Results

The present work was a prospective cross-sectional study. The study is conducted starting from July 2007. The study comprises 500 gravidas selected among these attending the ante-natal care clinic at Benha university Hospital and El-Qabbary general hospital, Alexandria.

Four groups had been entrolled in this study:

(Group 1): culture versus strips (nitrites and leucocyteestrase) in 250 pregnant women.

(Group 2): culture versus urinalysis by microscopy in 250 pregnant women.

(Group 3): patients were taken nitrofurantoin capsule by dose 100 mg twice daily orally for 3 days (n= 20).

(Group 4): patients were taken nitrofurantoin capsule 100 mg by dose 100 mg twice daily orally for 10 days (n=20).

**Urine culture was used as the gold standard for comparison.

Table (1) : Clinico-Epidemiological data of the study cases (In Group1 And Group 2):

Group / Parameter	Group 1 (n = 250)	Group 2 (n = 250)	X^2-test
Age (years) (mean +/-SD)	24.3 ± 4.3	24.7 ± 4.4	
18-25	172 (68.8%)	164 (65.6%)	$X^2 = 0.684$
26-35	71 (28.4%)	77 (30.8%)	P = 0.710
36-44	7 (2.8%)	9 (3.6%)	
Gestational age (weeks)			
1st Trimester	26 (10.4%)	23 (9.2%)	$X^2 = 0.378$
2nd Trimester	115 (46.0%)	121 (48.4%)	P = 0.828
3rd Trimester	109 (43.6%)	106 (42.4%)	
Body mass index (BMI)(Kg/m2)			
18.5 – <25	11	14	$X^2 = 0.490$
25 – <30	112	107	P = 0.783
> 30	127	129	

P* is significant if < 0.05

Table (1) shows no statistically significant difference between group 1 and group 2 as regarding age, gestational age and body mass index (P>0.05).

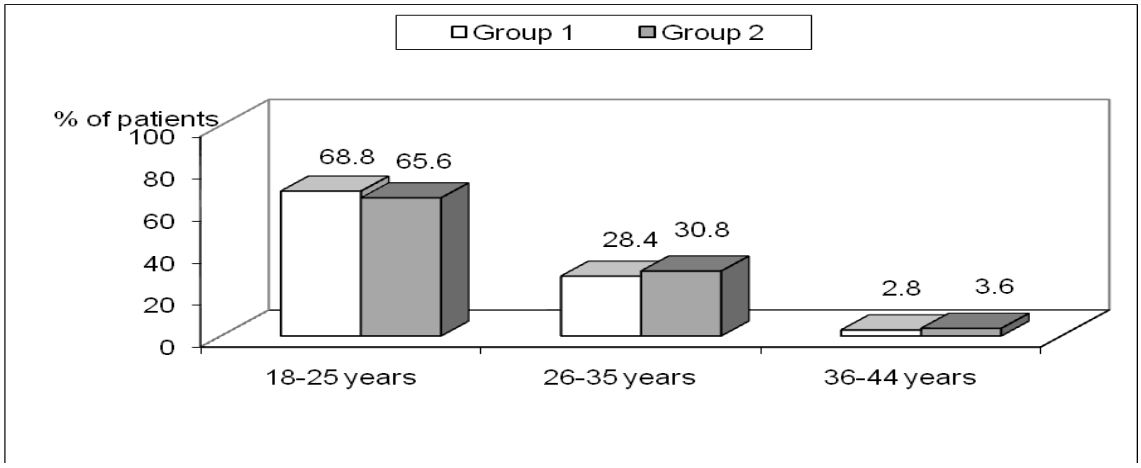

Figure (1): Age of the study cases (In Group1 and Group 2):

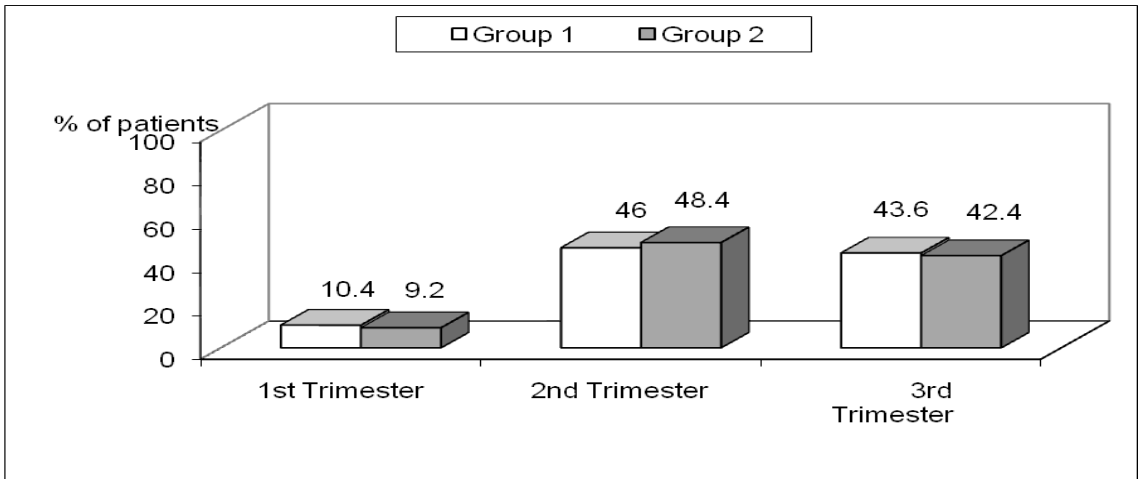

Figure (2): Gestational age of the study cases (In Group1 and Group 2):

