**Table (7)** Comparison between the 2 study groups in demographic data baseline.

| | | Range | Mean ± SD | T-test | |
|---|---|---|---|---|---|
| | | | | t | P-value |
| **G.A(weeks)** | **CPAP** | 30 - 35 | 33.967 ± 1.245 | 1.736 | 0.088 |
| | **MV** | 31 - 35 | 33.367 ± 1.426 | | |
| **B.W. on admission(kg)** | **CPAP** | 1.000 - 2.400 | 1.665 ± 0.376 | -1.282 | 0.205 |
| | **MV** | 1.200 - 2.400 | 1.785 ± 0.349 | | |
| **B.W. on discharge(kg)** | **CPAP** | 1.550 - 2.400 | 1.771 ± 0.220 | -1.58 | 0.12 |
| | **MV** | 1.550 - 2.400 | 1.888 ± 0.261 | | |
| **APGAR** at 1st min. | **CPAP** | 3 - 7 | 5.100 ± 1.094 | 2.543 | **0.014*** |
| | **MV** | 2 - 6 | 4.400 ± 1.037 | | |
| **APGAR** at 5th min. | **CPAP** | 7 - 9 | 7.967 ± 0.490 | 0.950 | 0.346 |
| | **MV** | 6 - 9 | 7.833 ± 0.592 | | |

CPAP: continuous positive airway pressure .MV: mechanical ventilation
BW: body weight, G A: gestational age, * : Statistically significant
This table shows no statistically significant differences between both study groups as regard Gestational age, body weight (on admission &on discharge) and APGAR at 5min. APGAR at 1st min is statistically significant higher in the CPAP group than in MV group.

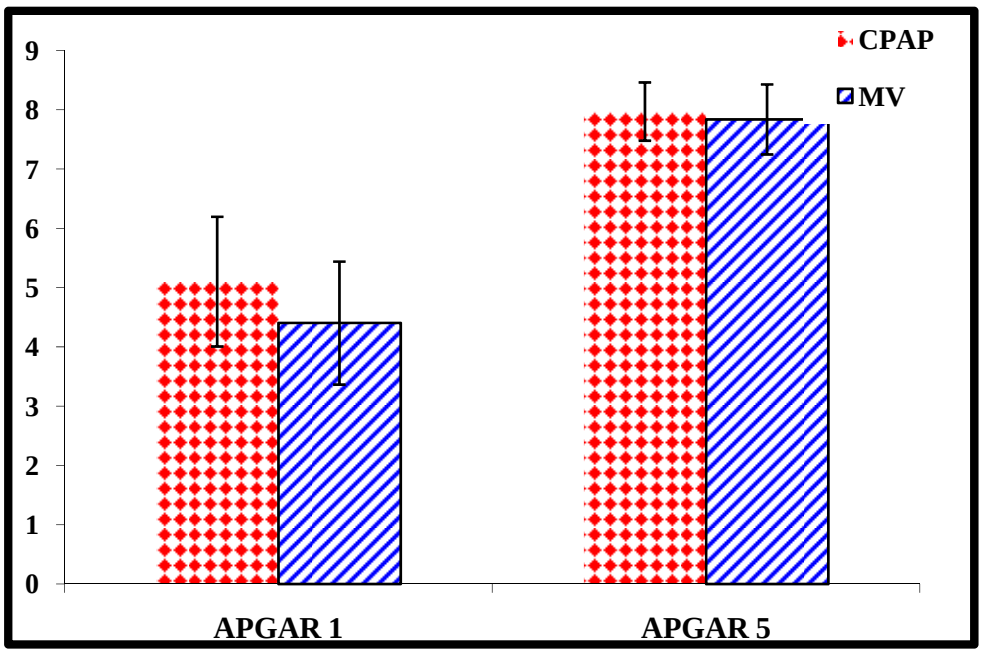


**Fig. (9)** Comparison between the 2 study groups as regards APGAR at 1st min.

**Table (8)** Comparison between sex distributions in both groups of the study.

| | | Female | Male | Total |
|---|---|---|---|---|
| **CPAP** | **N** | 19 | 11 | 30 |
| | **%** | 63.33 | 36.67 | 100 |
| **MV** | **N** | 10 | 20 | 30 |
| | **%** | 33.33 | 66.67 | 100 |
| **Total** | **N** | 29 | 31 | 60 |
| | **%** | 48.33 | 51.67 | 100 |
| **Fisher's exact test** | | 0.019* | | |

This table shows significant statistical difference in both groups in sex distribution. The number of females is significantly higher in CPAP group, compared to number of males which is higher in MV group.

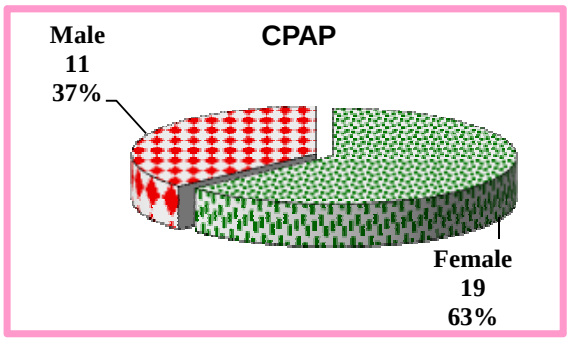


**Fig. (10)** Sex distributions in CPAP group.

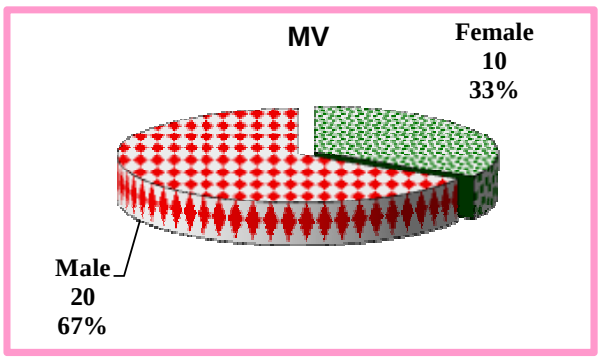


**Fig. (11)** Sex distributions in MV group.

**Table (9)** Comparison between the numbers of siblings in both groups of the study whether single or multiple.

| | | numbers of siblings | | | |
|---|---|---|---|---|---|
| | | **triplet** | **twins** | **single** | **Total** |
| **CPAP** | **N** | 1 | 17 | 12 | 30 |
| | **%** | 3.33 | 56.67 | 40 | 100 |
| **MV** | **N** | 0 | 14 | 16 | 30 |
| | **%** | 0.00 | 46.67 | 53.33 | 100 |
| **Total** | **N** | 1 | 31 | 28 | 60 |
| | **%** | 1.67 | 51.67 | 46.67 | 100 |
| **Chi-square** | **$X^2$** | 1.86 | | | |
| | **P-value** | 0.394 | | | |

This table shows insignificant statistical results in the number of siblings in both groups of study.

**Table (10)** The birth sequence in both groups of the study.

| | | order of delivery in multiple pregnancies | | |
|---|---|---|---|---|
| | | **1st twin** | **2nd twin** | **Total** |
| **CPAP** | **N** | 9 | 9 | 18 |
| | **%** | 50 | 50 | 100 |
| **MV** | **N** | 7 | 7 | 14 |
| | **%** | 50 | 50 | 100 |
| **Total** | **N** | 16 | 16 | 32 |
| | **%** | 50 | 50 | 100 |
| **Fisher's exact test** | | 0.639 | | |

This table shows that the birth sequence in multiple pregnancies has statistically insignificant differences in both groups.

**Table (11)** Comparison between the modes of delivery in each group of study.

| | | mode of delivery | | |
|---|---|---|---|---|
| | | **CS** | **VD** | **Total** |
| **CPAP** | **N** | 15 | 15 | 30 |
| | **%** | 50 | 50 | 100 |
| **MV** | **N** | 17 | 13 | 30 |
| | **%** | 56.67 | 43.33 | 100 |
| **Total** | **N** | 32 | 28 | 60 |
| | **%** | 53.33 | 46.67 | 100 |
| **Fisher's exact test** | | **0.398** | | |

This table shows that the influence of the mode of delivery on the ventilation strategy is statistically non significant.

**Table (12):** The relation between the mode of delivery and the fate of patients in each group of study.

| CPAP / M.V | Mode of delivery | | FATE | | | Fisher's Exact Test |
|---|---|---|---|---|---|---|
| | | | discharge | Died | Total | |
| CPAP | CS | N | 11 | 4 | 15 | 0.050* |
| | | % | 36.67 | 13.33 | 50.00 | |
| | VD | N | 15 | 0 | 15 | |
| | | % | 50.00 | 0.00 | 50.00 | |
| | Total | N | 26 | 4 | 30 | |
| | | % | 86.67 | 13.33 | 100.00 | |
| MV | CS | N | 8 | 9 | 17 | 0.200 |
| | | % | 26.67 | 30.00 | 56.67 | |
| | VD | N | 9 | 4 | 13 | |
| | | % | 30.00 | 13.33 | 43.33 | |
| | Total | N | 17 | 13 | 30 | |
| | | % | 56.67 | 43.33 | 100.00 | |

This table shows that all the patients who died in the CPAP group were delivered by CS. In MV group the mode of delivery has insignificant statistical effect on the mortality.

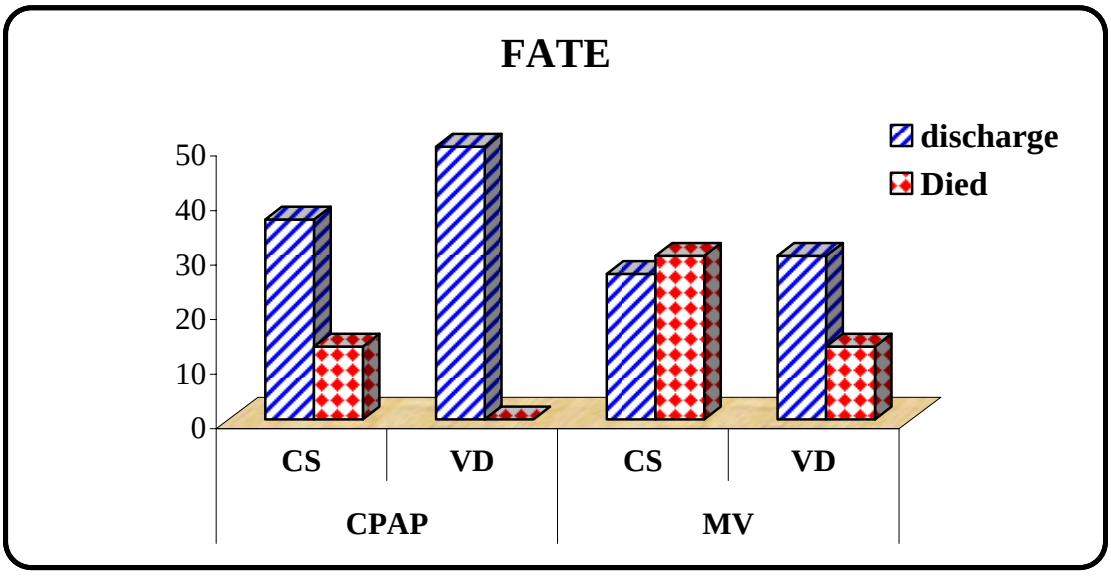


**Fig. (12)** The relationship between the mode of delivery and fate of patients in each group of the study.

**Table (13)** Comparison between the fate of patients in both groups of the study.

| | | FATE | | |
|---|---|---|---|---|
| | | **discharge** | **Died** | **Total** |
| **CPAP** | **N** | 26 | 4 | 30 |
| | **%** | 86.67 | 13.33 | 100 |
| **MV** | **N** | 17 | 13 | 30 |
| | **%** | 56.67 | 43.33 | 100 |
| **Total** | **N** | 43 | 17 | 60 |
| | **%** | 71.67 | 28.33 | 100 |
| **Fisher's exact test** | | **0.01*** | | |

This table shows that the mortality in the MV group is significantly higher than in CPAP group.

