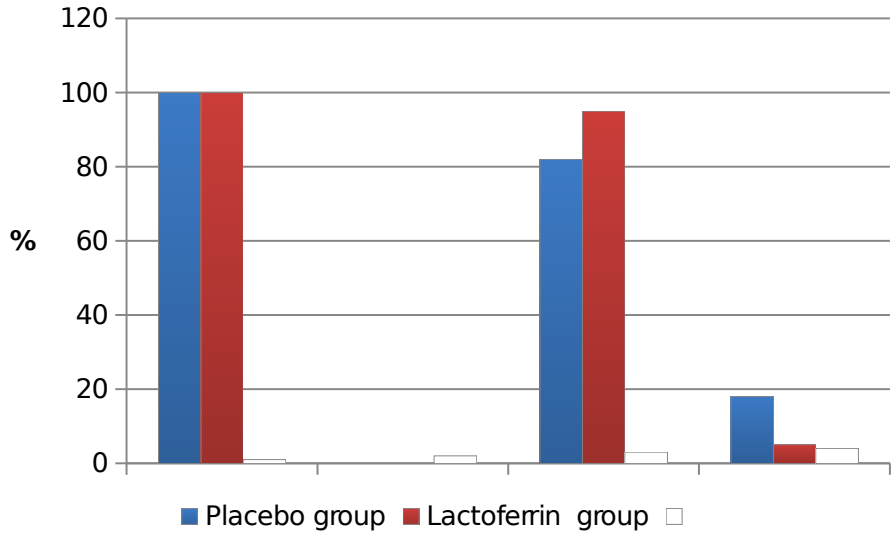
Other investigations		Placebo group (n=100)		Once daily group (n=100)		Test value	P. valu
		No.	%	No.	%		
Hb on admission (g/dl)	Mean±SD	14.56±4.52		14.44±3.41		0.994	0.321
	Range	10.40 - 19.5		10.4 - 19.8			
CRP on admission	Negative	100	100.0	100	100	58.851	1.00
	Positive	0	0.0	0	0.0		
CRP in follow up (who develop sepsis)	Negative	82	82.0	95	95.0	17.869	0.008*
	Positive	18	18.0	5	5		

Table (17): Comparison between placebo group and once daily lactoferrin supplemented group regarding hemoglobin and CRP .

HB= hemoglobin,CRP = c- reactive protein

Independent samples T Test and Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$)
This table shows that there was a significantly lower incidence of positive CRP in oral lactoferrin supplemented group than in placebo one (during follow up)

Figure (9) Comparison between placebo group and once daily lactoferrin supplemented group regarding CRP



This figure shows that positive CRP is significant statistically higher in placebo group than in lactoferrin supplemented one during follow up.

Table (18) comparison between placebo and oral supplemented groups regarding ALT,AST and billirubin.

	Placebo group	Lactoferrin	Test value	P value
ALT (U\L) at one month	28.77±6.30	28.14±5.26	0.272	0.876
AST (U\L) at one month	37.55±5.31	38.22±4.23	2.876	0.067
Billirubin (mg\dl) at one month	3.4(2.2-5.3)	3.5(2.6-5.2)	3.367	0.092

ALT= alanine transaminase , AST= aspartate aminotransferase
Independent samples T Test and Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).
This table shows no signifificant statistical difference between ALT , AST and billirubin in the two studied groups.

Table(19): Comparison between placebo group and once daily lactoferrin supplemented group as regard arterial blood gases on admission and during sepsis:

ABG on admission		Placebo group (n=100)	lactoferrin group (n=100)	Test value	P. value
PH	Mean±SD	7.36±0.0812	7.37±0.0735	0.246	0.624
	Range	7.28 - 7.44	7.27 - 7.46		

Pco2	Mean±SD	37.22±9.99	37.24±10.44	0.242	0.816
	Range	17 - 68.5	19 - 60.2		
BD	Mean±SD	-4.12±6.88	-4.81±6.98	0.237	0.457
	Range	-9 - 3.1	-8.8 - 3.6		
Hco3	Mean±SD	18.46±5.9	18.88±5.4	0.345	0.534
	Range	13.5 - 25.4	13.2 - 25.3		
ABG during sepsis		**Placebo group (n=100)**	**Lactoferrin group (n=100)**	**Test value**	**P. value**
PH	Mean±SD	7.30±0.26	7.36±0.07	3.748	<0.001**
	Range	7.14 - 7.42	7.33 - 7.37		
Pco2	Mean±SD	34.43±8.32	30.3±8.1	7.030	<0.001**
	Range	24 - 52	20.1 - 38.7		
BD	Mean±SD	-6.98±5.66	-6.41±4.3	3.094	.002**
	Range	-13.1 - 6.7	-8.1 - -2.6		
Hco3	Mean±SD	17.54±3.82	18.15±3.62	0.589	0.557
	Range	10.4 - 29	15.4 - 28.7		

BD=base deficit
Independent samples T Test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).

This table shows that upon development of sepsis lactoferrin supplemented group has a higher PH and lower BD compared with oral placebo group.

Table (20): Lab analysis on day7

Variable	Lactoferrin (n=100)	Placebo (n=100)	Test value	P. value
	Mean±SD	Mean±SD		
Serum ferritin (ng/ml)	332.4±43.2	338.7±55.2	1.855	0.065
Hemoglobin (g/dl)	15.8±2.9	15.3±2.4	4.359	0.078
Hematocrit (%)	45.1±6.6	42.2±6.3	4.659	0.064
MCV (fl)	100.1±4.4	97.3±8.2	3.200	0.063

RDW (%)	17.2±2.3	17.1±3.2	0.966	0.335
Platelets (x1, 000/mm^3)	175.4±73.2	178.3±100.3	0.890	0.374
TLC (x1, 000/mm^3)	13.4±5.2	12.8±5.4	1.106	0.270

Data are mean ± SD or number (%)
Independent samples T Testand Chi-square test
* Statistically significant difference ($p<0.05$).
**Highly statistically significant difference ($p<0.01$).
MCV = mean corpuscular volume ,RDW= red cell distribution widths , PLT=platelets , TLC = total leucocytic count.

