

# Effect water and Soap on Some Pathogenic Bacteria That Isolation From Nipple of Breast of Suckling Mother

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## الخلاصة

ينضمّن البحث اخذ مسحات لحلمة الثدي من 27 ام مرضعة قبل وبعد تنظيف منطقة حلمة الثدي بواسطة الماء والصابون فقط . وقد وجد انه قد ثبتت نمو معظم البكتيريا المرضية والبكتيريا المتعايشة بصورة طبيعية في تلك المنطقة ولذلك ننصح الامهات المرضعات بغسل الثدي بالماء والصابون لإزالة أي بكتيريا مرضية وبالتالي حماية الاطفال الرضع من الإصابة البكتيرية .

## ABSTRACT

The research contained take nipple breast swab from 27 suckling mother , after and before cleaned the area of nipple breast by water and soap only , and founded inhibition all pathogenic bacteria and normal flora therefore recommended suckling mother to washing the breast by water and soap to removed any pathogenic bacteria then protection the children from any bacterial infection .

## INTRODUCTION

Epidemiological studies have been important in demonstrating that breast feeding clearly protects infants against respiratory and gastrointestinal infections, or decreases the severity of these infections. Breastfeeding can also protect against otitis media (middle ear infection), pneumonia, diarrhoea, necrotizing enterocolitis and sepsis. The primary protective factors in breast milk are the presence of specific antibody and anti-adhesion factors in human milk. However, a variety of antimicrobial factors (antiviral, antibacterial and antiparasitic) have been detected in human milk over the years ( Tables 1,2,3). Most of these factors are not destroyed by pasteurization (62.5°C for 30 minutes)(1).the normal flora that isolation from skin are Staphylococcus epidermedis(2)

Microbial contaminants in human milk (Table 4) are rare, as are the associated infant infections from the milk. However, some contaminants, such as cytomegalovirus, are commonly transferred to infants from seropositive mothers, fortunately without adverse effects in infants. Human T-lymphotropic virus type 1 is transferred via human milk in endemic regions(1), while human immunodeficiency virus type 1 is also transferred through human milk - but is not the exclusive mode of transmission to infants. Pasteurisation (62.5°C for 30 minutes) has been shown to destroy all microbial contaminants in human milk (except hepatitis B, which is fortunately not transferred through milk)(2)(3). With the use of new detection technology, low levels of some viruses have been found in human milk, but no epidemiological evidence suggest any transfer of these viruses from mother-to-infant via human milk. If a mother and infant have the

same virus infection, and even in some cases if that virus is detected in the mother's milk, the milk may not be the source of the virus transmission to the infant (4). Detection of virus nucleic acid does not mean enveloped viruses, in particular, are still infectious in human milk. Various bacterial contaminants present in expressed human milk have caused infections (Table 5). Infections of infants have occasionally occurred from bacterial contaminants in dried milk formula (Table 6). The effect of heat treatment and storage of human milk on some the antimicrobial factors is given in Table 1,2,3,4,5,6.

## MRIALIALS AND METHODS

### Material :

- 1- swab
- 2- blood agar
- 3- MacConkey
- 4- Distal water
- 5- Loop
- 6- Oven
- 7- Incubator
- 8- Autoclave
- 9- Microscope
- 10- pHmeter
- 11- test tube

### Methods :

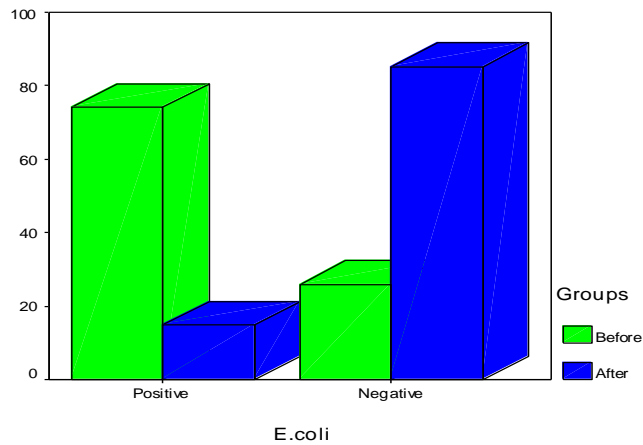
take nipple breast swab from 27 suckling mother , after and before cleaned the area of nipple breast by water and soap only and cultured on blood agar and MacConkey agar then waiting for 24 hours and diagnosis by bacteriological methods .(5)

### RESULTS AND DISCUSSION

E.coli \* Groups Table -1:

			Groups		Total
			Bef ore	Af ter	
E.coli	Positive	N	20	4	24
		%	74.1%	14.8%	44.4%
	Negative	N	7	23	30
		%	25.9%	85.2%	55.6%
Total		N	27	27	54
		%	100.0%	100.0%	100.0%