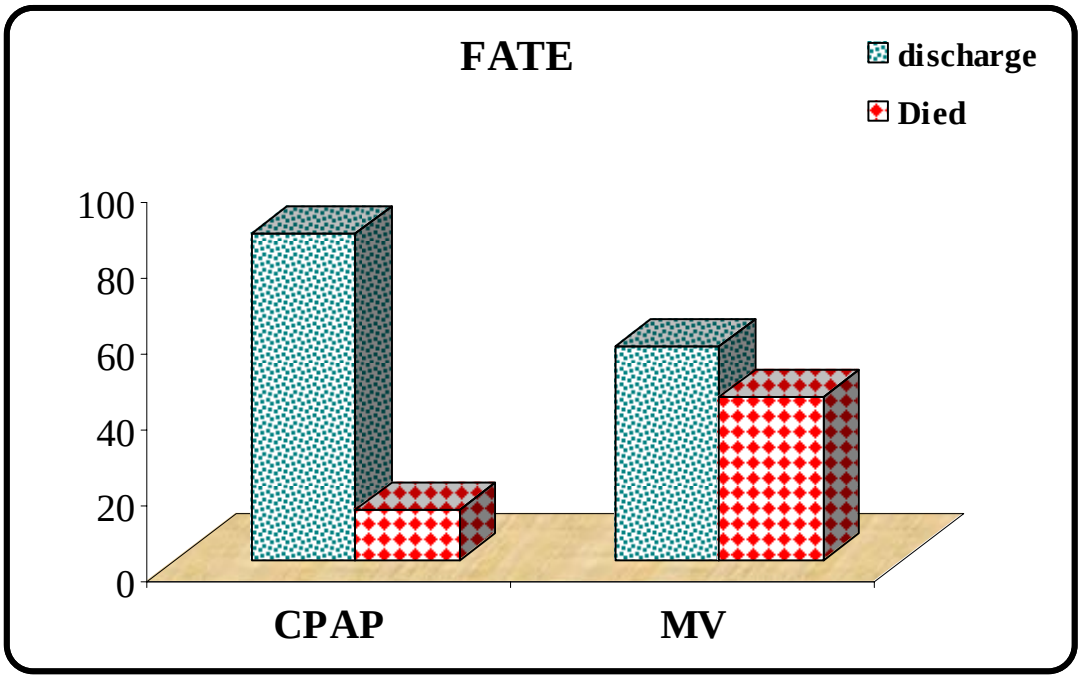


**Fig. (13)** Comparison between the fate of patients in both groups of the study.

**Table (14)** Comparison between the maternal histories in the two study groups.

| Comparisons of maternal history between the 2 study groups | CPAP | MV | Fisher's exact test |
|---|---|---|---|
| **Ante partum hemorrhage** | 2 | 8 | **0.040*** |
| **IVF** | 2 | 3 | 0.500 |
| **hypertension+preclampsia** | 9 | 4 | 0.105 |
| **Iry infertility+ ovulation therapy** | 4 | 7 | 0.253 |
| **Premature rupture of membrane > 24hr.** | 17 | 20 | 0.298 |
| **IDM** | 1 | 1 | 0.754 |
| **Chorioamionitis Clinical and Labs.** | 0 | 2 | 0.246 |
| **Hepatitis** | 0 | 1 | 0.500 |

This table shows statistically significant higher incidence of antepartum hemorrhage in MV group than in CPAP group.

**Table (15)** Comparison between the two groups as regard the complications during their period of stay in NICU.

| COMPLICATIONS | CPAP | MV | Fisher's exact test |
|---|---|---|---|
| **CLD(BPD)** | **0** | **6** | **0.012*** |
| **Pneumothorax** | **0** | **7** | **0.005*** |
| **Nasal scar/ ulcers** | **25** | **30** | **0.026*** |
| **Vascular Necrotic Ulcers** | **15** | **21** | 0.094 |
| **Pressure Marks** | **15** | **12** | 0.302 |
| **Adhesive Tapes Marks** | **9** | **15** | 0.094 |
| **Facial Palsy** | **4** | **1** | 0.177 |
| **Facial Oedema& puffy Eye Lids** | **6** | **2** | 0.127 |
| **Intra cranial Hemorrhage** | **1** | **1** | 0.754 |
| **Pulmonary Hemorrhage** | **0** | **2** | 0.246 |

This table shows increase the frequency of iatrogenic complications in MV. There are significant increases of the incidence of nasal scars, pneumothorax and CLD in MV group than in CPAP group.

**Table (16)** Comparison between the blood cultures results in both groups of the study.

| | | Blood cultures | | | |
|---|---|---|---|---|---|
| | | CPAP | | MV | |
| | | N | % | N | % |
| Growth | | 5 | 16.67 | 11 | 36.67 |
| No growth | | 25 | 83.33 | 19 | 63.33 |
| Chi-square | $X^2$ | 3.068 | | | |
| | P-value | 0.08 | | | |

This table shows that the number of patients showing +ve blood cultures results is higher in the MV group than in the CPAP group .But this Comparison is statistically insignificant.

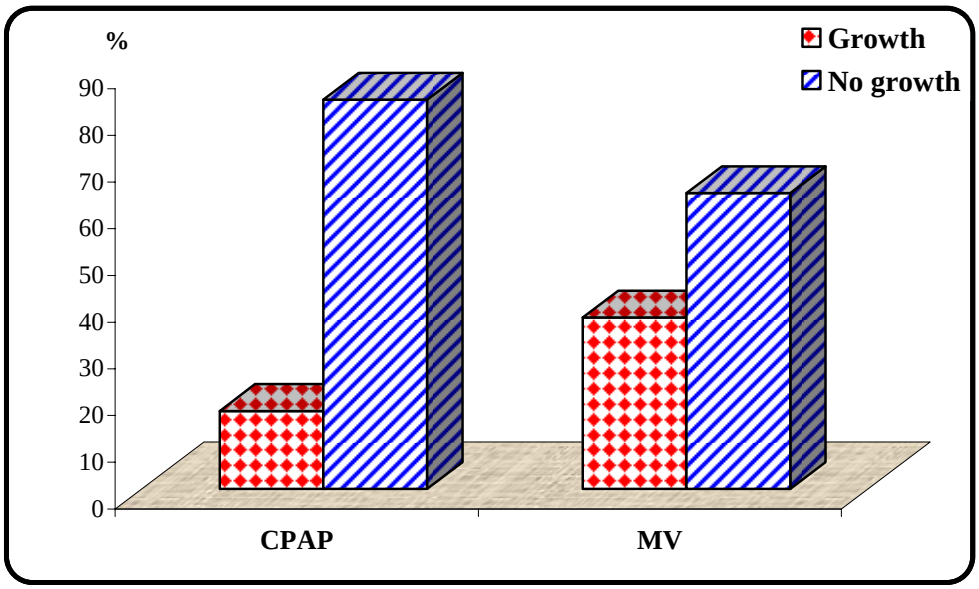


**Fig. (14)** Comparison between the results of blood cultures in both groups of the study.

**Table (17)** Presentation of the blood culture results in both groups of study.

| | Blood culture results | | | | | |
|---|---|---|---|---|---|---|
| | CPAP | | MV | | Total | |
| | N | % | N | % | N | % |
| **No growth** | **25** | **83.33** | **19** | **63.33** | **44** | **73.33** |
| **Growth** | **5** | **16.67** | **11** | **36.67** | **16** | **26.67** |
| -Klebsiella | 2 | 6.67 | 5 | 16.67 | 7 | 11.67 |
| -Staph.aureus | 1 | 3.33 | 4 | 13.33 | 5 | 8.33 |
| -Citrobacter | 1 | 3.33 | 0 | 0 | 1 | 3.33 |
| -strept.viridans | 1 | 3.33 | 1 | 3.33 | 2 | 6.67 |
| -Candida | 0 | 0 | 1 | 3.33 | 1 | 3.33 |

This table shows that just **5** cases with positive blood cultures results in CPAP group compared to **11** cases in MV group.

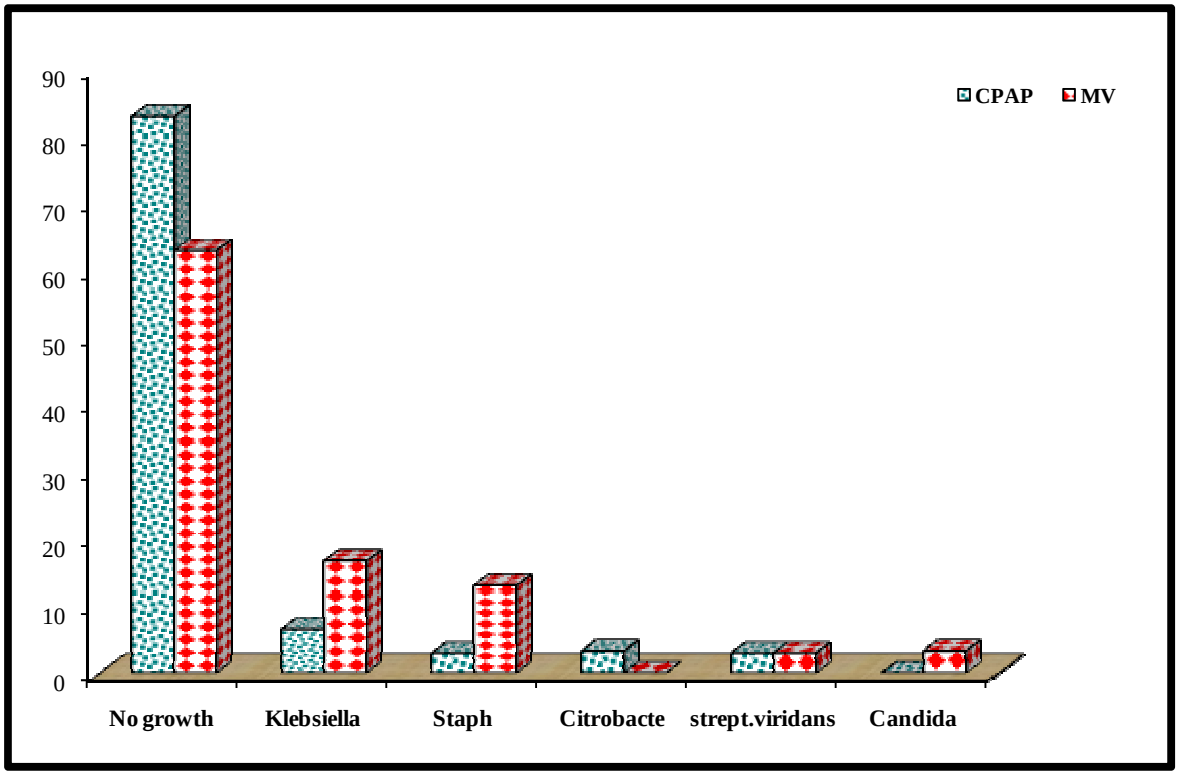


**Fig. (15)** Comparison between the results of blood cultures in both groups of the study.

**Table (18)** Comparison between the results of early endotracheal cultures (in the 1st day of life) in both groups of study.

| | | Early Endotracheal cultures in 1st day of life | | | |
|---|---|---|---|---|---|
| | | CPAP | | MV | |
| | | N | % | N | % |
| Growth | | 7 | 23.33 | 19 | 63.33 |
| No growth | | 23 | 76.67 | 11 | 36.67 |
| Chi-square | $X^2$ | 9.774 | | | |
| | P-value | 0.002* | | | |

This table shows that the number of patients showing +ve early endotracheal cultures results is higher in the MV group than in the CPAP group .This Comparison is statistically highly significant.