There was no stastically significant difference between the 2 groups as regards S.ferritin, hemoglobin , hematocrit , MCV, RDW, platelets and TLC on day 7.

Table (21): Lab analysis on day30

Variable	Lactoferrin (n=100)	Placebo (n=100)	Test value	P. value
	Mean±SD	Mean±SD		
Serum ferritin (ng/ml)	377.9±68.6	290.7±70.9	11.61	<0.001**
Hemoglobin (g/dl)	15.1±1.9	11.3±2.2	5.243	<0.001**
Hematocrit (%)	47.4±3.5	38.1±6.9	11.64	<0.001**

			7	
MCV (fl)	99.9±4.8	90.3±8.5	7.417	<0.001**
RDW (%)	15.9±1.6	17.8±2.9	4.226	<0.001**
Platelets (x1, 000/mm^3)	248.3±64.4	252.1±140.2	0.461	0.645
TLC (x1, 000/mm^3)	13.1±3.1	17.4 ± 8.1	6.145	<0.001**

Independent samples T Test and Chi-square test
* Statistically significant difference (p<0.05)
**Highly statistically significant difference (p<0.01).
MCV = mean corpuscular volume ,RDW= red cell distribution widths
PLT=platelets , TLC = total leucocytic count .

The lactoferrin group showed statistically significant higher S.ferritin level ,HB ,HCT,MCV than placebo supplemented group
But lactoferrin group showed significant statistical lower RDW, and TLC .
NO statistical difference for PLT count.

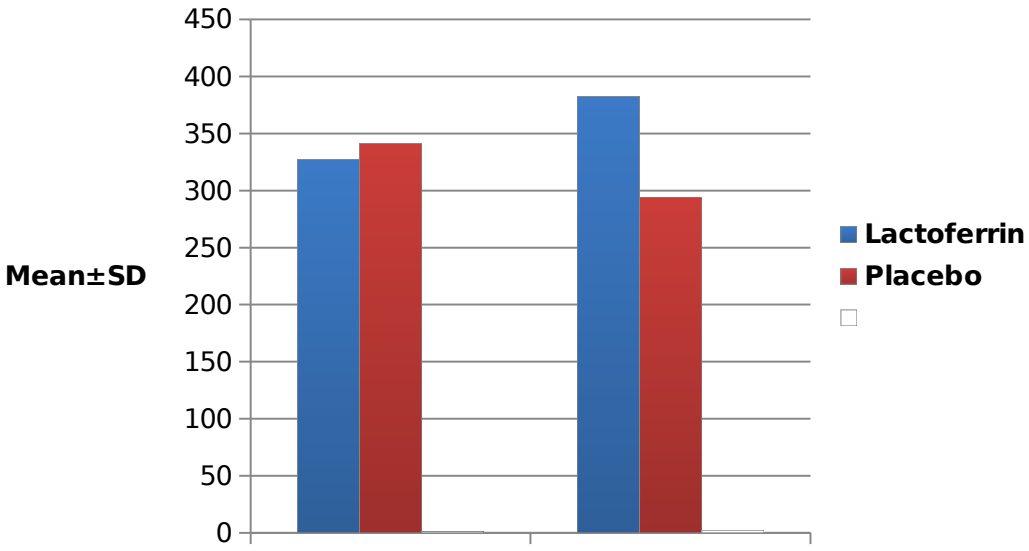
Table (22):Comparison between day 7 and 30 in each group as regards S.ferritin ,Hb, HCT, MCV,RDW, PLT and TLC.

Group	Variable	Time	Mean	SD	P. value

Lactoferrin (n=100)	**Serum ferritin (ng/ml)**	Day 7	332.4	43.2	<0.001**
		Day 30	377.9	68.6	
	Hemoglobin (g/dl)	Day 7	15.8	2.9	0.0684
		Day 30	15.1	1.9	
	Hematocrit (%)	Day 7	45.1	6.6	0.375
		Day 30	47.4	3.5	
	MCV (fl)	Day 7	100.1	4.4	0.682
		Day 30	99.9	4.8	
	RDW (%)	Day 7	17.2	2.3	0.001**
		Day 30	15.9	1.6	
	Platelets (x1, 000/mm^3)	Day 7	175.4	73.2	<0.001**
		Day 30	248.3	64.4	
	TLC (x1, 000/mm^3)	Day 7	13.4	5.2	0.191
		Day 30	13.1	3.1	
Placebo (n=100)	**Serum ferritin (ng/ml)**	Day 7	338.7	55.2	<0.001**
		Day 30	290.7	70.9	
	Hemoglobin (g/dl)	Day 7	15.3	2.4	<0.001**
		Day 30	11.3	2.2	
	Hematocrit (%)	Day 7	42.2	6.3	<0.001**
		Day 30	38.1	6.9	
	MCV (fl)	Day 7	97.3	8.2	0.002**
		Day 30	90.3	8.5	
	RDW (%)	Day 7	17.1	3.2	0.635
		Day 30	17.8	2.9	
	Platelets (x1, 000/mm^3)	Day 7	178.3	100.3	<0.001**
		Day 30	252.1	140.2	
	TLC (x1, 000/mm^3)	Day 7	12.8	5.4	<0.001**
		Day 30	17.4	8.1	