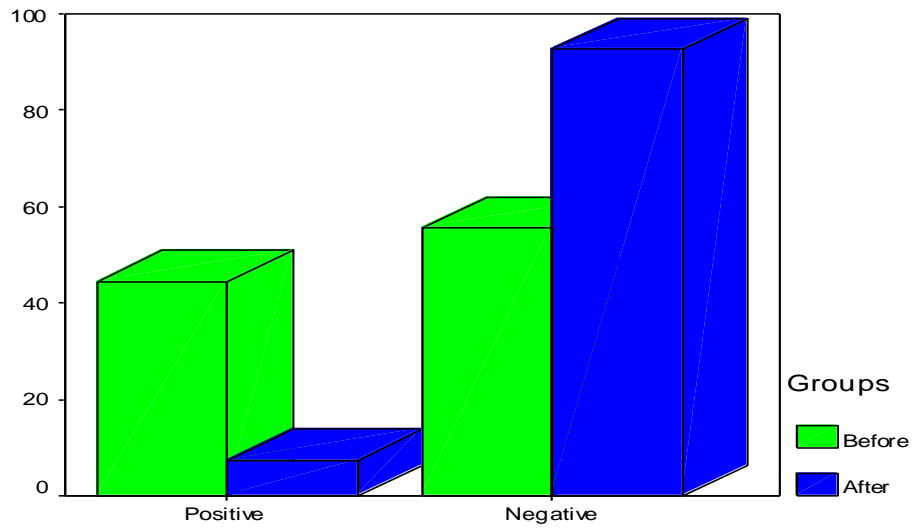
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Chi-Square	19.200	1	0.00 HS



Staphylococcus aureas \* Groups Table -2:

			Groups		Total
			Bef ore	Af ter	
Staphy lococcus aureas	Positive	N	12	2	14
		%	44.4%	7.4%	25.9%
	Negative	N	15	25	40
		%	55.6%	92.6%	74.1%
Total		N	27	27	54
		%	100.0%	100.0%	100.0%

	Value	df	P-v alue
Chi-Square	9.643	1	0.002 HS

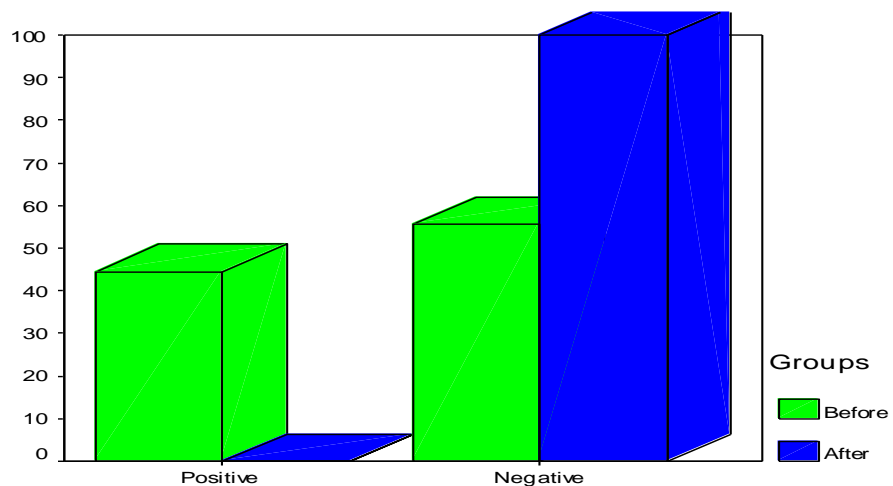


Staphylococcus aureas

Streptococcus pyogenes \* Groups Table -3:

			Groups		Total
			Before	After	
Streptococcus pyogenes	Positive	N	12		12
		%	44.4%		22.2%
	Negative	N	15	27	42
		%	55.6%	100.0%	77.8%
Total	N	27	27	54	
	%	100.0%	100.0%	100.0%	

	Value	df	P-v alue
Chi-Square	15.429	1	0.00 HS



Streptococcus pyogenes

Table -4:Staph. epidermedis \* Groups

			Groups		Total
			Bef ore	Af ter	
Streptococcus epidermedis	Positive	N	26	4	30
		%	96.3%	14.8%	55.6%
	Negative	N	1	23	24
		%	3.7%	85.2%	44.4%
Total		N	27	27	54
		%	100.0%	100.0%	100.0%

	Value	df	P-v alue
Chi-Square	36.300	1	0.00 HS

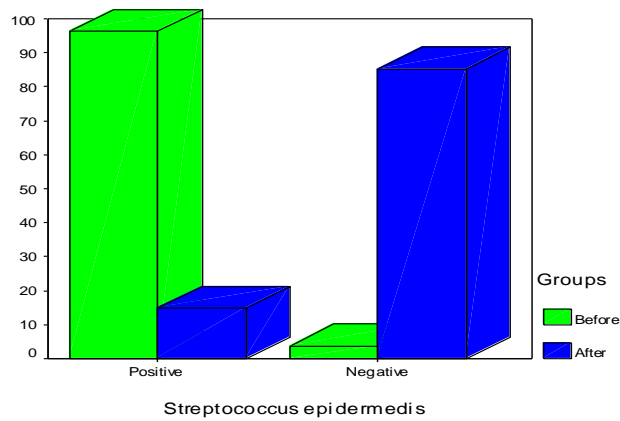


Table -5:Proteus \* Groups

			Groups		Total
			Bef ore	Af ter	
Proteus	Positive	N	8		8
		%	29.6%		14.8%
	Negative	N	19	27	46
		%	70.4%	100.0%	85.2%
Total		N	27	27	54
		%	100.0%	100.0%	100.0%