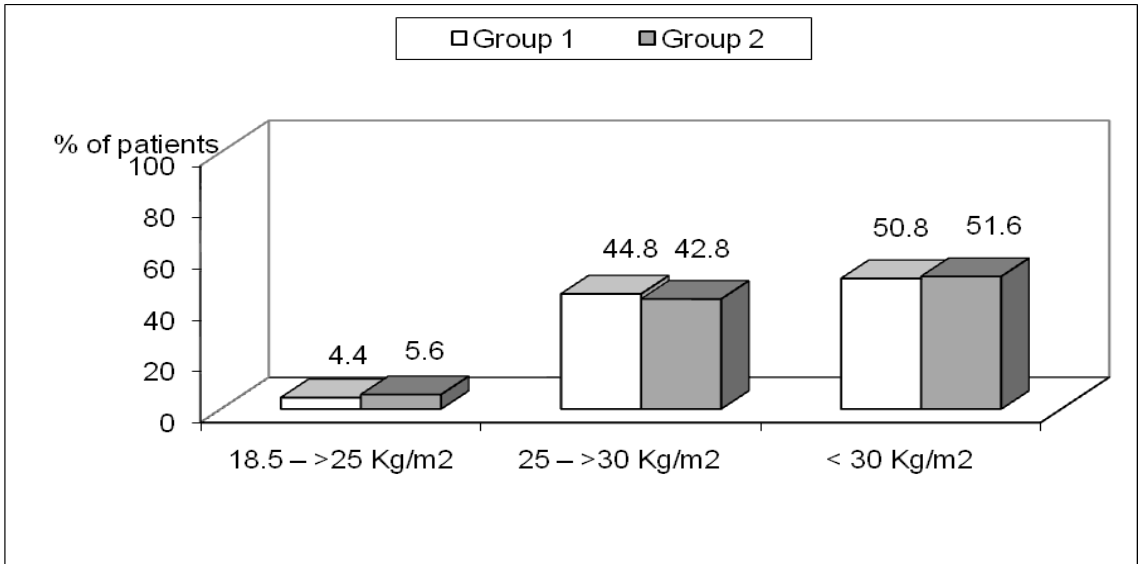

Figure 3: Body mass index of the study cases (In Group1 and Group 2):

Table (2): Clinico-Epidemiological data of the study cases (In Group 3 And Group 4):

	Group 3 (n = 20)	Group 4 (n = 20)	X^2-test
Age (years) (mean +/-SD)	20.9 ± 1.8	22.7 ± 1.2	
18-25	7 (35.0%)	7 (35.0%)	$X^2 = 0.158$
26-35	7 (35.0%)	8 (40.0%)	P = 0.924
36-44	6 (30.0%)	5 (25.0%)	
Gestational age (weeks)			
1st Trimester	5 (25.0%)	7 (35.0%)	$X^2 = 1.762$
2nd Trimester	6 (30.0%)	8 (40.0%)	P = 0.414
3rd Trimester	9 (45.0%)	5 (25.0%)	
Body mass index (BMI)(Kg/m2)			
18.5 – < 25	2	2	$X^2 = 0.111$
25 – <30	10	9	P =0.946
> 30	8	9	

P* is significant if < 0.05

Table (2): shows no statistically significant difference between group 3 and group 4 as regards age, gestational age and body mass index. (P>0.05).

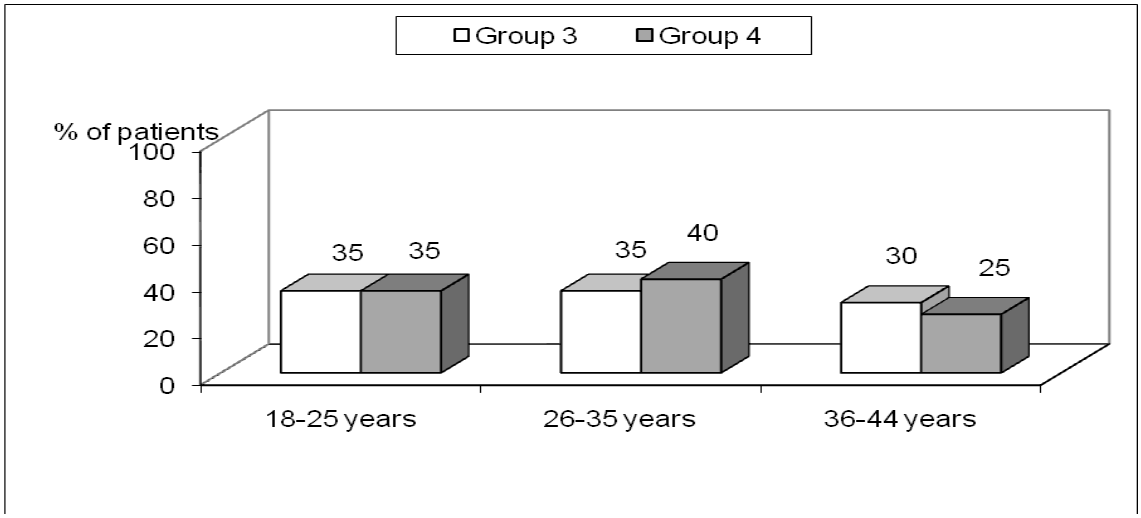

Figure (4): Age of the study cases (In Group 3 and Group 4):

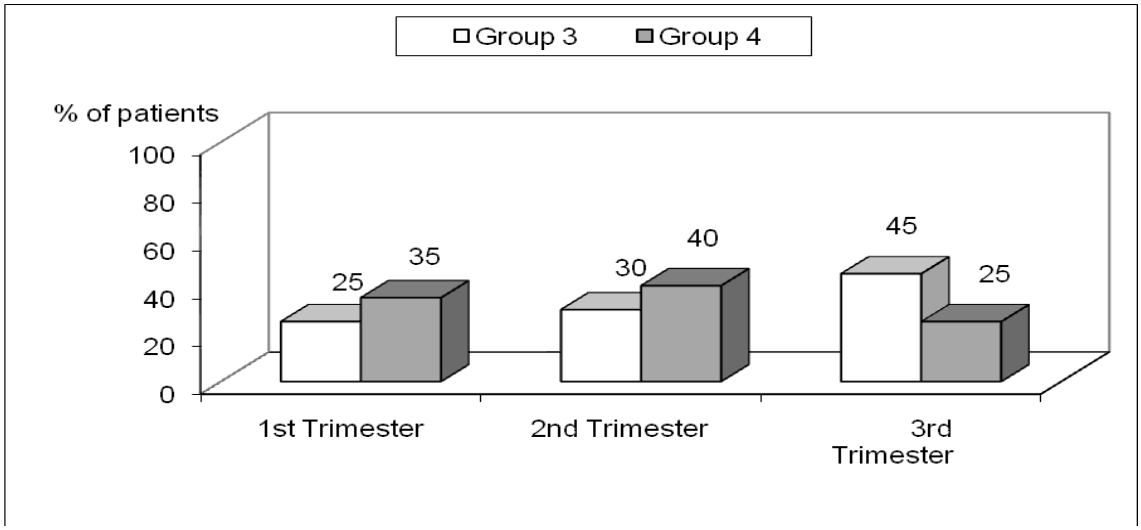

Figure (5): Gestational age of the study cases (In Group 3 and Group 4):