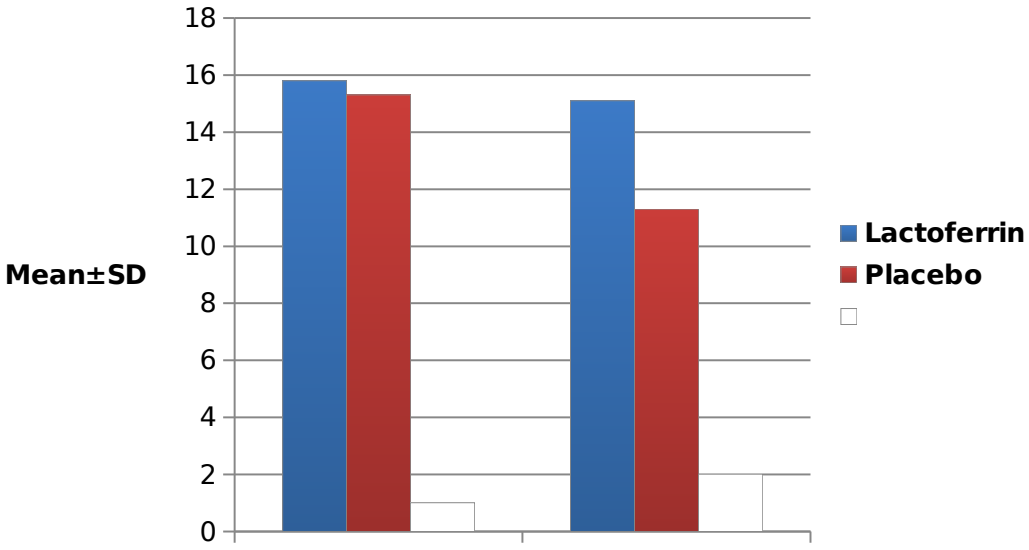
Independent samples T Test and Chi-square test,
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).

Figure (10) Serum ferritin in lactoferrin group and placebo group



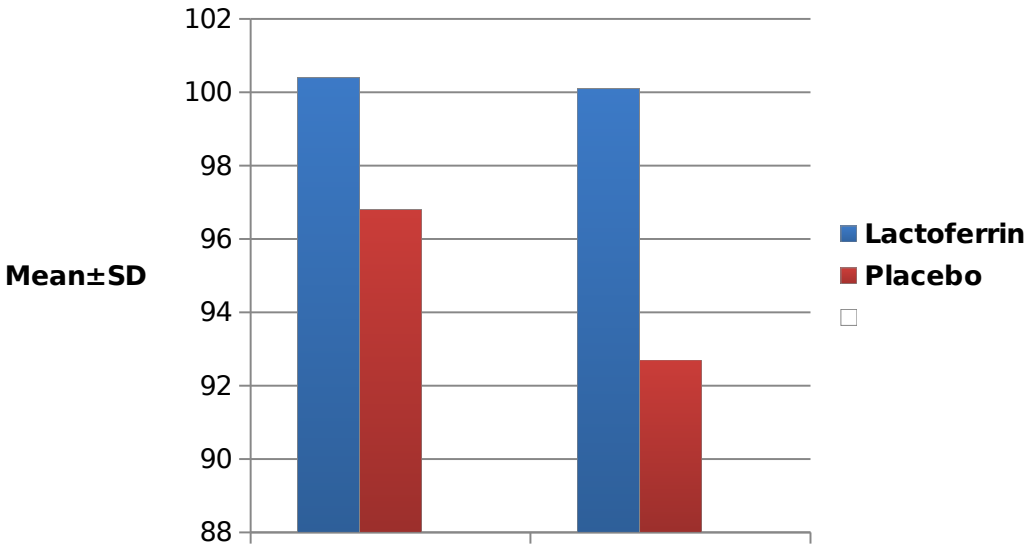
This figure shows that serum ferritin is significantly higher in lactoferrin group than the placebo group on day 30.

Figure (11) Hemoglobin level in both lactoferrin and placebo groups



This figure shows a serum hemoglobin is significantly higher in lactoferrin group than the placebo group on day 30.

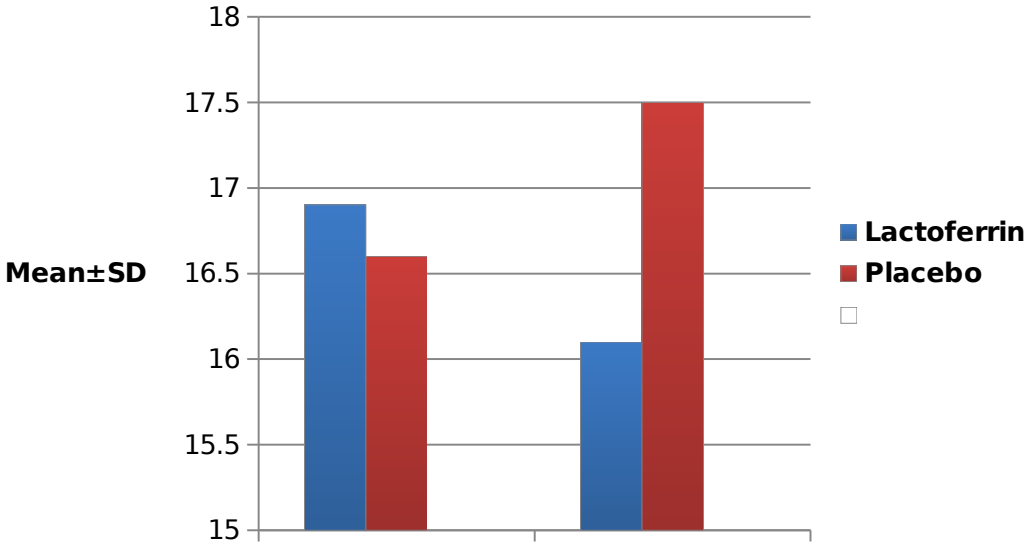
Figure (12) Mean corpuscular volume value in both lactoferrin and placebo groups