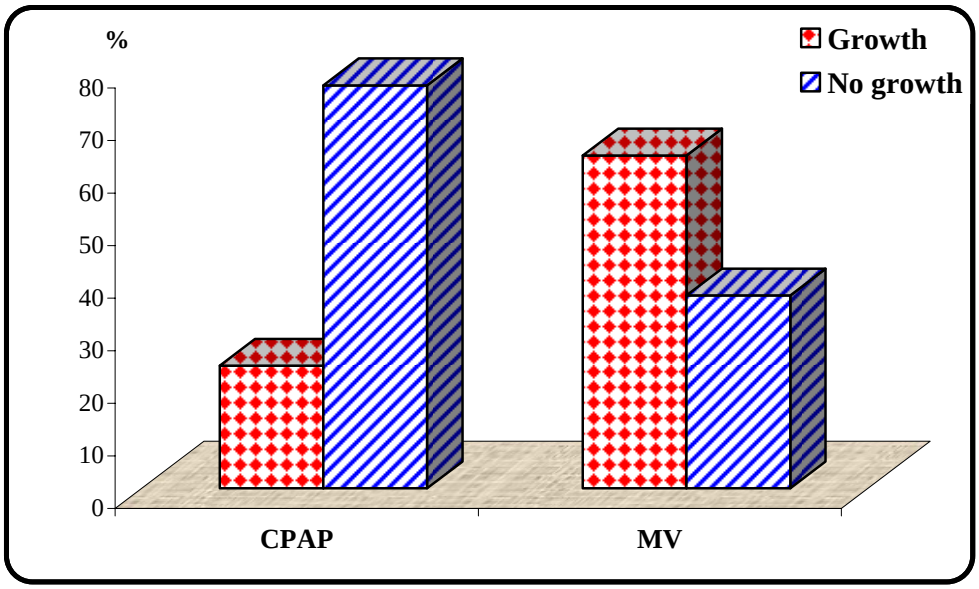


**Fig. (16)** Comparison between the early endotracheal cultures results (in the 1st day of life) in both groups of study.

**Table (19)** Presentation of the results of early endotracheal cultures (in the 1st day of life) in both groups of study.

| | Early Endotracheal cultures in 1st day of life | | | | | |
|---|---|---|---|---|---|---|
| | CPAP | | MV | | Total | |
| | N | % | N | % | N | % |
| **No growth** | 23 | 76.67 | 11 | 36.67 | 34 | 56.67 |
| **Growth** | 7 | 23.33 | 19 | 63.33 | 26 | 43.33 |
| -Klebsiella | 5 | 16.67 | 13 | 43.33 | 18 | 30.00 |
| -CONS | 1 | 3.33 | 1 | 3.33 | 2 | 3.33 |
| -Pseudomonus | 1 | 3.33 | 1 | 3.33 | 2 | 3.33 |
| -Acinetobacter | 0 | 0.00 | 3 | 10.00 | 3 | 5.00 |
| -strept.viridans | 0 | 0.00 | 1 | 3.33 | 1 | 1.67 |

This table shows that just **7** cases with positive early endotracheal cultures results in CPAP group compared to **19** cases in MV group which is highly significant.
Klebsiella dominated the isolated microorganism in both groups.

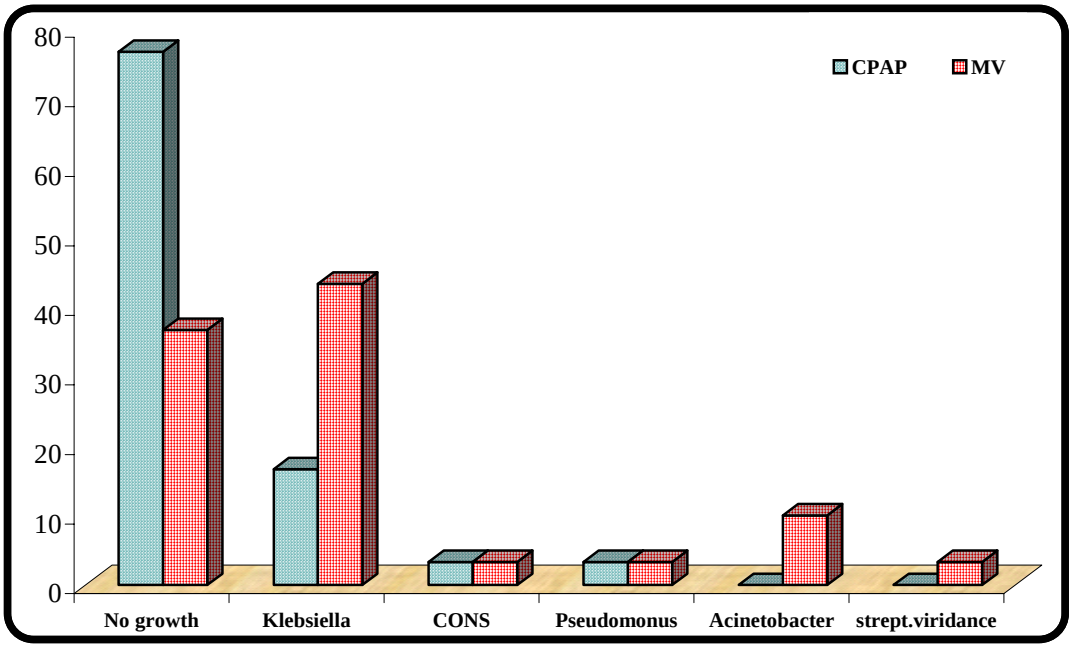


**Fig. (17)** Comparison between the early endotracheal culture results (in the 1st day of life) in both groups of study.

**Table (20)** Comparison between the results of late endotracheal cultures (in the 5th day of life) in both groups of study.

| | | late Endotracheal in the 5th day of life | | | |
|---|---|---|---|---|---|
| | | CPAP | | MV | |
| | | N | % | N | % |
| Growth | | 5 | 16.67 | 11 | 36.67 |
| No growth | | 24 | 80.00 | 19 | 63.33 |
| Chi-square | $X^2$ | 2.815 | | | |
| | P-value | 0.093 | | | |

This table shows that the number of patients showing +ve late endotracheal cultures (in the 5th day of life) results is higher in the MV group than in the CPAP group .This Comparison is statistically insignificant.

***NB: one case died before late endotracheal culture was taken***

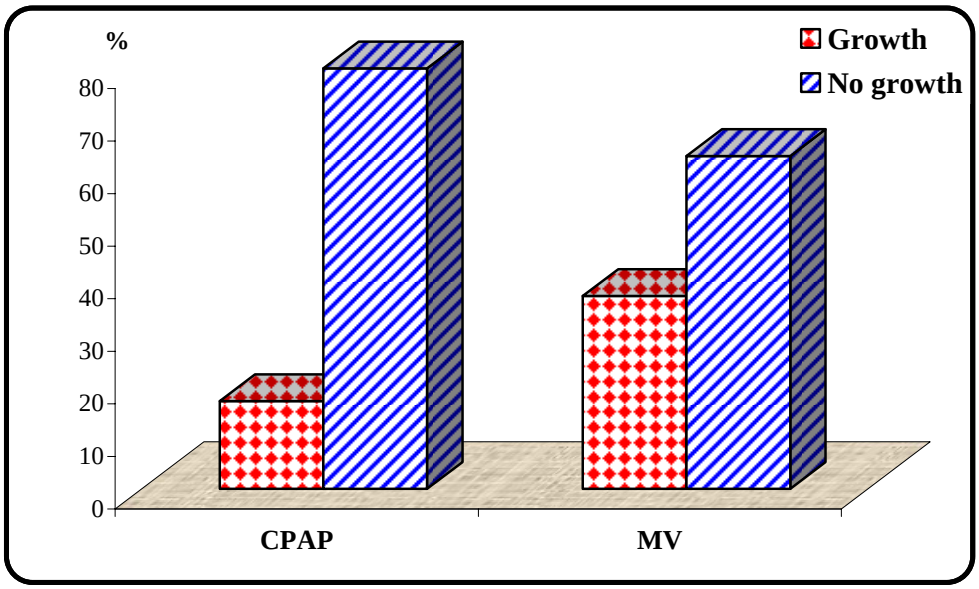


**Fig. (18)** Comparison between the results of late endotracheal cultures (in the 5th day of life) in both groups of study.

**Table (21)** Presentation of the results of late endotracheal cultures (in the 5th day of life) in both groups of study.

| | late Endotracheal cultures in the 5th day of life | | | | | |
|---|---|---|---|---|---|---|
| | CPAP | | MV | | Total | |
| | N | % | N | % | N | % |
| **No growth** | 24 | 80.00 | 19 | 63.33 | 43 | 71.67 |
| **Growth** | 5 | 16.67 | 11 | 36.67 | 16 | 26.67 |
| -Klebsiella | 3 | 10.00 | 7 | 23.33 | 10 | 16.67 |
| -CONS | 1 | 3.33 | 1 | 3.33 | 2 | 3.33 |
| -Pseudomonus | 0 | 0.00 | 1 | 3.33 | 1 | 1.67 |
| -strept.viridans | 1 | 3.33 | 1 | 3.33 | 2 | 3.33 |
| -Staph.aureus | 0 | 0.00 | 1 | 3.33 | 1 | 1.67 |

This table shows that just **5**cases with positive late endotracheal cultures results (in the 5th day of life) in CPAP group compared to **11** cases in MV.klebsiella is the predominant growth in both groups.