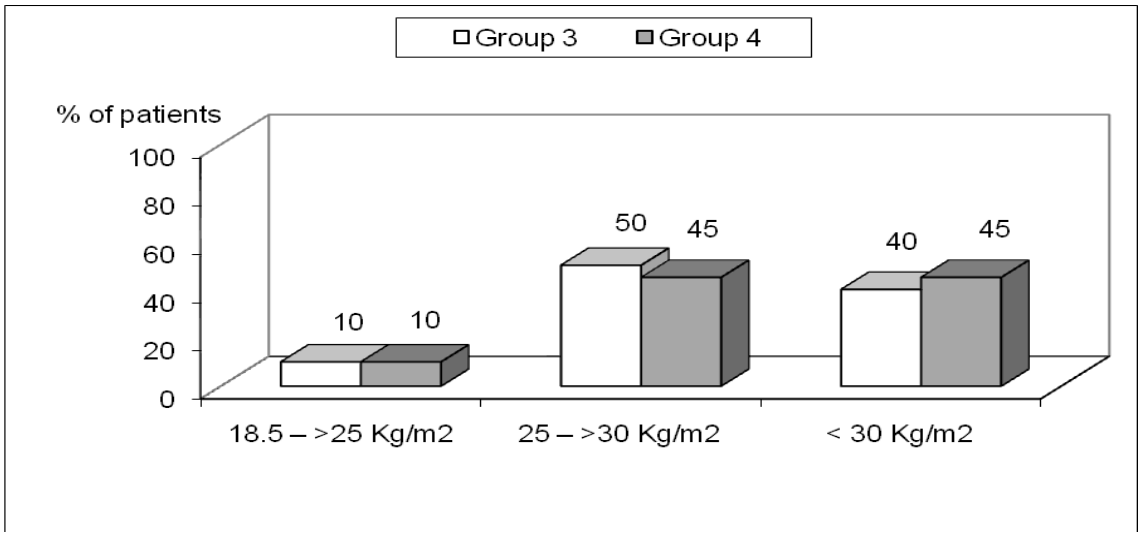

Figure (6): Body mass index of the study cases (In Group 3 and Group 4):

Table (3): Evaluation of strips (Nitrite test and Leucocyteestrase test) versus culture (golden method) for diagnosis of bacteriuria in group 1 (n = 250):

	Culture (golden method)	Strips	
		Nitrite test	Leucocyteestrase test
No of true +ve	22	16	17
No of false +ve		7	6
No of true -ve	228	221	222
No of false -		6	5
Sensitivity		72.7%	77.3%
Specificity		96.9%	97.4%
+ve predictive value		69.6%	73.9%
-ve predictive value		97.4%	97.8%
Accuracy		94.8%	95.6%

Table (3) shows comparison between strips (Nitrite test and Leucocyteestrase test) and culture for diagnosis of bacteriuria in group1 where the Sensitivity and Specificity for Nitrite test and Leucocyteestrase test were (72.7% and 96.9%) and (77.3% and 97.4%) respectively.

Table (4): Maternal complications and fetal outcome:

	Group 3 (Nitrofurantoin: 1x2x3 days) (n= 20)	Group 4 (Nitrofurantoin: 1x2x10 days) (n= 20)	X^2-test
Maternal complications			
Caesarean section	6 (30%)	5 (25%)	$X^2 = 1.233$
Preeclampsia/eclampsia	1 (5%)	0 (0%)	P = 0.540
Acute pyelonephritis	0 (0%)	0 (0%)	
Fetal outcome			
Preterm delivery (<37w)	1 (5%)	1 (5%)	$X^2 = 1.027$
Low birth weight	1 (5%)	0 (0%)	P = 0.538
Perinatal death	0 (0%)	0 (0%)	

P* is significant if < 0.05

Table (4) shows no statistically significant difference between group3 and group 4 as regards the maternal complications and fetal outcome (P>0.05).

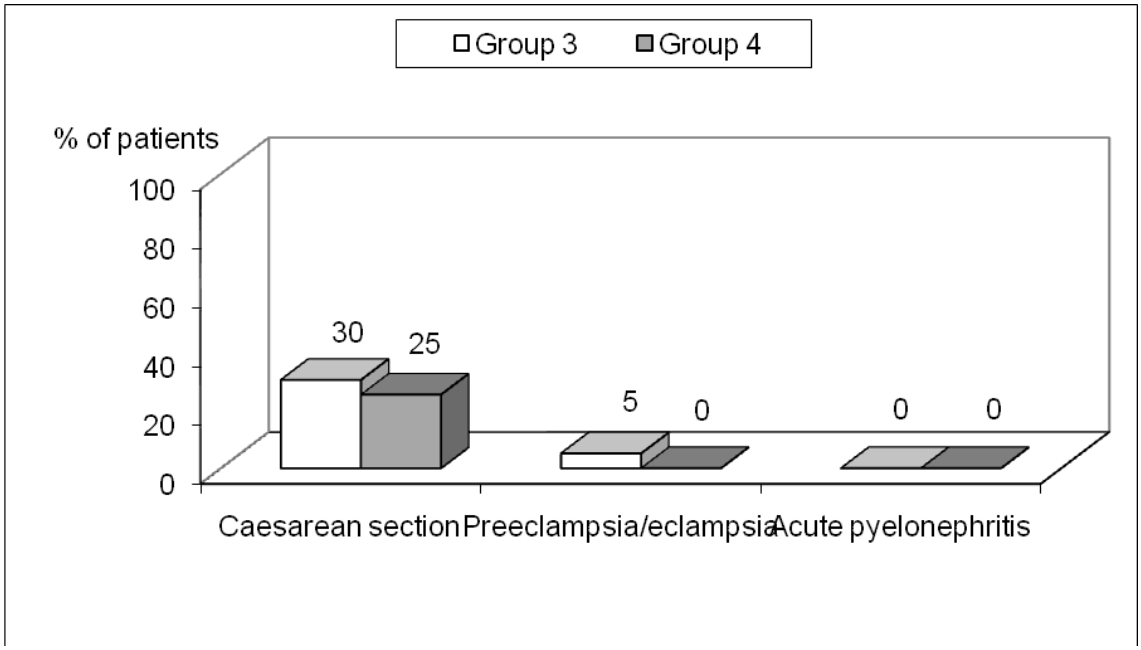

Figure (7): Maternal complications In Group 3 and Group 4:

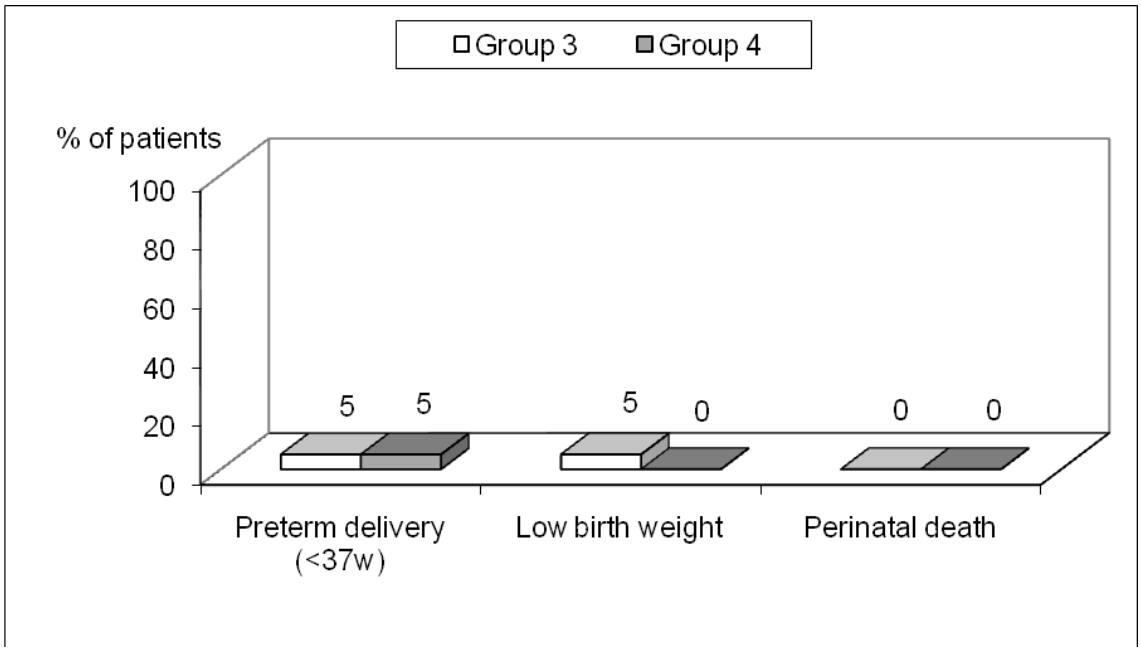

Figure (8): Fetal outcome In Group 3 and Group 4:

Table (5): Evaluation of urine analysis by microscopy versus culture (golden method) for diagnosis of bacteriuria in group 2 (n = 250):

	Culture (golden method)	Urinalysis
No of true +ve	18	10
No of false +ve		2
No of true -ve	232	230
No of false -		8
Sensitivity		55.6%
Specificity		99.1%
+ve predictive value		83.3%
-ve predictive value		96.6%
Accuracy		96.0%

Table (5) shows comparison between urinalysis and culture for diagnosis of bacteriuria in group 2 where the Sensitivity and Specificity for Urinalysis were 55.6% and 99.1% respectively

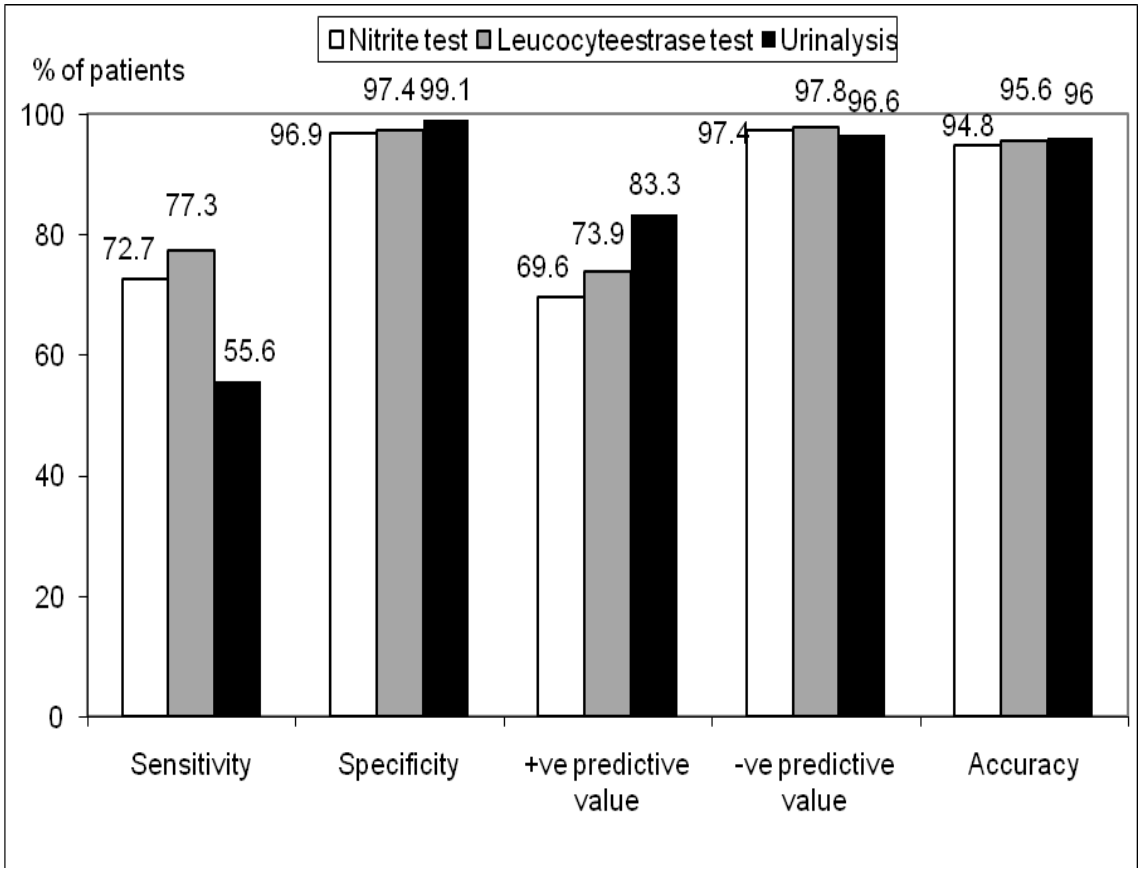

Figure (9): Evaluation of strips (Nitrite test and Leucocyteestrase test) in group 1, and urinalysis in group 2 versus culture (sensitivity and specificity = 100%) (Golden method) for diagnosis of bacteriuria.