MCV =Mean corpuscular volume

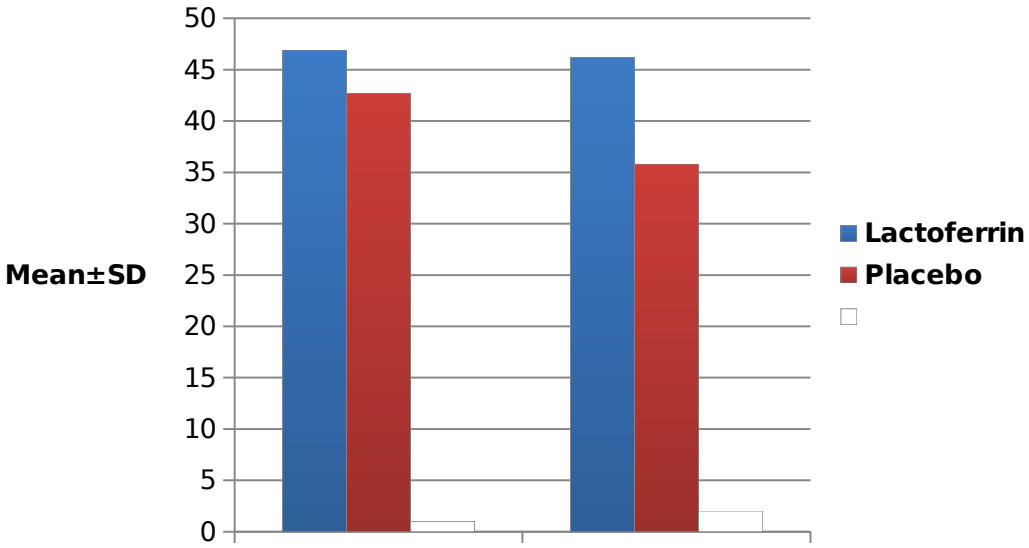
This figure shows a comparison of MCV level in both placebo and lactoferrin groups between day 7 and day 30. Being much higher in lactoferrin group than in placebo group on day 30.

Figure (13): Mean red cell distribution width (RDW) in both lactoferrin and placebo groups



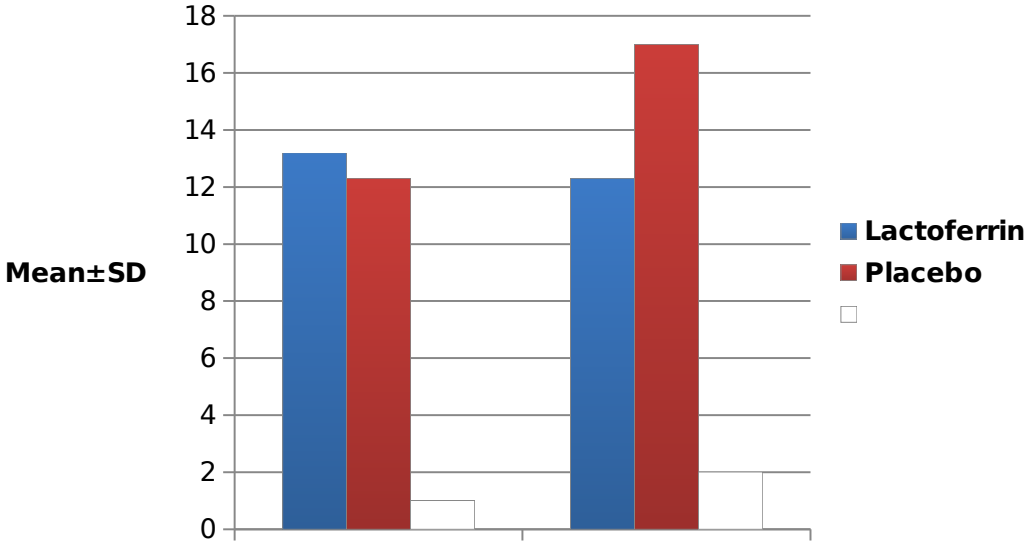
This figure shows a comparison of RDW in both placebo and lactoferrin groups between day 7 and day 30. Being lower in lactoferrin group than in placebo group on day 30.

Figure (14): Mean hematocrit in both lactoferrin and placebo groups.



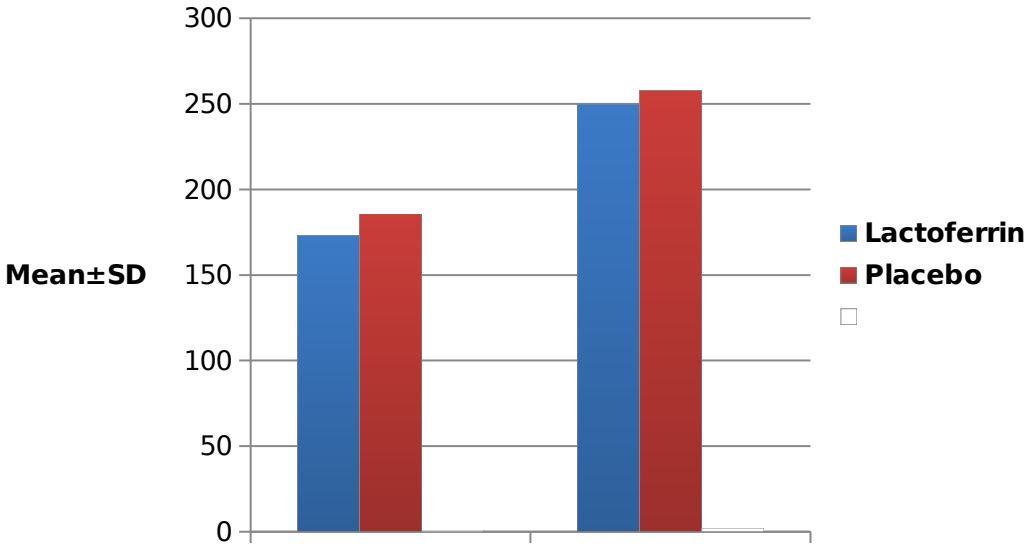
This figure shows a comparison of hematocrite level in both placebo and lactoferrin groups between day 7 and day 30. Being much higher in lactoferrin group than in placebo group on day 30.

Figure (15): Total leucocytic count (TLC) in both lactoferrin and placebo groups.