NB: one case died before late endotracheal culture was taken

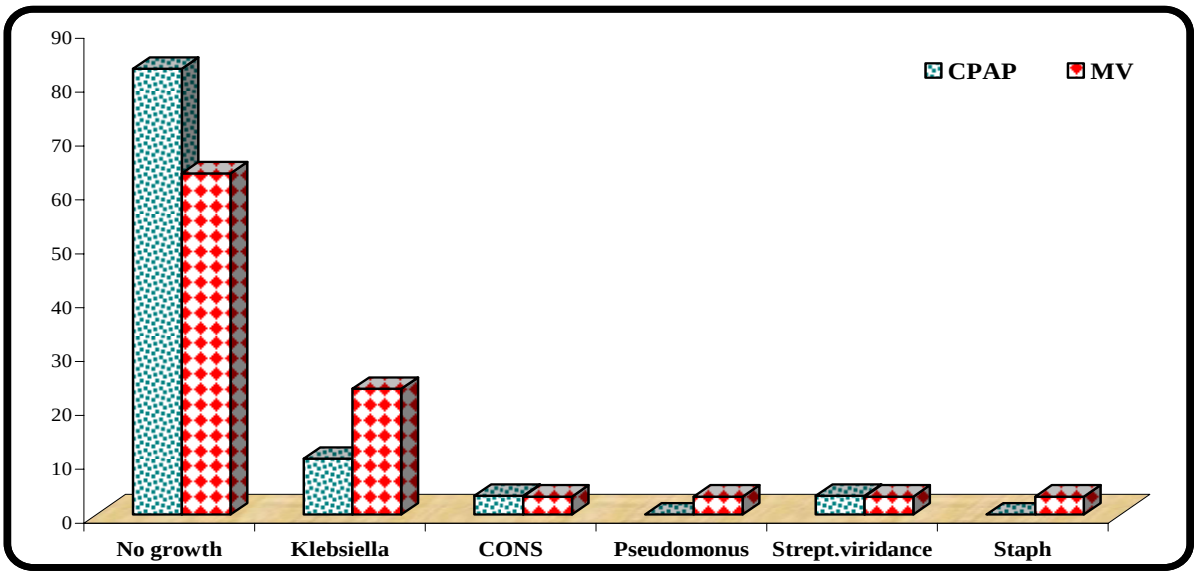


**Fig. (19)** Comparison between the results of late endotracheal cultures (in the 5th day of life) in both groups of study.

**Table (22)** Comparison between the cases with positive results as regard blood cultures, early endotracheal cultures and late endotracheal cultures in both groups of study.

| positive cultures | CPAP | | MV | | Chi-square | |
|---|---|---|---|---|---|---|
| | N | % | N | % | $X^2$ | P-value |
| **Blood cultures** | **5** | **16.67** | **11** | **36.67** | 3.068 | 0.08 |
| **Early Endotracheal cultures in 1st day of life** | 7 | 23.33 | 19 | 63.33 | 9.774 | 0.002* |
| **Late Endotracheal in the 5th day of life** | 5 | 16.67 | 11 | 36.67 | 2.815 | 0.093 |

This comparison shows that the MV group showed higher positive cultures results than in the CPAP group. This Comparison is statistically highly significant in early endotracheal cultures only.

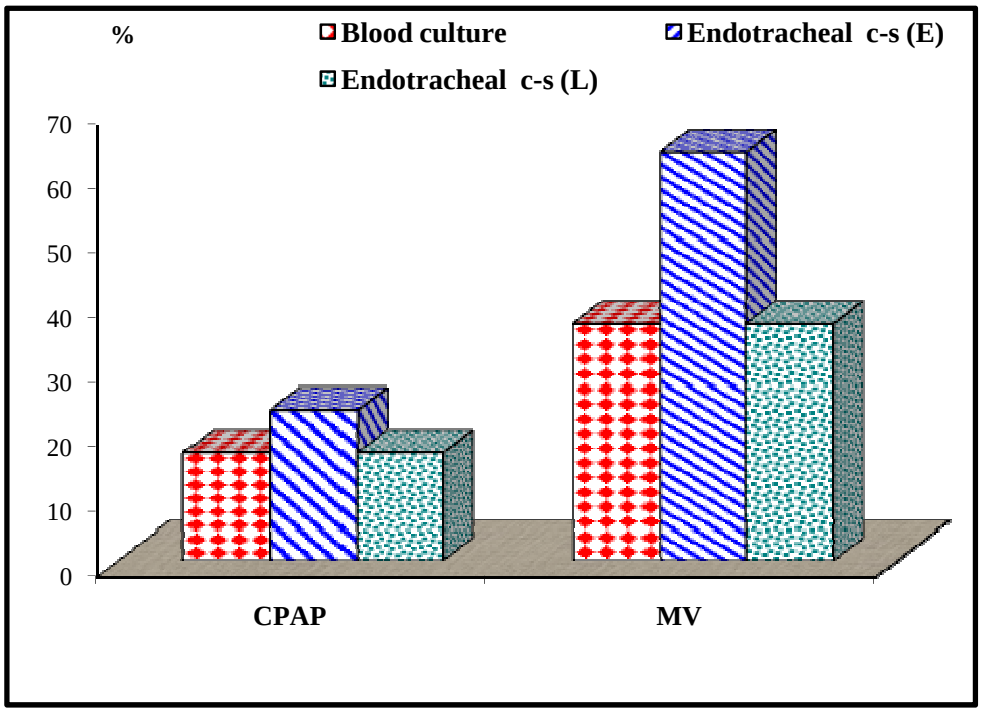


**Fig. (20)** Comparison between the cases with positive results as regard blood cultures, early endotracheal cultures and late endotracheal cultures in both groups of study.

**Table (23)** Comparison between the cases with negative results as regard blood culture, early endotracheal culture and late endotracheal culture in both groups of study.

| negative cultures | CPAP | | MV | | Chi-square | |
|---|---|---|---|---|---|---|
| | N | % | N | % | $X^2$ | P-value |
| **Blood cultures** | **25** | **83.33** | **19** | **63.33** | 3.068 | 0.08 |
| **Early Endotracheal cultures in 1st day of life** | 23 | 76.67 | 11 | 36.67 | 9.774 | 0.002 * |
| **late Endotracheal in the 5th day of life** | 24 | 80.00 | 19 | 63.33 | 2.815 | 0.093 |

This table shows that the cases with no growth results as regard early endotracheal cultures are statistically higher in CPAP group than in MV group.
While in case of blood cultures &late endotracheal cultures there are no statistical significant results between both groups in cases of no growth results.

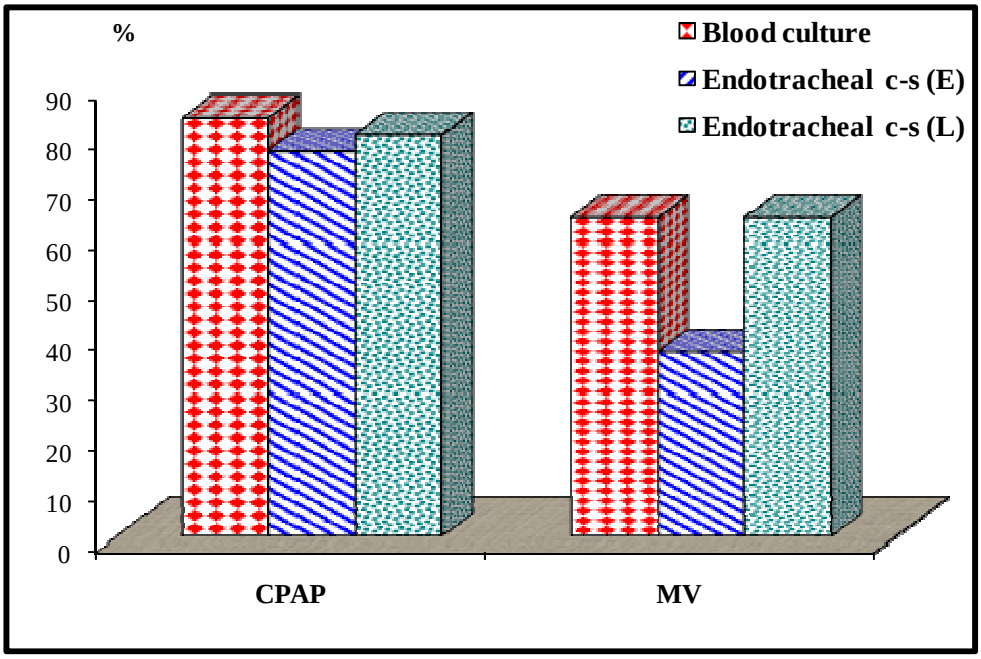


**Fig. (21-a)**Comparison the cases with no growth results between both groups of study.

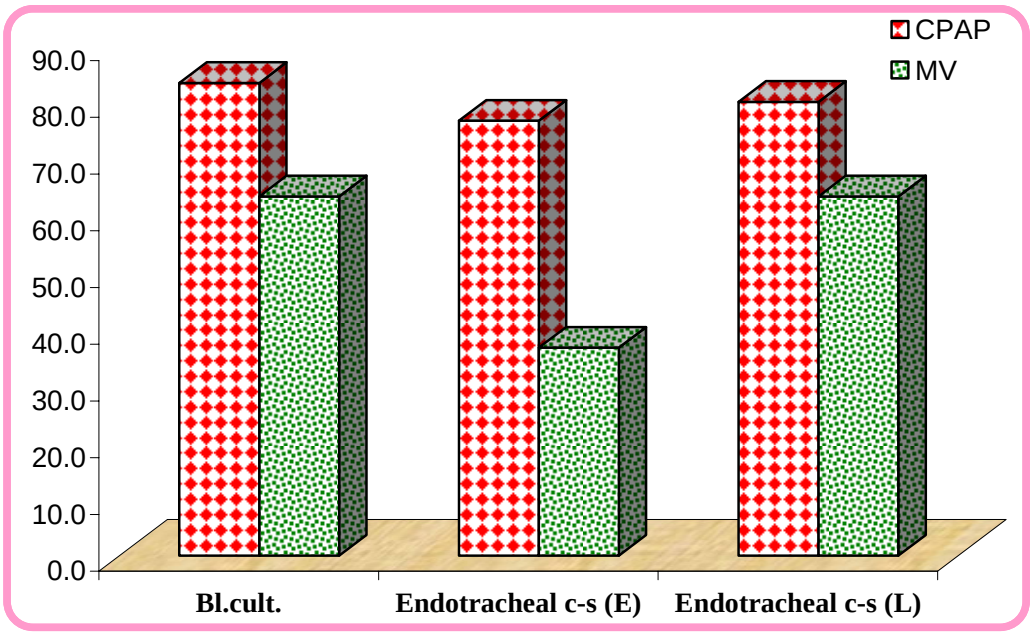


**Fig. (21-b)**Comparison the cases with no growth results between both groups of study.

**Table (24)** The incidence of Klebsiella infections in positive cultures in both groups of the study.

| Klebsiella | CPAP / M.V | | | | | |
|---|---|---|---|---|---|---|
| | CPAP | | MV | | Chi-square | |
| | N | % | N | % | $X^2$ | P-value |
| **blood cultures** | 2/5 | 40 | 5/11 | 45.45 | 0.042 | 0.838 |
| Early Endotracheal cultures in 1st day of life | 5/7 | 71.43 | 13/19 | 68.42 | 0.022 | 0.883 |
| late Endotracheal in the 5th day of life | 3/6 | 50 | 7/11 | 63.64 | 0.298 | 0.585 |

In this table, the incidence of Klebsiella infections in positive cultures showed no statistical differences between the 2 groups of the study.

**Table (25)** The incidence of Klebsiella results among the whole population in the two studied groups.

| Klebsiella | CPAP / M.V | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | CPAP | | MV | | Total | | Chi-square | |
| | N | % | N | % | N | % | $X^2$ | P-value |
| **blood cultures** | 2 | 6.67 | 5 | 16.67 | 7 | 11.67 | 1.456 | 0.228 |
| **Early Endotracheal cultures in 1st day of life** | 5 | 16.67 | 13 | 43.33 | 18 | 30.00 | 5.079 | **0.024*** |
| **late Endotracheal in the 5th day of life** | 3 | 10.34 | 7 | 23.33 | 10 | 16.95 | 1.920 | 0.166 |

This table shows that the incidence of Klebsiella is higher in MV group than in the CPAP group in all the cultures but this comparison is statistically significant only in early endotracheal cultures in 1st day of life.