Table (6): The Relation between the results of +ve bacteriuria and parity In group 1:

	Primigravida (n = 147)	Multigravida (n = 103)	X^2-test
Culture			
+ve	14 (9.5%)	8 (7.8%)	P = 0.629
-ve	133 (90.5%)	95 (92.2%)	
Nitrate test			
+ve	14 (9.5%)	9 (8.7%)	P = 0.832
-ve	133 (90.5%)	94 (91.3%)	
Leucocyteesterase			
+ve	15 (10.2%)	8 (7.8%)	P = 0.512
-ve	132 (89.8%)	95 (92.2%)	

P* is significant if < 0.05

Table (6): shows no statistically significant difference between the results of +ve bacteriuria and parity in group 1 (P>0.05).

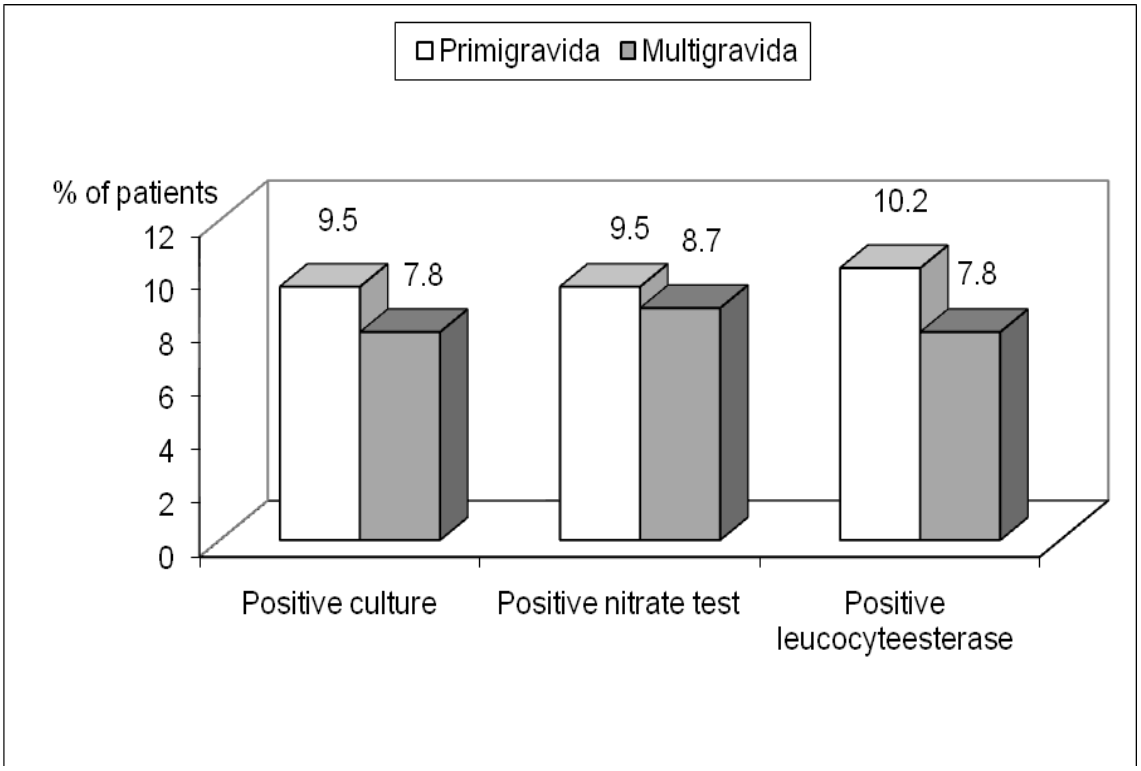

Figure (10): The Relation between the results of +ve bacteriuria and parity in group 1.

Table (7): The Relation between the results of +ve bacteriuria and parity in group 2:

	Primigravida (n = 149)	Multigravida (n = 101)	X^2-test
Culture			
+ve	12 (8.1%)	6 (5.9%)	P = 0.526
-ve	137 (91.9%)	95 (94.1%)	
Urinalysis			
+ve	7 (4.7%)	5 (5.0%)	P = 0.927
-ve	142 (95.3%)	96 (95.0%)	

P* is significant if < 0.05

Table (7): shows no statistically significant difference between the results of +ve bacteriuria and parity in group 2 (P>0.05).