This figure shows a comparison of TLC in both placebo and lactoferrin groups between day 7 and day 30. Being lower in lactoferrin group than in placebo group on day 30.

Figure (16): Platelet count in both lactoferrin and placebo groups.



This figure shows a comparison of platelets in both placebo and lactoferrin groups between day 7 and day 30. No statistical difference was found between lactoferrin group and placebo group on day 7 and day 30.

Table(23): Weight gain in both study groups:

Variable	Lactoferrin (n=100)	Placebo (n=100)	Test value	P. value
	Mean±SD	Mean±SD		
Birth weight (kg)	1.45±0.45	1.55±0.55	1.062	0.29
Body weight on day 30 (kg)	2.20±0.55	2.1±0.60	0.916	0.361
Weight gain (kg)	0.75±0.35	0.55±0.38	5.193	0.03*

Independent samples T Test

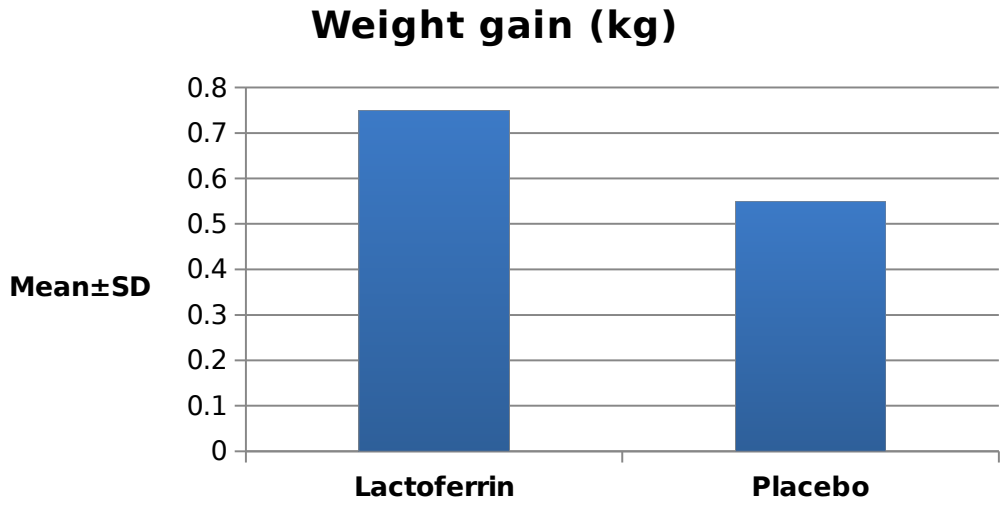
* Statistically significant difference ($p<0.05$)

**Highly statistically significant difference ($p<0.01$).

This table shows that there was no significant statistical difference between birth weight and body weight on day 30 .

Lactoferrin supplemented group showed significant statistical weight gain than placebo one.

Figure(17): weight gain in both study groups.



This figure shows that the mean weight gain was higher in lactoferrin supplemented group than in placebo one.

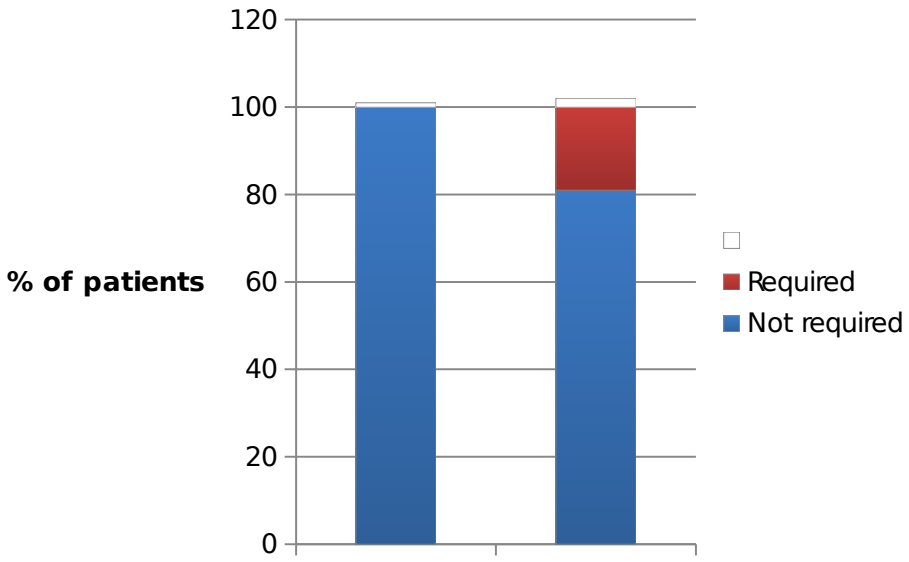
Table (24): The need and frequency of blood transfusion.

Variable	Lactoferrin (n=100)	Placebo (n=100)	Test value	P. value
	No.(%)	No.(%)		
Need for blood transfusion	0(0%)	19(19%)	18.843	<0.001**
Frequency of blood transfusion				
No blood transfusion	100(100%)	81(81%)	18.543	<0.001**
1 transfusion	0(0%)	12(12%)	10.727	0.001**
2 transfusions	0(0%)	7(7%)	5.329	0.021

Chi-square test
* Statistically significant difference ($p<0.05$
Highly statistically significant difference ($p<0.01$).