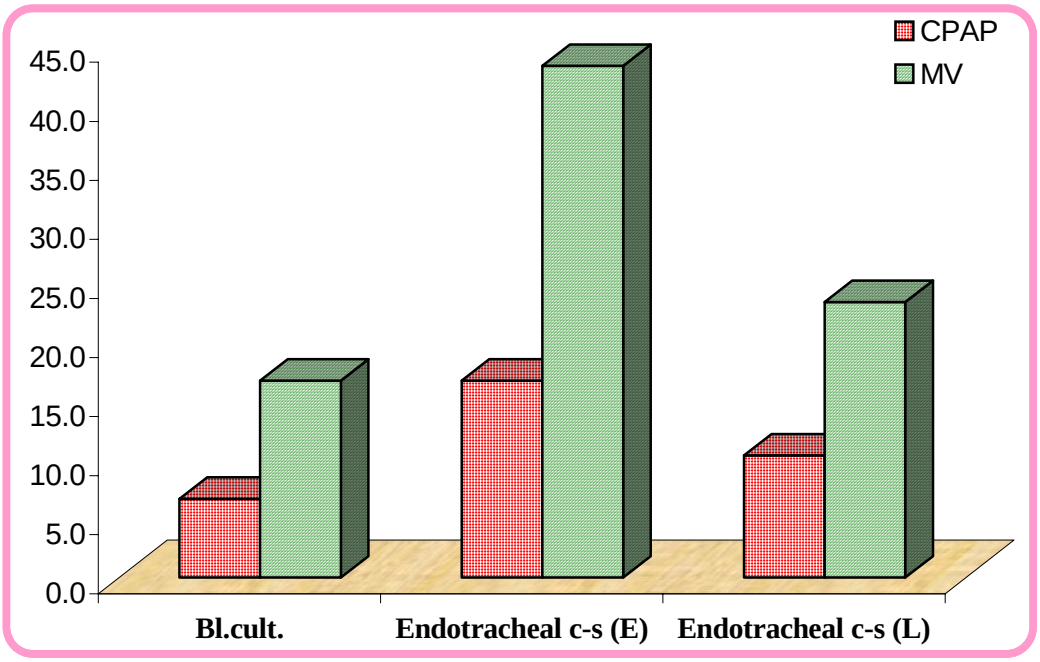


**Fig. (22)** The incidence of Klebsiella results among the whole population in the two studied groups.

**Table (26)** The relationship between early endotracheal cultures results (in the 1st day of life) versus the results of late endotracheal cultures (in the 5th day of life) in each group of the study.

| Growth | early endotracheal cultures (in the 1st day of life) | | late endotracheal cultures (in the 5th day of life) | |
|---|---|---|---|---|
| | N | % | N | % |
| **CPAP** | 7 | 23.33 | 5 | 16.67 |
| **MV** | 19 | 63.33 | 11 | 36.67 |

This table shows that the number of infected cases decrease between early endotracheal cultures results (in the 1st day of life) and the late endotracheal cultures results (in the 5th day of life) in both groups of the study.

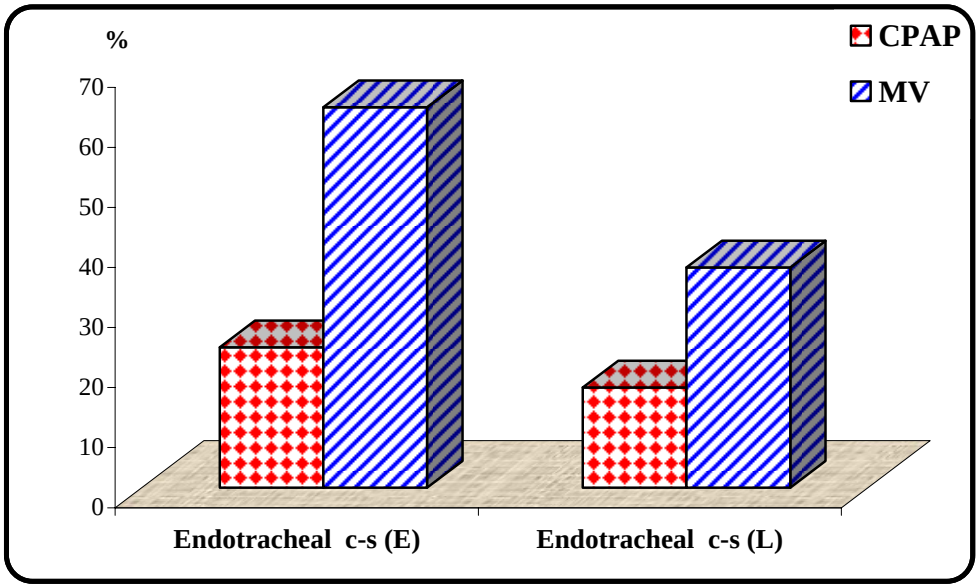


**Fig. (23)** The relationship between early endotracheal cultures results (in the 1st day of life) versus the results of late endotracheal cultures (in the 5th day of life) in each group of the study.

**Table (27)** the presentation of the comparison between early endotracheal cultures (in the 1st day of life) results versus
the results of late endotracheal cultures (in the 5th day of life) in each group of study.

| | | | | late Endotracheal in the 5th day of life | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No growth | Klebsiella | CONS | Pseudo monus | strept.viri dance | Staph. aureus | Total |
| Early Endotracheal cultures in 1st day of life | CPAP | No growth | N | 20 | 2 | 0 | 0 | 1 | 0 | 23 |
| | | | % | 68.97 | 6.90 | 0.00 | 0.00 | 3.45 | 0.00 | 79.31 |
| | | Klebsiella | N | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
| | | | % | 13.79 | 3.45 | 0.00 | 0.00 | 0.00 | 0.00 | 17.24 |
| | | Pseudomonus | N | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | | | % | 0.00 | 0.00 | 3.45 | 0.00 | 0.00 | 0.00 | 3.45 |
| | MV | No growth | N | 7 | 2 | 0 | 0 | 1 | 1 | 11 |
| | | | % | 23.33 | 6.67 | 0.00 | 0.00 | 3.33 | 3.33 | 36.67 |
| | | Klebsiella | N | 7 | 5 | 1 | 0 | 0 | 0 | 13 |
| | | | % | 23.33 | 16.67 | 3.33 | 0.00 | 0.00 | 0.00 | 43.33 |
| | | CONS | N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |
| | | Pseudomonus | N | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | | | % | 0.00 | 0.00 | 0.00 | 3.33 | 0.00 | 0.00 | 3.33 |
| | | Acinetobacter | N | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| | | | % | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| | | Strept.viridans | N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |

This table shows the presentation of the relation between the results of early endotracheal cultures (in the 1st day of life) versus the results of late endotracheal cultures (in the 5th day of life) in each group of study.

**In CPAP group:**

1) In early endotracheal cultures we found 23 cases in (79.31%) were with no growth. Out of those 23 cases, 20 cases were culture negative. 2 cases (6.90%) resulted in Klebsiella and one case in strept.viridans (3.45%) during the late endotracheal cultures. This indicates a nosocomial colonization or infection in 2/23 of the cases (8.6%)
2) The early ET showed Klebsiella in 5 cases. In the late ET cultures; 4 cases Klebsiella was eradicated and only one case contaminated to harbor Klebsiella.

**3)** One case resulted in Pseudomonus in early ET cultures &then eradicated in late ET cultures. The patient was colonized with CONS.

**As regard MV group:**

**4)** 11 cases in (36.67%) were with no growth in early endotracheal cultures. 7 cases of them (23.33%) remained cultures negative, 2 cases (6.67%) were colonized( infected)with Klebsiella, one case with strept.viridans (3.33%) and the last one was staphylococcus aureus in the late ET cultures. This shows a nosocomial colonization, infection rate of 3/11( )

**5)** Out of 13 cases (43.33%) with Klebsiella in early ET culture were, the late ET cultures showed that; Klebsiella was eradicated from 8 cases (7cases showed no growth and only one was colonized with CONS).whereas Klebsiella remained in 5 cases.

**6)** One case was colonized with CONS in early ET culture, and resulted in no growth in the late ET cultures.

**7)** One case resulted in Pseudomonus in early ET cultures& the same microorganism was still isolated the late ET cultures.

**8)** 3 cases resulted in Acinetobacter in early ET cultures& the organism was eradicated in late ET cultures.

**9)** Strept.viridans was isolated from one patient& was eradicated in late ET cultures.

**Table (28)** the presentation of the relation between blood culture results and the early endotracheal cultures (in the 1st day of life) results in each group of study.

| | | | | Early Endotracheal cultures in 1st day of life | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No growth | Klebsiella | CONS | Pseudomonus | Acinetobacter | strept.viridance | Total |
| blood cultures | CPAP | No growth | N | 20 | 4 | 0 | 1 | 0 | 0 | 25 |
| | | | % | 66.67 | 13.33 | 0.00 | 3.33 | 0.00 | 0.00 | 83.33 |
| | | Klebsiella | N | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| | | | % | 3.33 | 0.00 | 3.33 | 0.00 | 0.00 | 0.00 | 6.67 |
| | | Staph.aureus | N | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 0.00 | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |
| | | Citrobacter | N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |
| | | strept.viridans | N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |
| | MV | No growth | N | 8 | 7 | 0 | 0 | 3 | 1 | 19 |
| | | | % | 26.67 | 23.33 | 0.00 | 0.00 | 10.00 | 3.33 | 63.33 |
| | | Klebsiella | N | 2 | 1 | 1 | 1 | 0 | 0 | 5 |
| | | | % | 6.67 | 3.33 | 3.33 | 3.33 | 0.00 | 0.00 | 16.67 |
| | | Staph.aureus | N | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| | | | % | 3.33 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 13.33 |
| | | strept.viridans | N | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 0.00 | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |
| | | Candida | N | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | | | % | 0.00 | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 |

This table shows presentation of the relation between blood cultures results and the early endotracheal cultures (in the 1st day of life) results.

**In CPAP group;**

1) Blood cultures results were negative in 25 cases, of whom 5patients (20%) showed colonization (infection) by pathogenic gram negative bacilli.4 cases infected by Klebsiella& one by Pseudomonus in early ET cultures.
2) Two cases had Klebsiella, one had staphylococcus aureus, one had Citrobacter &one had strept.viridans in blood cultures that was not isolated from ET cultures, suggesting another site for entry of microorganism to blood stream. *That means blood* cultures was

positive in **5** cases that showed no or a different microorganism in early ET cultures.