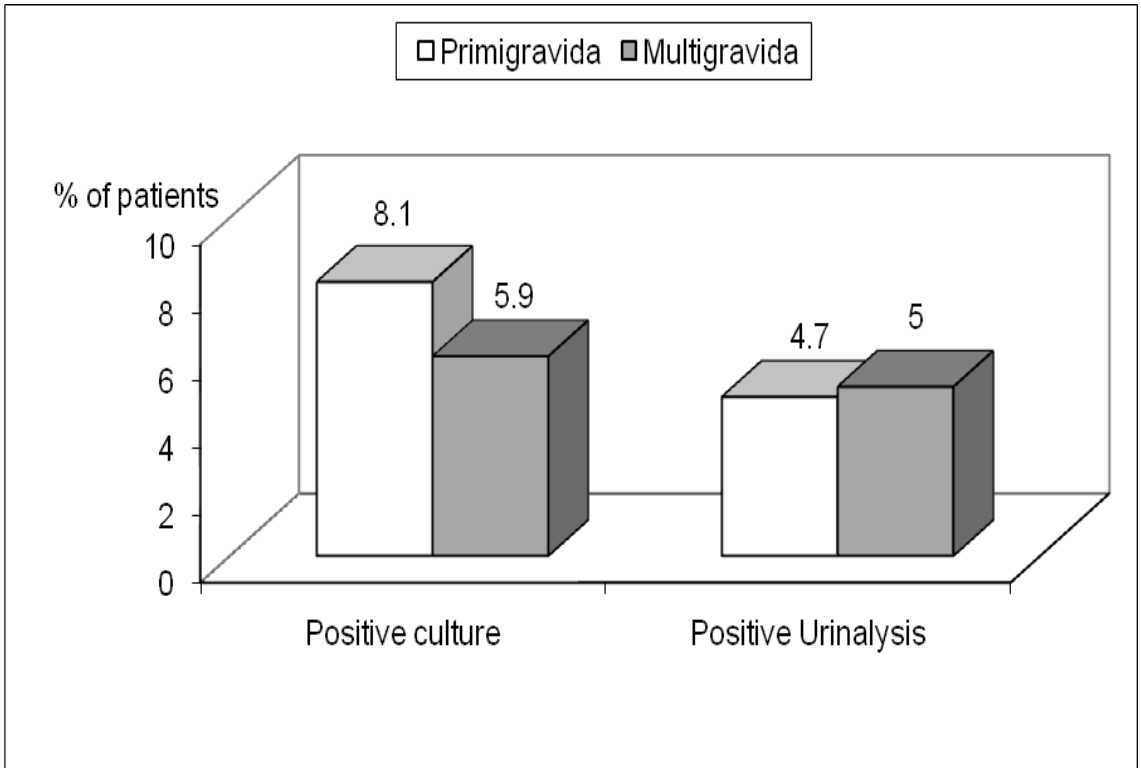

Figure (11): The Relation between the results of +ve bacteriuria and parity in group 2.

Table (8): Comparison between groups 3 and 4 as regards the most frequent treatment related adverse effects:

Adverse effects	Group 3 (Nitrofurantoin: 1x2x3 days) (n= 20)	Group 4 (Nitrofurantoin: 1x2x10 days) (n = 20)	X^2-test
Nausea	1 (5%)	1 (5%)	
Headache	1 (5%)	0 (0%)	P = 0.311
Dizziness	1 (5%)	2 (10%)	P = 0.548
Diarrhea	0 (0 %)	0 (0 %)	

P* is significant if < 0.05

Table (8) shows no statistically significant difference between groups 3 and 4 as regards the most frequent treatment related adverse effects(P>0.05).

Table (9): Comparison between groups 3 and 4 as regards the number of Causative organisms:

No of pathogen	Group 3 (Nitrofurantoin: 1x2x3 days) (n = 20)	Group 4 (Nitrofurantoin: 1x2x10 days) (n = 20)	X^2-test
Single pathogen	16 (80%)	15 (75%)	P = 0.705
Multiple pathogens	4 (20%)	5 (25%)	

P* is significant if < 0.05

Table (9) shows no statistically significant difference between groups 3 and 4 as regards the number of causative organisms (P>0.05).

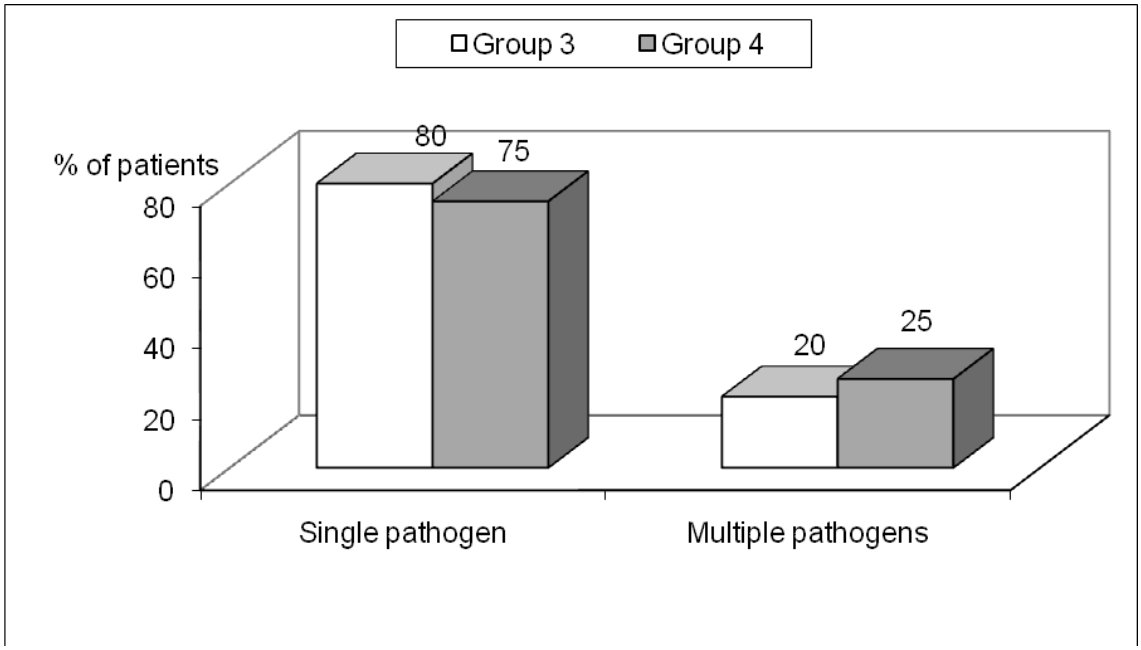

Figure (12) Comparison between groups 3 and 4 as regards the number of causative organisms:

Table (10): Comparison between groups 3 and 4 as regards the type of Causative organisms:

	Group 3 (Nitrofurantoin: 1x2x3 days) (n = 20)	Group 4 (Nitrofurantoin: 1x2x10 days) (n= 20)	X^2-test
No of causative pathogen	N = 24	N = 25	
Escherichia coli	14 (58.32%)	15 (60%)	P = 0.906
Enterococcus faecalis	6 (25%)	5 (20%)	P = 0.675
Proteus mirabilis	1 (4.17%)	2 (8%)	P = 0.576
Staph. saprophyticus	1 (4.17%)	1 (4%)	P = 0.976
Klebsiella pneumonia	1 (4.17%)	1 (4%)	P = 0.976
Staph. aureus	0 (0%)	1 (4%)	P = 0.322
Candida albicans	1 (4.17%)	0 (0%)	P = 0.302

P* is significant if < 0.05

Table (10) shows no statistically significant difference between groups 3 and 4 as regards the type of causative organisms (P>0.05).