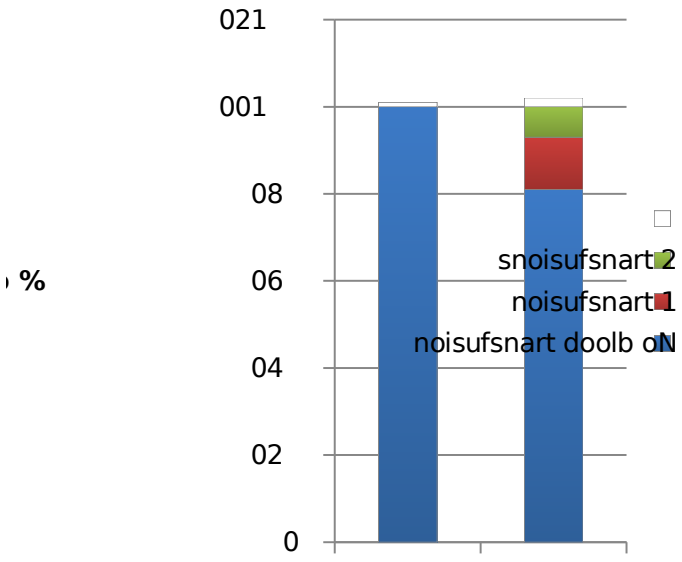
This table shows that there is no one in the lactoferrin group needed blood transfusion 0% while in placebo group 19 preterm (19%) needed blood transfusion with 7 preterm neonates (7) % for 2 transfusions .

Figure (18): Need for blood transfusion in both study groups.



This figure shows the percentage of preterm neonates who needed blood transfusion in the 2 groups being nil in the lactoferrin supplemented group and 19 % in the placebo group.

Figure (19): Frequency of blood transfusion in both study groups.



This figure shows the percentage of frequency of blood transfusion in the 2 groups being nil in the lactoferrin supplemented group and 12 % and 7% in the placebo group needed once and twice blood transfusion respectively.

Table (25) : Comparison between placebo and oral lactoferrin groups regarding chest x-ray , abdominal x ray and pelvi-abdominal Ultrasound.

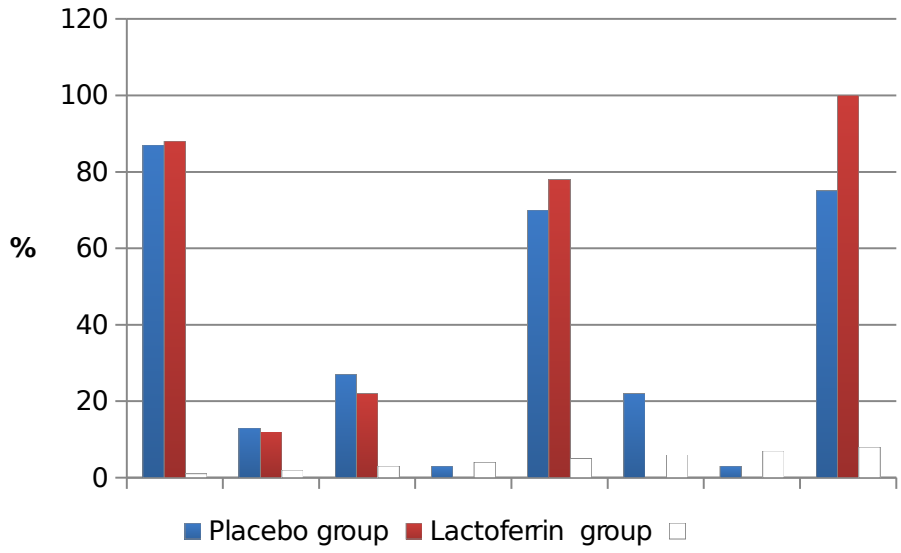
Radiology		Placebo group (n=100)		Lactoferrin group (n=100)		Test value	P. value
		No.	%	No.	%		
Chest x ray	Free	87	87.0	88	88.0	0.000	1.000
	RDS	13	13.0	12	12.0		
Abdominal x ray	Free	27	27.0	22	22.0	1.844	0.398
	NEC changes	3	3.0	0	0.0		
	Not done	70	70.0	78	78.0		
Pelviabdominal Ultrasound	Free	22	22.0	0	0.0	1.844	0.398
	NEC changes	3	3.0	0	0.0		
	Not done	75	75.0	100	100.0		

Chi-square test
* Statistically significant difference ($p<0.05$)

**Highly statistically significant difference ($p<0.01$).

This table shows that there was non significant statistical difference between placebo and oral lactoferrin groups regarding chest x-ray , abdominal x ray and pelvi-abdominal ultrasound findings.

Figure (20) : showing placebo and oral lactoferrin groups regarding chest X-ray , abdominal X- ray and pelvi-abdominal ultrasound.



This figure show no stastical significant difference between placebo and oral lactoferrin supplemented group as regard chest X-ray , abdominal X- ray and pelvi-abdominal ultrasound.

Table (26): Comparison between placebo, and once daily lactoferrin supplemented groups as regard blood, CSF, stool, urine and fungal cultures.

Cultures		Placebo group (n=100)		Once dally group (n=100)		Test value	P. value
		No.	%	No.	%		
Blood culture	Positive cultures	18	18.0	5	5.0	7.074	0.008**
	Negative	82	82.0	95	95.0		
	Escherichia coli	5	5.0	1	1.0	5.856	0.557
	Staphylococcus aureus	5	5.0	1	1.0		
	Staphylococcus epidemidis	3	3.0	1	1.0		

	Acinetobacter spp	2	2.0	0	0.0		
	Klebseila	1	1.0	1	1.0		
	Enterobacter cloacae	1	1.0	0	0.0		
	Moraxella	0	0.0	1	1.0		
	Pseudomonas aeruginosa	1	1.0	0	0.0		
CSF culture	Negative or not done	98	98.0	100	100	0.014	0.907
	Escherichia coli	2	2.0	0	0.0		
Stool culture	Negative or not done	96	96.0	100	100	0.608	0.748
	Escherichia coli	3	3.0	0	0.0		
	Klebseila	1	1.0	0	0.0		
Urine culture	Negative or not done	100	100.0	100	100.0	0.128	0.721
Fungal blood culture	Negative or not done	100	100.0	100	100.0		

Chi-square test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).