**In MV group;**

3) Blood cultures results were negative in 19 patients, of them 11 were colonized or infected by different microorganisms (7 cases infected by Klebsiella, 3 cases by Acinetobacter & one by strept.viridans) in early ET cultures .
4) Klebsiella was isolated from blood cultures of 5 cases, 4 of them did not have Klebsiella in early ET cultures& one had blood stream infection, in a patient with klebsiella in the respiratory tract.
5) Staphylococcus aureus was isolated from blood cultures of 4 cases. All of them did not have staphylococcus aureus in early ET cultures.
6) Strept.viridans was isolated from blood cultures of one case .this organism is a probable blood cultures contaminated if from one set of bl.culture and it is a member of respiratory tract flora.
7) Candida was isolated from blood cultures of one case, which did not show Candida in the respiratory tract.
8) The total number of cases of the blood stream infection were 11,only one of them showed the same microorganisms the blood and early ET cultures

**Table (29)** Comparison of the relationship between the results of blood cultures in each of the study groups and the fate of patients.

| Blood cultures | | FATE | | | | P-value |
|---|---|---|---|---|---|---|
| | | discharge | | Died | | |
| | | N | % | N | % | |
| CPAP | Growth | 4 | 13.33 | 1 | 3.33 | 0.538 |
| | No growth | 22 | 73.33 | 3 | 10.00 | |
| MV | Growth | 6 | 20.00 | 5 | 16.67 | 0.579 |
| | No growth | 11 | 36.67 | 8 | 26.67 | |

This table shows no statistical significant results in the relationship between the blood cultures results compared to the fate of patients in each group of study.

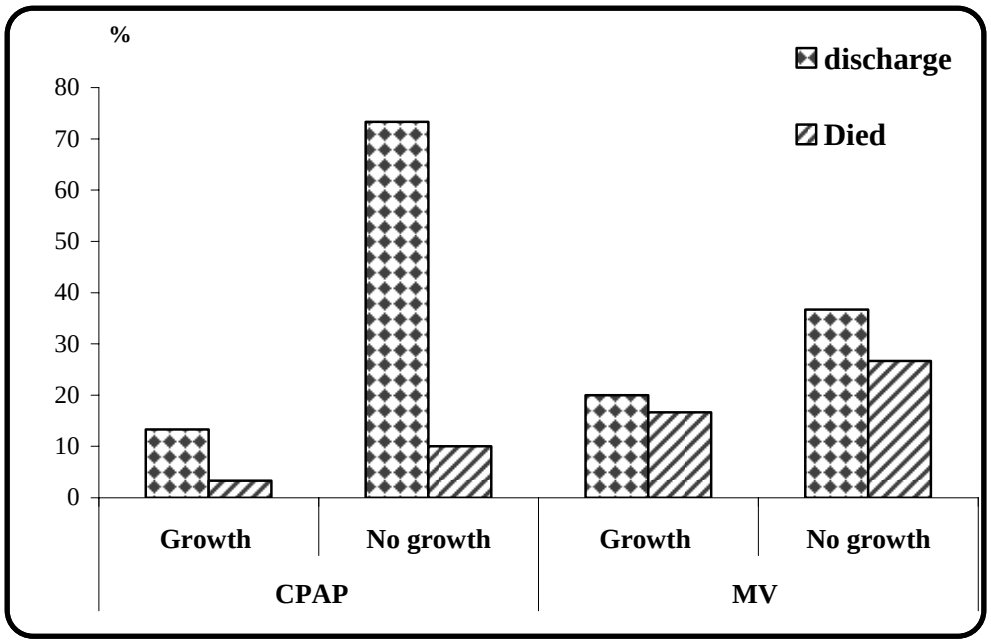


**Fig. (24)** Comparison of the relationship between the results of blood cultures in each of the study groups and the fate of patients.

**Table (30)** Comparison of the relationship between the blood cultures results versus the fate of patients **between both of the study groups.**

| Blood cultures | | FATE | | | | |
|---|---|---|---|---|---|---|
| | | Discharge | | Died | | Fisher's exact test |
| | | N | % | N | % | |
| Growth | CPAP | 4 | 80.00 | 1 | 20.00 | 0.346 |
| | MV | 6 | 54.55 | 5 | 45.45 | |
| No growth | CPAP | 22 | 88.00 | 3 | 12.00 | 0.027* |
| | MV | 11 | 57.89 | 8 | 42.11 | |

This Comparison shows that death among MV group is higher than CPAP group .This difference is not statistically significant among cases having +ve cultures results but statistically significant in cases having –ve blood cultures results.

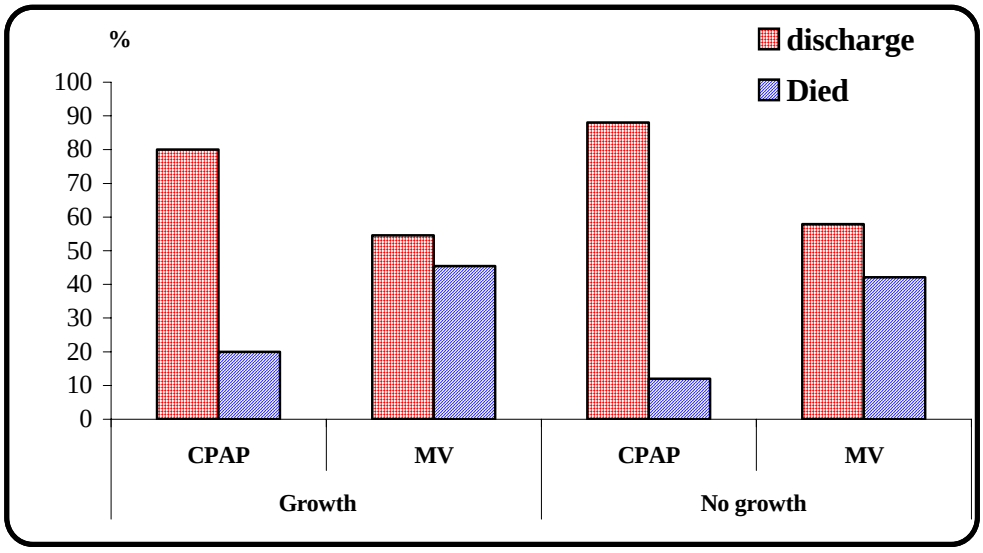


**Fig. (25)** Comparison of the relationship between the blood cultures results versus the fate of patients **between both of the study groups.**

**Table (31)** Comparison of the relationship between the results of early endotracheal cultures (in the 1st day of life) in each of the study groups and the fate of patients.

| Early Endotracheal cultures in 1st day of life | | FATE | | | | P-value |
|---|---|---|---|---|---|---|
| | | discharge | | Died | | |
| | | N | % | N | % | |
| CPAP | Growth | 6 | 20.00 | 1 | 3.33 | 0.677 |
| | No growth | 20 | 66.67 | 3 | 10.00 | |
| MV | Growth | 11 | 36.67 | 8 | 26.67 | 0.579 |
| | No growth | 6 | 20.00 | 5 | 16.67 | |

This table shows no statistical significant results in the relation between the results of early endotracheal cultures compared to the fate of patients in each group of the study.

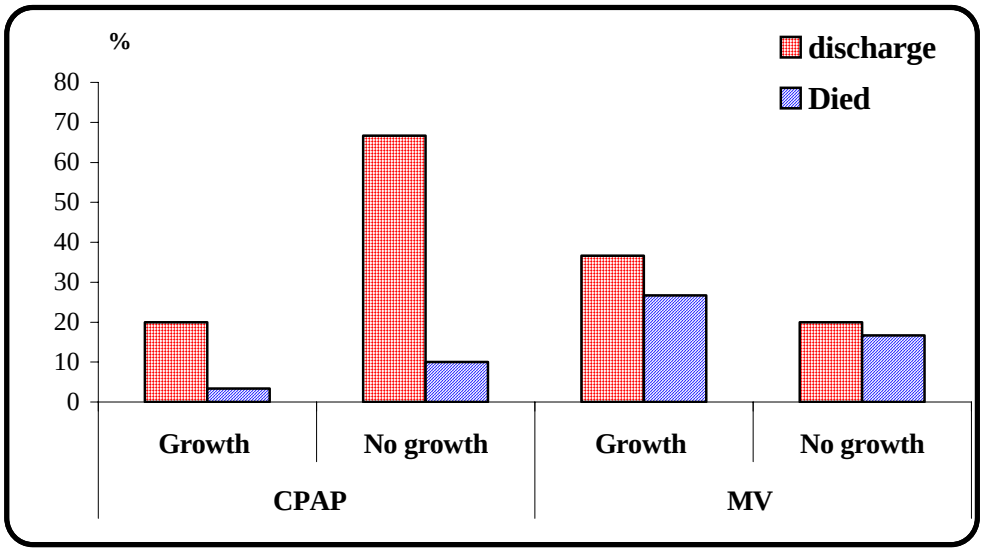


**Fig. (26)** Comparison of the relationship between the results of early endotracheal cultures (in the 1st day of life) in each of the study groups and the fate of patients.

**Table (32)** Comparison of the relationship between the early endotracheal culture results (in the 1st day of life) versus the fate of patients between both of the study groups.

| Early Endotracheal cultures in 1st day of life | | FATE | | | | |
|---|---|---|---|---|---|---|
| | | Discharge | | Died | | Fisher's exact test |
| | | N | % | N | % | |
| Growth | CPAP | 6 | 85.71 | 1 | 14.29 | 0.199 |
| | MV | 11 | 57.89 | 8 | 42.11 | |
| No growth | CPAP | 20 | 86.96 | 3 | 13.04 | 0.052 |
| | MV | 6 | 54.55 | 5 | 45.45 | |

This Comparison shows that death among MV group is higher than CPAP group .This difference is not statistically significant among the cases having +ve or –ve blood cultures results.

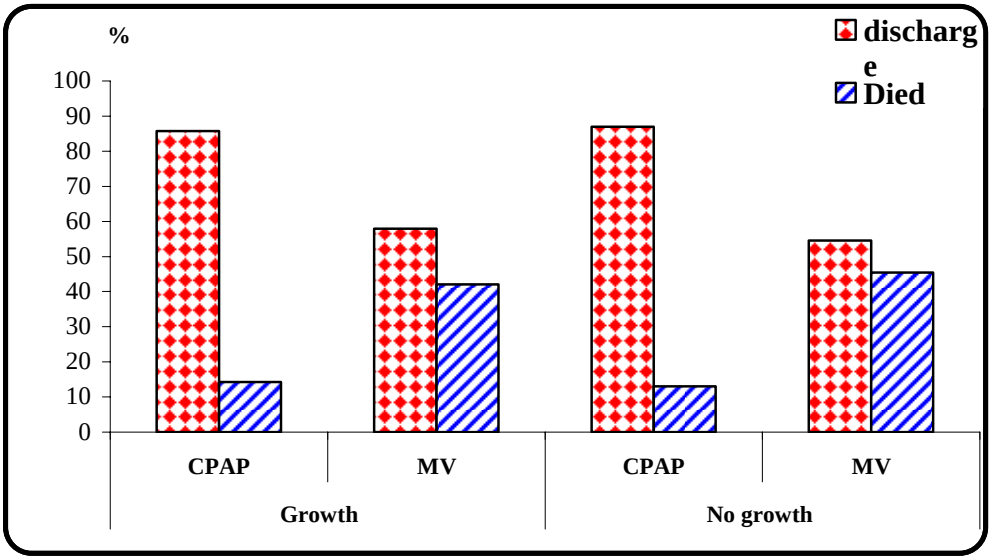


**Fig. (27)** Comparison of the relation between the results of early endotracheal culture and the fate of patients in each of the study group.