	Value	df	P-v alue
Chi-Square	9.391	1	0.002 HS

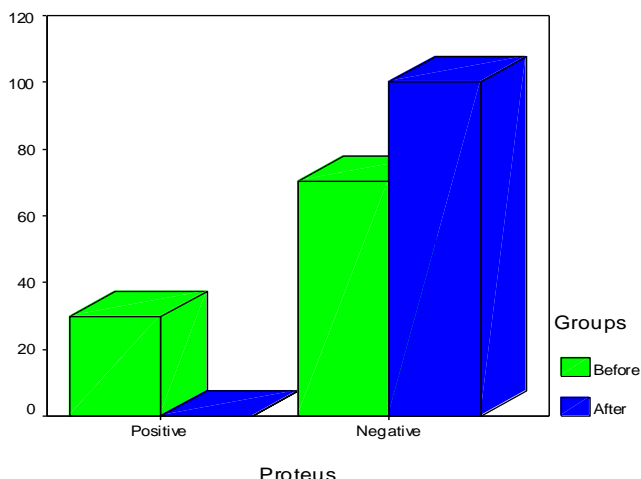
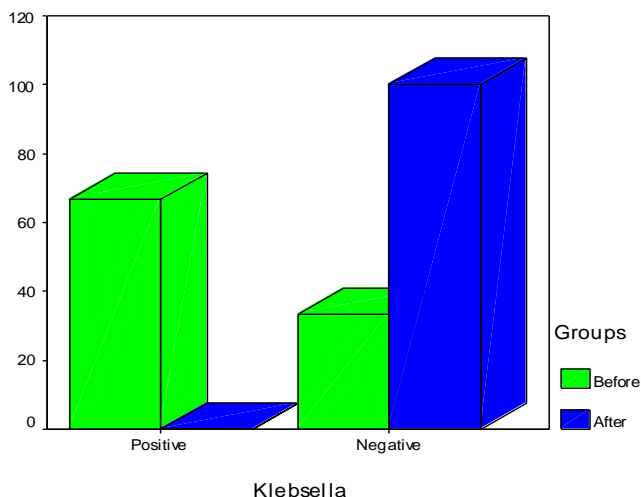


Table -6: Klebsella \* Groups

			Groups		Total
			Before	After	
Klebsella	Positive	N	18		18
		%	66.7%		33.3%
	Negative	N	9	27	36
		%	33.3%	100.0%	66.7%
Total	N		27	27	54
	%		100.0%	100.0%	100.0%

	Value	df	P-v alue
Chi-Square	27.000	1	0.00 HS



From the above tables we shall notice that *Streptococcus pyogenes* bacteria table(3) which were the most sensitive for washing by water and soap where the inhabitation rate for them was 100% due to their special nourishment needs. As for *Staphylococcus aureus* bacteria table(2) they will inhibit by water and soap but in lower degree where the inhabitation rate was 92% due to their ability to escape from the killer effect of the soap because they have for enzymes and cell wall which are able to resist this effect, while for *Proteus Sp.* Bacteria table(5), they were sensitive for soap and water effect by 100% and in table (6 ) we shall

see that bacteria *Klebsella Sp.* are also sensitive for water and soap effect and the inhabitation rate was 100% as for *E coil* bacteria Table(1) which sensitively for water and soap effect were relatively lower than *Klebsella Sp.*, *Streptococcus pyogenes*, *proteus Sp.*, and *Staphylococcus aureus* bacteria sensitivities, where the inhabitation rate for was 85% and that was for E coil bacteria, which still high and the picture for *Staphylococcus epidermidis* bacteria Table(1) was different in that they are considered the most resistant bacteria for water and soap for their cell wall which contain a group of proteins which lessen the effect of the soap on the fats in the cell wall and this explain *Staphylococcus epidermidis*, and sa resistance for soap. But *Staphylococcus epidermidis* contain higher ratio of fats than sa and so less effected by soap.

From this we conclude that the soap has high effect on bacteria in that it get rid of them especially for pathogenic bacteria so we recommend washing the breast nipple with soap and water in that this process is enough for killing bacteria by 95% so the breast will become safe for suckling. Where most diarrhea cases were caused by *Klebsella Sp.*, and *E. coli* bacteria and most cases were because of *Streptococcus pyogenes* and *Staphylococcus aureus* bacteria and all of these were sensitive for the effect of soap and water by this we shall get rid of most of diseases that infect the new born babies.

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