This table shows the positive and negative results of different cultures. Positive cultures are much lower of significant stastical value in the lactoferrin group than in the placebo one.
It shows that positive blood cultures affected by E.coli represent 27.7 % of the total positive blood cultures in the placebo group.
Staph.aureus shows 27.7 % positive in the total positive cultures in the placebo group.
E.coli and Staph.aureus represent the most common pathogens in the placebo group regarding positive blood cultures.

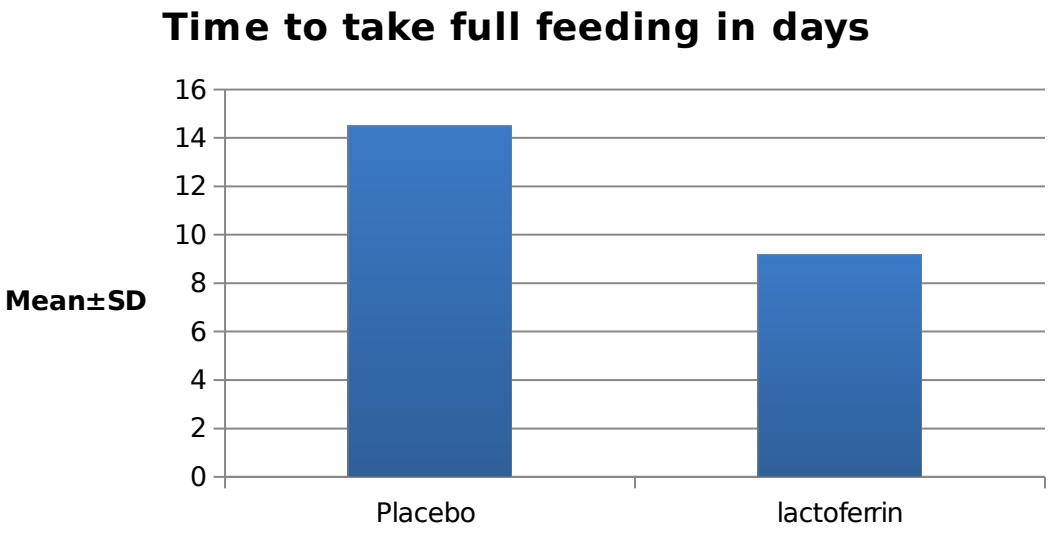
Table (27) : Time needed to reach full feeding in days in placebo and oral lactoferrin supplemented groups.

Data	Mean±SD	**Placebo group n=100**	**Lactoferrin group n=100**	**Test value**	**P. value**
Time to take full feeding in days	Mean±SD	14.5±6.5	9.2±4.0	6.867	<0.001**

Independent samples T Testand Chi-square test,
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).

This table shows that there is significant statistical value regarding time to reach full feeding in which that oral lacoferrin supplemented group has reached full feeding faster than placebo group.

Figure (21) : Placebo and oral lactoferrin groups regarding time in days needed to reach full feeding.



This figure shows the average time in days to reach full enteral feeding in both study groups. In the lacoferrin group the mean was 9.2±4.0.SD days , while in the placebo group was 14.5±6.5 SD days.

Table (28): Length of stay in the NICU in the two study groups.

Variable	Lactoferrin (n=100)	Placebo (n=100)	Test value	P. value
	Mean±SD	Mean±SD		
Length of stay	21.5±11.8	28.22±14.9	3.816	<0.001**

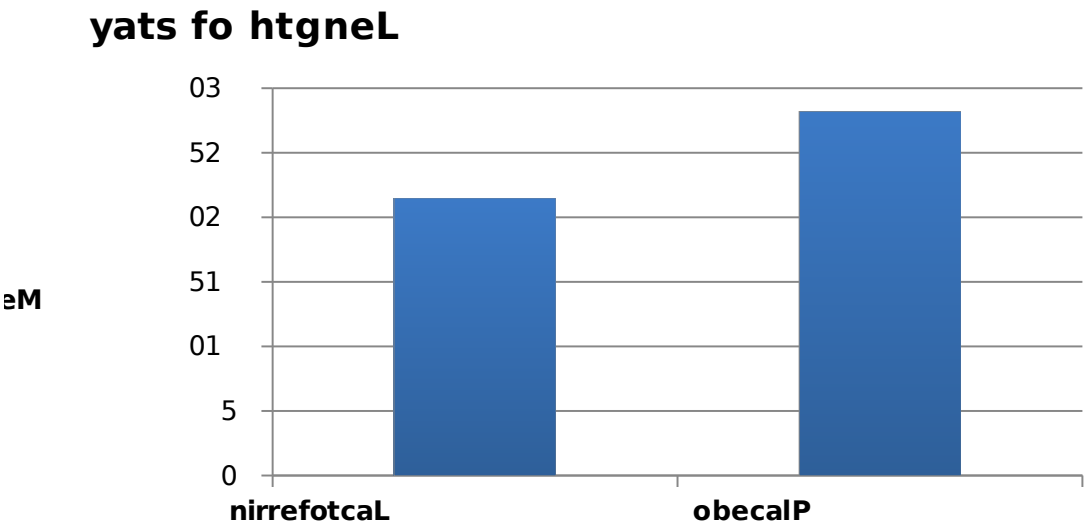
Test Independent samples T Test

Statistically significant difference ($p<0.05$) *

.Highly statistically significant difference ($p<0.01$)**

The length of the hospital stay is much lower with significant value in the .lactoferrin group than in the placebo one

Figure (22):The length of the NICU stay in days in the two studied groups.



This figure shows that there is significant statistical value regarding the length of hospital stay in NICU which is much lower at the lactoferrin supplemented group than in the placebo one .