**Table (33)** Comparison between the results of late endotracheal cultures (in the 5th day of life) in each of the study groups and the fate of patients.

| late Endotracheal cultures in the 5th day of life | | FATE | | | | P-value |
|---|---|---|---|---|---|---|
| | | discharge | | Died | | |
| | | N | % | N | % | |
| CPAP | Growth | 4 | 13.33 | 1 | 3.33 | 0.446 |
| | No growth | 22 | 75.86 | 2 | 6.90 | |
| MV | Growth | 3 | 10 | 8 | 26.67 | 0.018* |
| | No growth | 14 | 46.67 | 5 | 16.67 | |

This table shows significant statistical differences between the results of late endotracheal cultures (in the 5th day of life) in relation to their fate. The discharged cases in MV group are statistically higher in cultures negative results than in other infected cases. But in CPAP group no statistical differences between the results of late endotracheal cultures in relation to their fate.

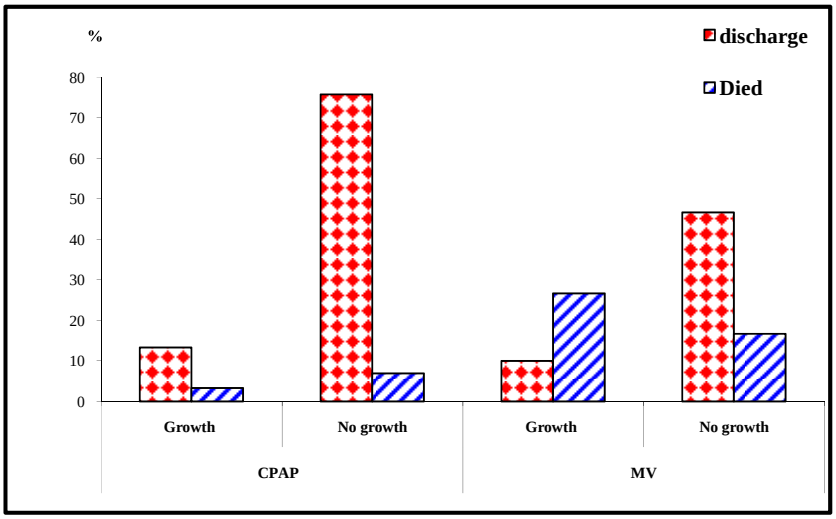


**Fig. (28)** Comparison between the results of late endotracheal cultures (in the 5th day of life) in each of the study groups and the fate of patients.

**Table (34)** Comparison of the relationship between the late endotracheal cultures results (in the 5th day of life) versus the fate of patients between both of the study groups.

| late Endotracheal cultures in the 5th day of life | | FATE | | | | |
|---|---|---|---|---|---|---|
| | | Discharge | | Died | | Fisher's exact test |
| | | N | % | N | % | |
| Growth | CPAP | 4 | 80 | 1 | 20 | 0.077 |
| | MV | 3 | 27.27 | 8 | 72.73 | |
| No growth | CPAP | 22 | 91.67 | 2 | 8.33 | 0.121 |
| | MV | 14 | 73.68 | 5 | 26.32 | |

This Comparison shows that death among MV group is higher than CPAP group .This difference is not statistically significant among the cases having +ve or –ve late endotracheal cultures results.

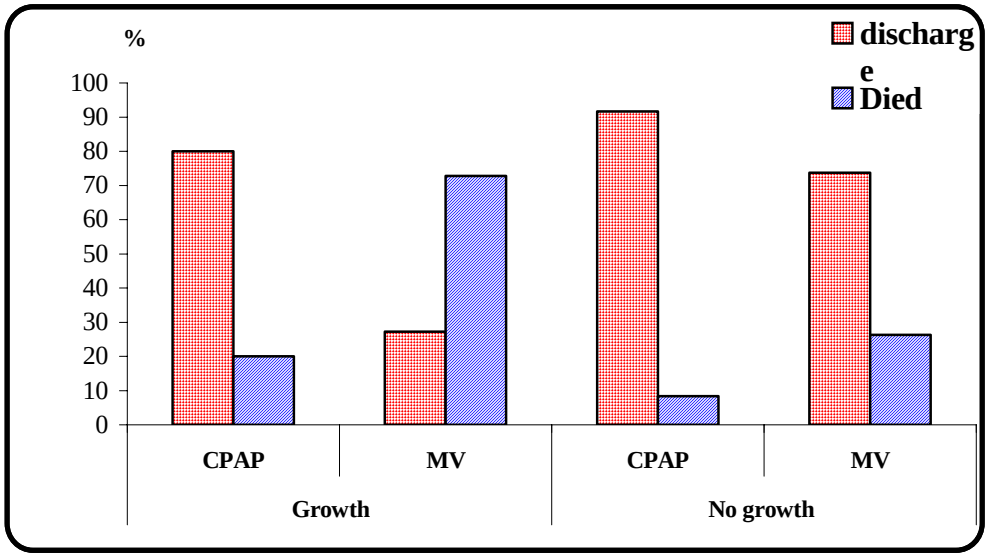


**Fig. (29)** Comparison of the relationship between the late endotracheal cultures results (in the 5th day of life) versus the fate of patients between both of the study groups.

**Table (35)** Comparison between the non infected cases as regard blood cultures, early endotracheal cultures & late endotracheal cultures and their fate in both groups of study.

| No growth | FATE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | CPAP | | | | MV | | | | Chi-square | |
| | discharge | | Died | | discharge | | Died | | | |
| | N | % | N | % | N | % | N | % | $X^2$ | P-value |
| **Blood cultures** | 22 | 88.00 | 3 | 12.00 | 11 | 57.89 | 8 | 42.11 | 5.218 | 0.022* |
| **Early Endotracheal cultures in 1st day of life** | 20 | 86.96 | 3 | 13.04 | 6 | 54.55 | 5 | 45.45 | 4.344 | 0.037* |
| **late Endotracheal cultures in the 5th day of life** | 22 | 91.67 | 2 | 8.33 | 14 | 73.68 | 5 | 26.32 | 2.516 | 0.113 |

This table shows that the discharged cases in CPAP group are statistically higher than in MV group as regard no growth results in their blood cultures &early endotracheal cultures.

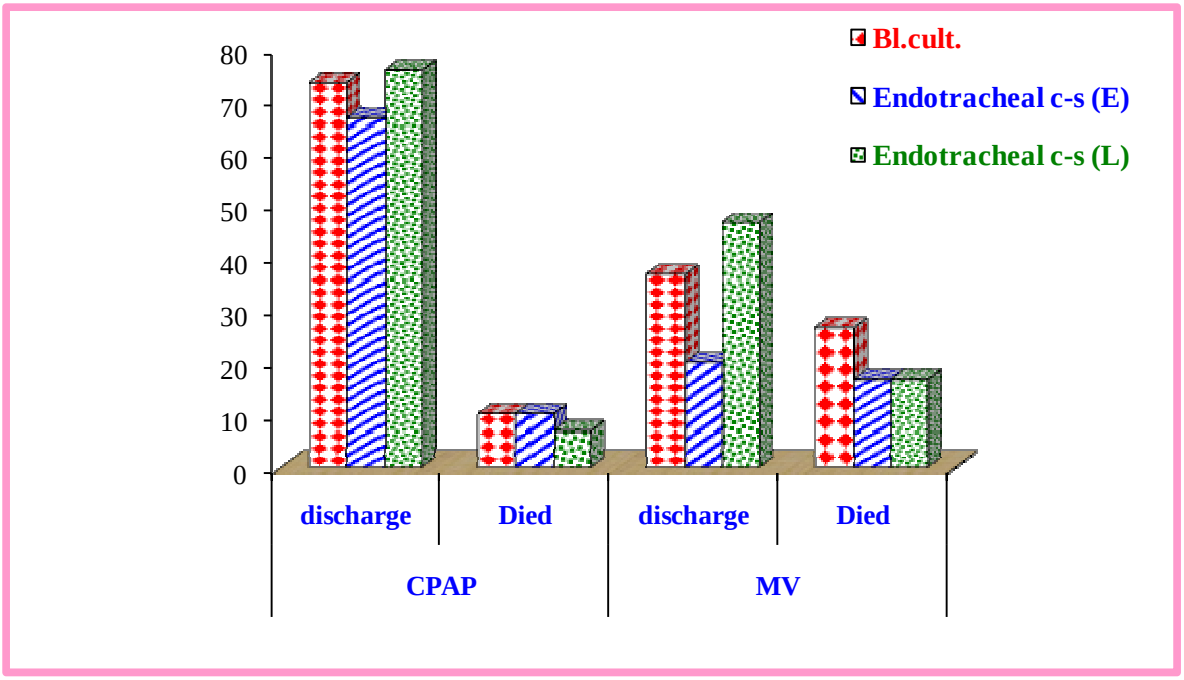


**Fig. (30)** Comparison between both groups of the study in the relation between the cases with no growth results as regard blood cultures, early endotracheal cultures &late endotracheal cultures and their fate.

**Table (36)** Comparison of the early chest X rays results between both groups of study.

| XR1 | | CPAP / M.V | | | | | |
|---|---|---|---|---|---|---|---|
| | | CPAP | | MV | | Total | |
| | | N | % | N | % | N | % |
| Collapse | | 1 | 3.33 | 3 | 10.00 | 4 | 6.67 |
| clear field | | 23 | 76.67 | 13 | 43.33 | 36 | 60.00 |
| Haziness | | 5 | 8.33 | 6 | 20.00 | 11 | 18.33 |
| Pneumothorax | | 0 | 0.00 | 2 | 6.67 | 2 | 3.33 |
| White lung | | 1 | 3.33 | 6 | 20.00 | 7 | 11.67 |
| Total | | 30 | 100.00 | 30 | 100.00 | 60 | 100.00 |
| Chi-square | $X^2$ | 10.678 | | | | | |
| | P-value | **0.03*** | | | | | |

This table shows significant statistical differences between both study groups as regard the early x ray results.