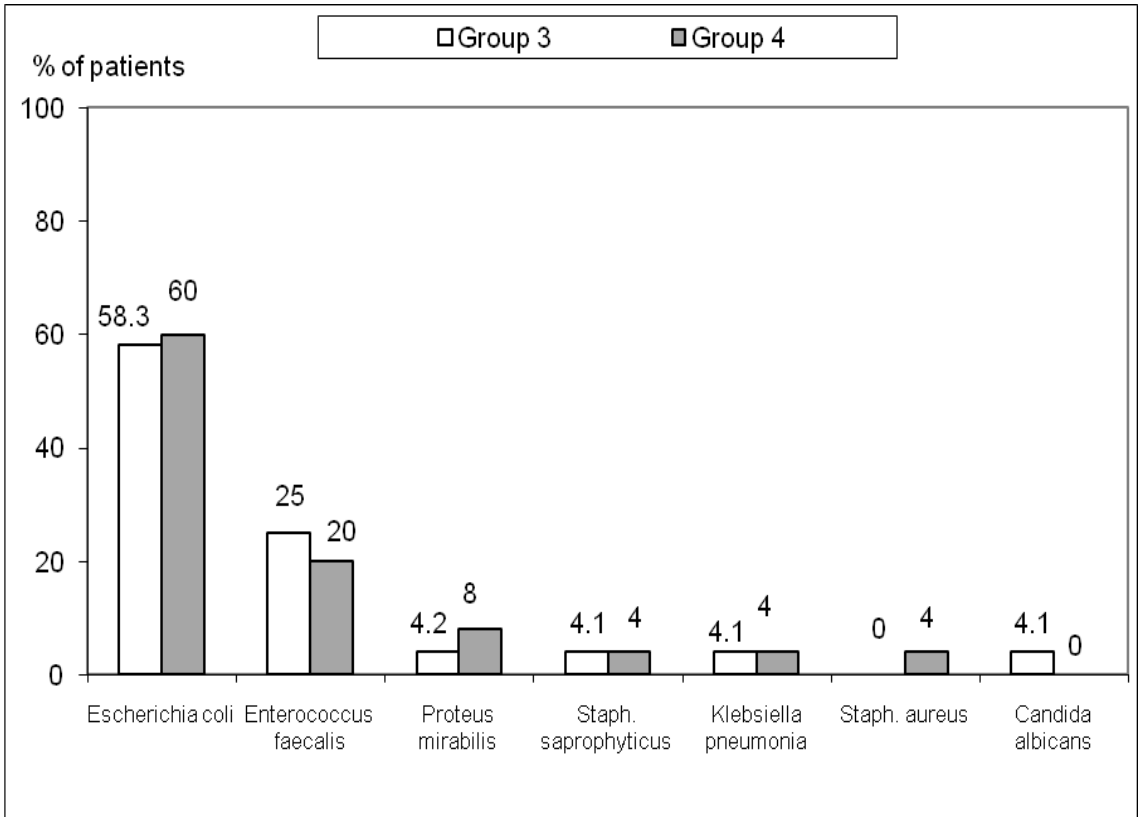

Figure (13): Comparison between groups 3 and 4 as regards the type of causative organisms:

Table (11): Comparison between groups 3 and 4 as regards bacteriological response per patient at the end of treatment (primary efficacy parameter):

	Group 3 (Nitrofurantoin: 1x2x3 days)(n = 20)	Group 4 (Nitrofurantoin: 1x2x10 days) (n = 20)	X^2-test
Response (eradication)	19 (95%)	18 (90%)	P = 0.548
Non-response	1 (5%)	2 (10%)	

P* is significant if < 0.05

Table (11) shows no statistically significant difference between groups 3 and 4 as regards bacteriological response per patient at the end of treatment (P>0.05).

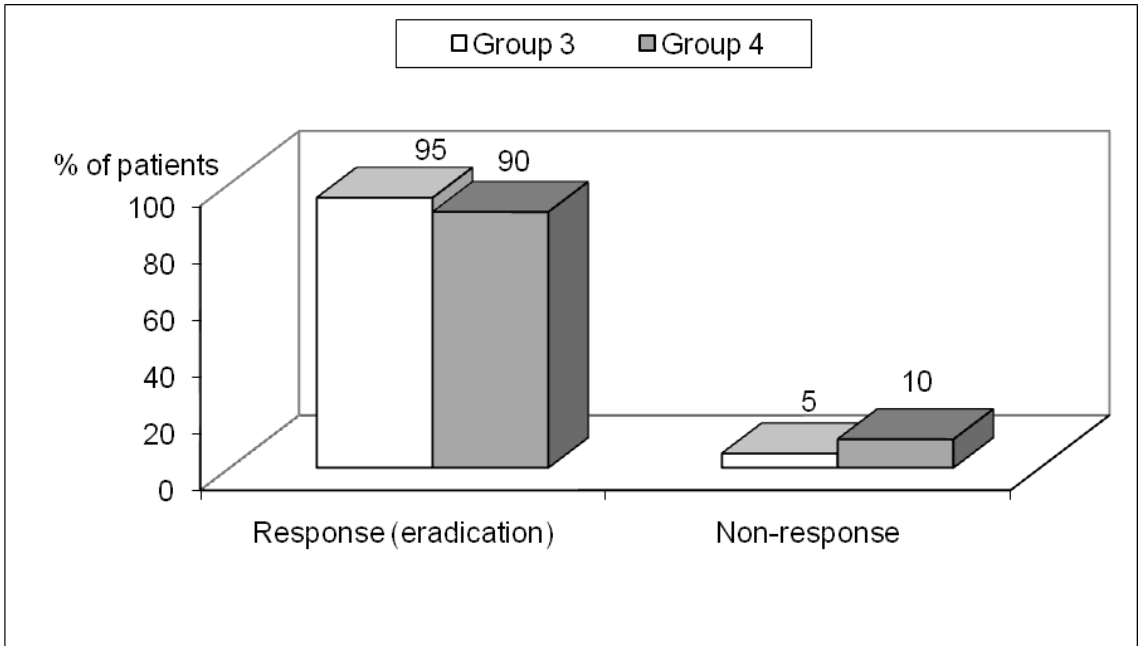

Figure (14). Comparison between groups 3 and 4 as regards bacteriological response per patient at the end of treatment (primary efficacy parameter):