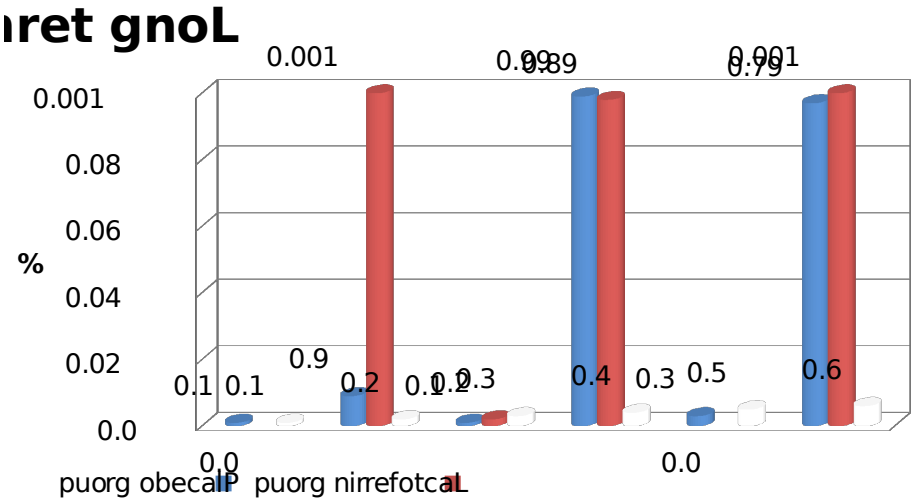
Table (29): Comparison between placebo group and once daily lactoferrin supplemented group as regards long term outcome:

P. value	Test value	Lacoferrin group (n=100)		Placebo group (n=100)		Long term output	
		%	.No	%	.No		
1.000	0.0	0.0	0	1.0	1	Positive	ROP
		100.0	100	9.0	99	Negative	
1.000	0.0	2.0	2	1.0	1	Positive	BPD
		98.0	98	99.0	99	Negative	
0.082	1.354	0.0	0	3.0	3	Positive	NEC
		100.0	100	97.0	97	Negative	

ROP= Retinopathy of prematurity ,BPD= Bronchopulmonary dysplasia
NEC = necrotizing enterocolitis

Independent samples T Test and Chi-square test
* Statistically significant difference (p<0.05)
**Highly statistically significant difference (p<0.01).

This table shows that there was no significant statistical difference between placebo group and oral lactoferrin supplemented group as regard
retinopathy of prematurity , bronchopulmonary dysplasia and necrotizing enterocolitis.



Figure(23): Long term outcome for placebo group .and oral lactoferrin group

Table (30) The number of preterm neonates which developed sepsis in both two studied groups.

P. value	Once daily group (n=100)		Placebo group (n=100)		
	%	.No	%	.No	
**0.008	5.0	5	18.0	18	**Developed sepsis**

This table shows that there was 18 preterm neonates who developed sepsis in the placebo group in comparsion with 5 preterm neonates who developed sepsis in lactoferrin supplemented group .There is significant statistical value of development of sepsis being much lower in the lactoferrin supplemented group than the placebo one.

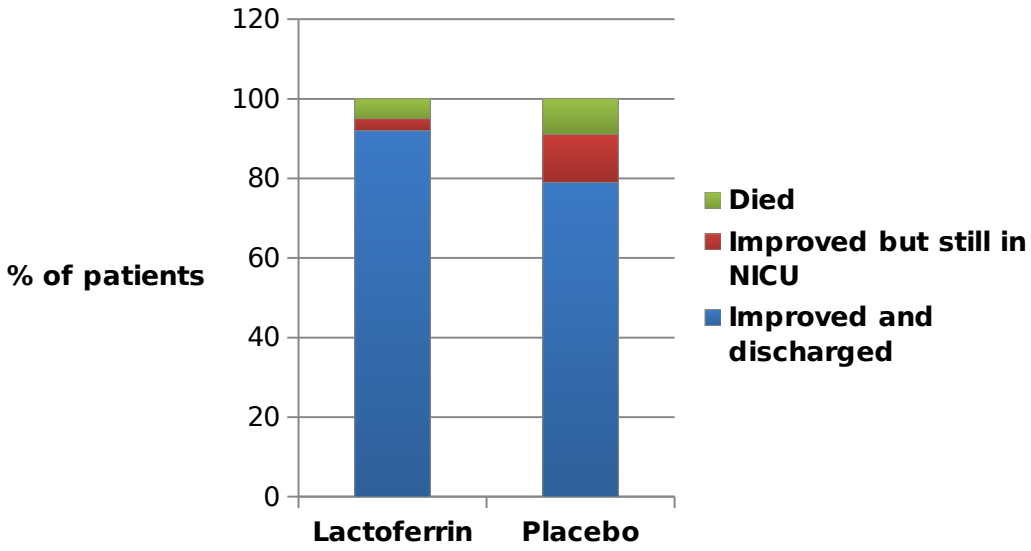
Table(31): Fate after 1 month in the two study .groups

P. value	Placebo (n=100)	Lactoferin (n=100)			
0.009	79	93	No.	Improved and discharged	**Fate after 1 month**
	79	93.0	%		
	12	3	No.	Improved but still in NICU	
	12.0	3.0	%		
	9	4	No.	Died	
	9.0	4.0	%		

Chi-square test
Statistically significant difference ($p<0.05$) *
.Highly statistically significant difference ($p<0.01$)**

This table shows the fate after one month in the 2 groups and it is significant for the lactoferrin group (P value = 0.009).

Figure (24) : Fate after one month in both studied groups.



This figure shows the fate in the 2 study groups after one month in the lactoferrin group 93 %of the preterm neonates were discharged in comparision with 79 % in the placebo group.3% of the lactoferrin group were improved but still in NICU in comparsion with 12% of the placebo group.While 4 % were died of the lactoferrin group and 9 % of the placebo one.

Table (32): Overall mortality in the study groups.

			Lactoferin (n=100)	Placebo (n=100)	P. value
Outcome	Survived	No.	96	91	0.407
		%	96.0	91	
	Died	No.	4	9	
		%	4.0	9.0	

Fisher exact test
* Statistically significant difference ($p<0.05$)
**Highly statistically significant difference ($p<0.01$).

This table shows the overall mortality of the 2 studied groups being non significant statistically .