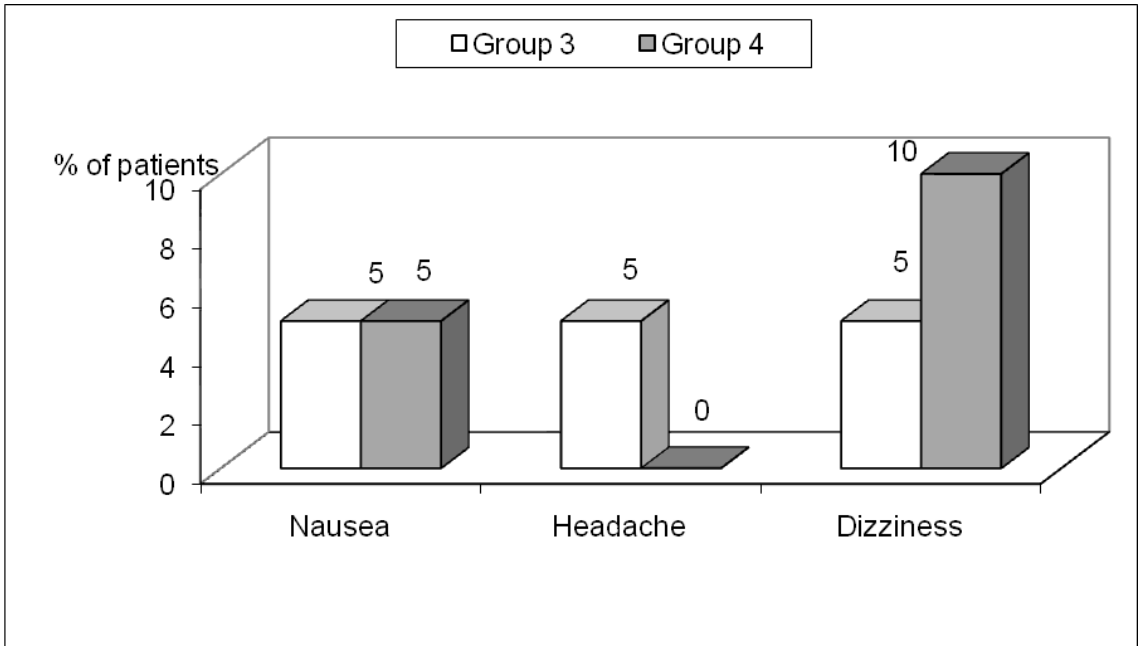

Figure (15): Comparison between groups 3 and 4 as regards the most frequent treatment related adverse effects.

Table (12): Comparison between groups 3 and 4 as regards the eradication Rates per pathogen at end of treatment:

	Group 3 (Nitrofurantoine: 1x2x3 days) (n = 20)	Group 4 (Nitrofurantoine: 1x2x10 days) (n = 20)	X2-test
No of causative pathogens	N = 24	N = 25	
Escherichia coli	14/14 (100.0%)	14/15 (93.3%)	P = 0.326
Enterococcus faecalis	5/6 (83.3%)	4/5 (80.0%)	P = 0.887
Proteus mirabilis	1/1 (100.0%)	2/2 (100.0%)	
Staph. saprophyticus	1/1 (100.0%)	1/1 (100.0%)	
Klebsiella pneumonia	1/1 (100.0%)	1/1 (100.0%)	
Staph. aureus	0 (0%)	1/1 (100.0%)	
Candida albicans	1/1 (100.0%)	0 (0%)	

P* is significant if < 0.05

Table (12) shows no statistically significant difference between groups 3 and 4 as regards the eradication rates per pathogen at end of treatment (P>0.05).

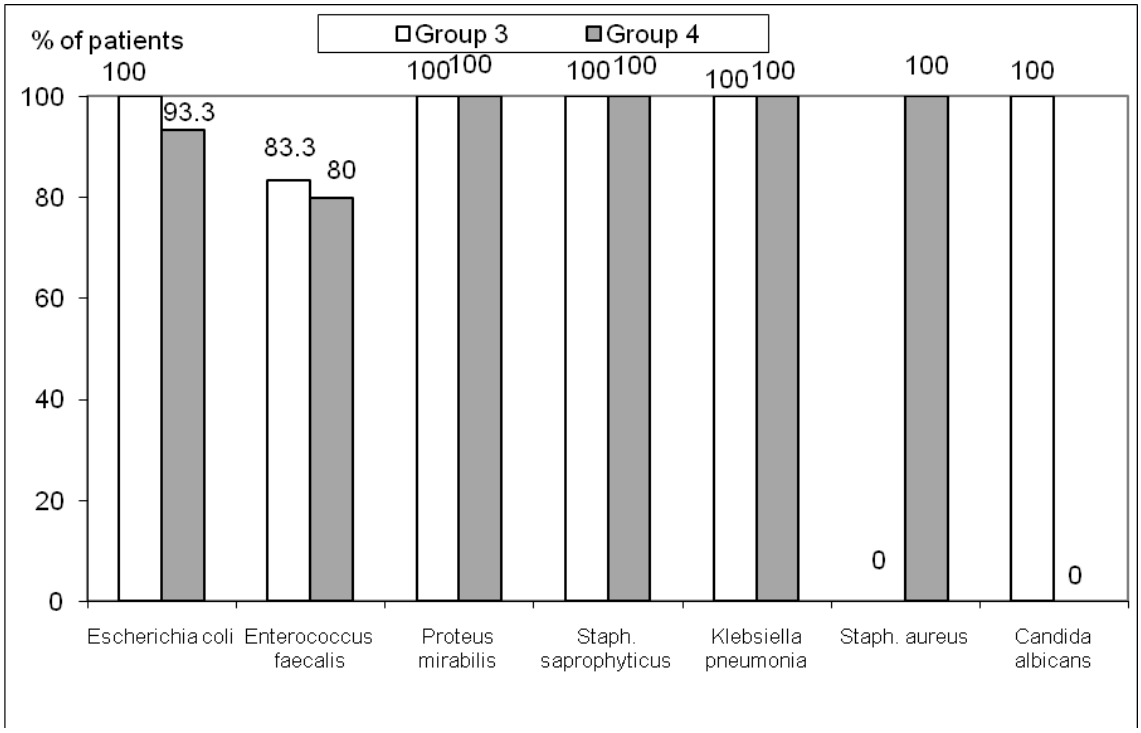

Figure (16): Comparison between groups 3 and 4 as regards the eradication rates per pathogen at end of treatment.