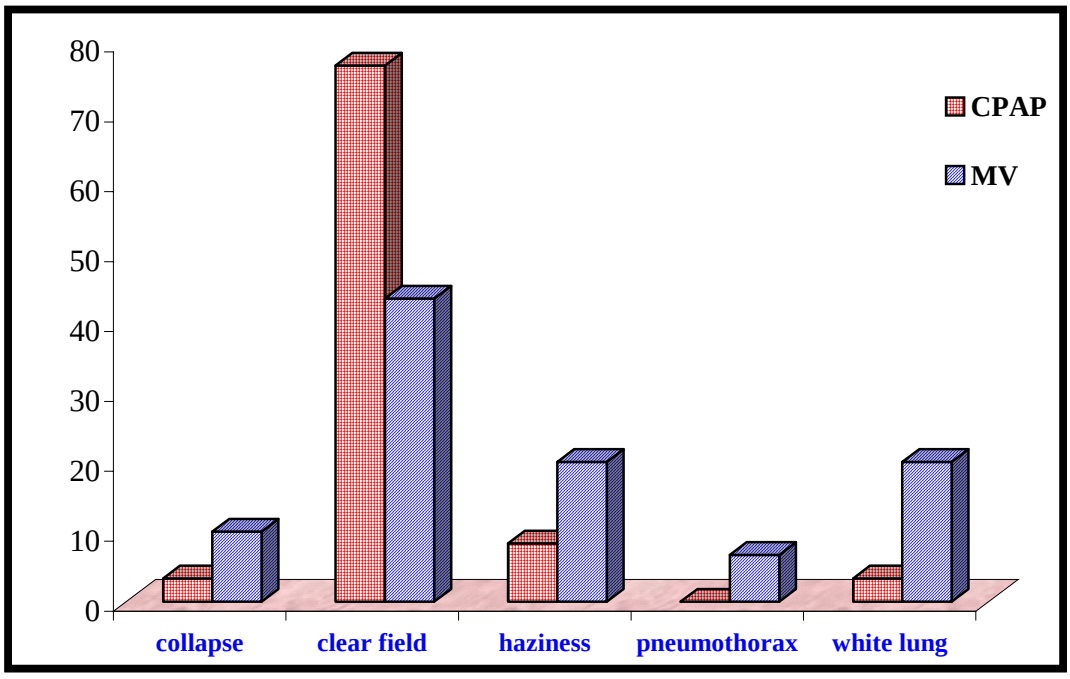


**Fig. (31)** Comparison of the early chest X rays results between both groups of study.

**Table (37)** Comparison of the late chest X rays results between both groups of study.

| XR2 | | CPAP / M.V | | | | | |
|---|---|---|---|---|---|---|---|
| | | CPAP | | MV | | Total | |
| | | N | % | N | % | N | % |
| **BPD** | | 0 | 0.00 | 2 | 6.67 | 2 | 3.33 |
| **collapse** | | 1 | 3.33 | 2 | 6.67 | 3 | 5.00 |
| **clear field** | | 26 | 86.67 | 15 | 50.00 | 41 | 68.33 |
| **haziness** | | 1 | 3.33 | 2 | 6.67 | 3 | 5.00 |
| **pneumonia** | | 2 | 6.67 | 2 | 6.67 | 4 | 6.67 |
| **pneumothorax** | | 0 | 0.00 | 7 | 23.33 | 7 | 11.67 |
| **Total** | | 30 | 100.00 | 30 | 100.00 | 60 | 100.00 |
| **Chi-square** | **$X^2$** | 16.144 | | | | | |
| | **P-value** | **0.006*** | | | | | |

This table shows significant statistical differences results between both study groups as regard the late x ray result. P-value <0.05 = 0.006

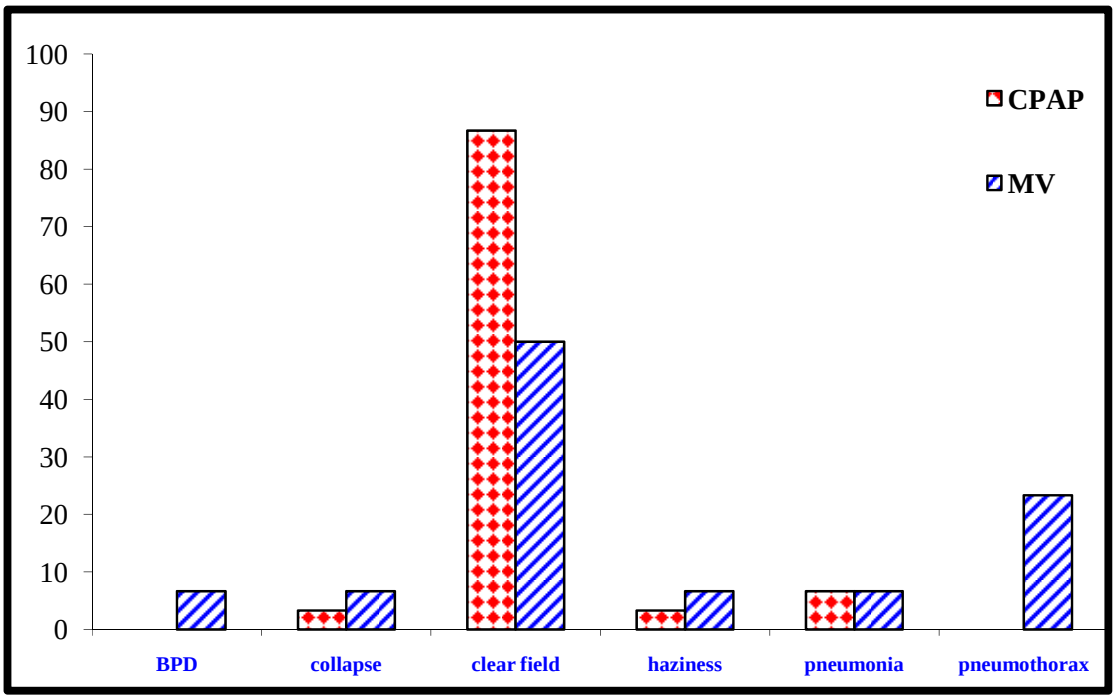


**Fig. (32)** Comparison of the late chest X rays results between both groups of study.

**Table (38)** Comparison between the baseline data of cases that started feeding in both groups of the study.

| Feeding | | Range | Mean ± SD | T-test | |
|---|---|---|---|---|---|
| | | | | t | P-value |
| **Age on start(days)** | CPAP | 4 - 12 | 8.456 ± 2.423 | 0.694 | 0.4931 |
| | MV | 4 - 19 | 9.292 ± 3.983 | | |
| **Body weight on start(kgm)** | CPAP | 0.9 - 2.4 | 1.581 ± 0.364 | -0.884 | 0.381 |
| | MV | 1.25 - 2.1 | 1.660 ± 0.290 | | |
| **Age on starting oral intake (days)** | CPAP | 10 - 70 | 25.120 ± 16.236 | -0.966 | 0.340 |
| | MV | 11 - 87 | 30.176 ± 17.242 | | |
| **Body weight on starting oral intake (kgm)** | CPAP | 1.4 - 2.4 | 1.702 ± 0.250 | -1.005 | 0.322 |
| | MV | 1.45 - 2.25 | 1.779 ± 0.242 | | |

This table shows insignificant statistical differences in the comparison between the baseline data of cases who started feeding in each group of study as regard the age on start trophic Ryle feeding in days, their weight in kg on start, also their age on start of oral feeding in days and their BW on start orally in kg

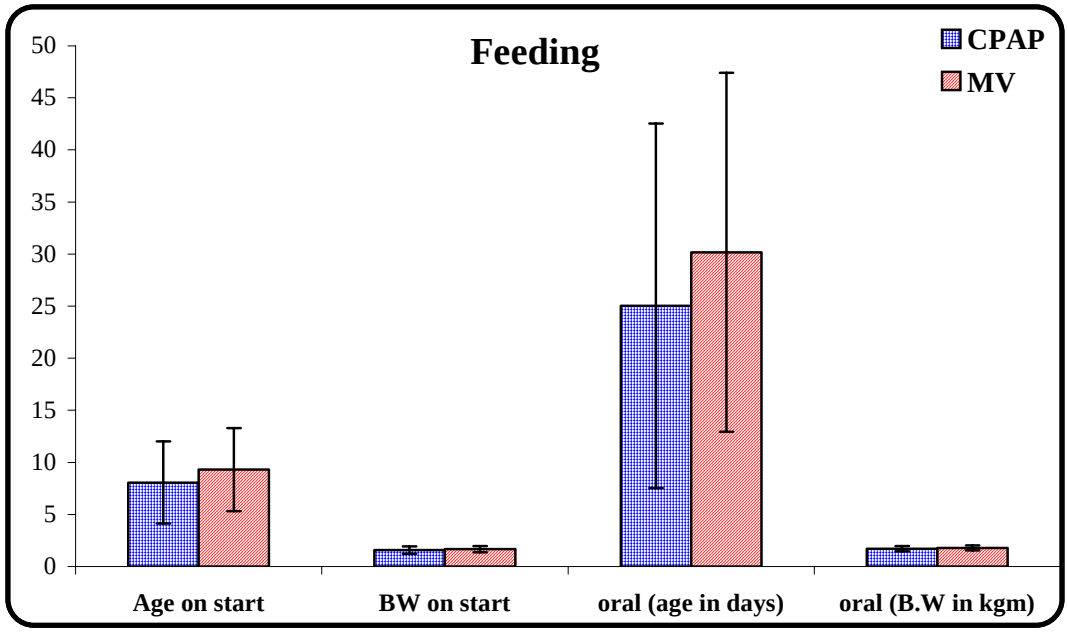


**Fig. (33)** Comparison between the baseline data of cases that started feeding in each group of the study.

**Table (39)** Comparison between the duration of admission in both of the study groups.

| Period of stay | | Range | Mean ± SD |
|---|---|---|---|
| **CPAP** | | 4.000 - 78.000 | 29.200 ± 18.149 |
| **MV** | | 3.000 - 103.000 | 27.533 ± 18.496 |
| **T- test** | **t** | 0.352 | |
| | **P-value** | 0.726 | |

This table shows that no statistically significant differences in the duration of admission in both of the study groups.

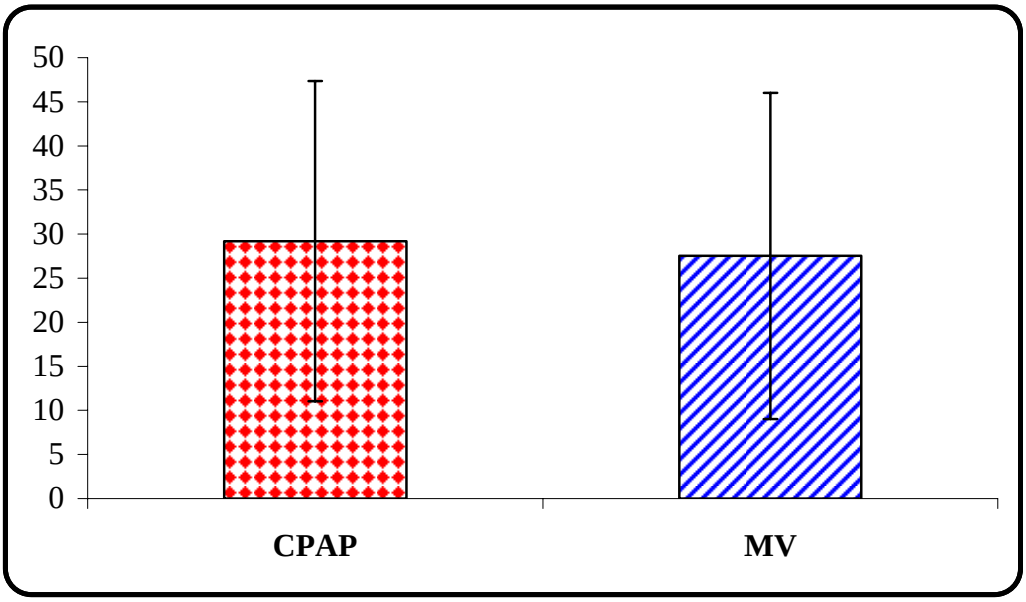


**Fig. (34)** Comparison between the duration of admission in both of the study groups.

**Table (40)** Comparison between the duration on ventilation in both of the study groups.

| Duration | | Range | | | Mean | ± | SD |
|---|---|---|---|---|---|---|---|
| **CPAP** | | 4.000 | - | 21.000 | 7.400 | ± | 3.410 |
| **MV** | | 3.000 | - | 69.000 | 13.500 | ± | 11.799 |
| **T- test** | **t** | -2.720 | | | | | |
| | **P-value** | **0.009*** | | | | | |

This table shows that the MV group patients have statistically significant longer duration on the ventilation than the CPAP group patients.

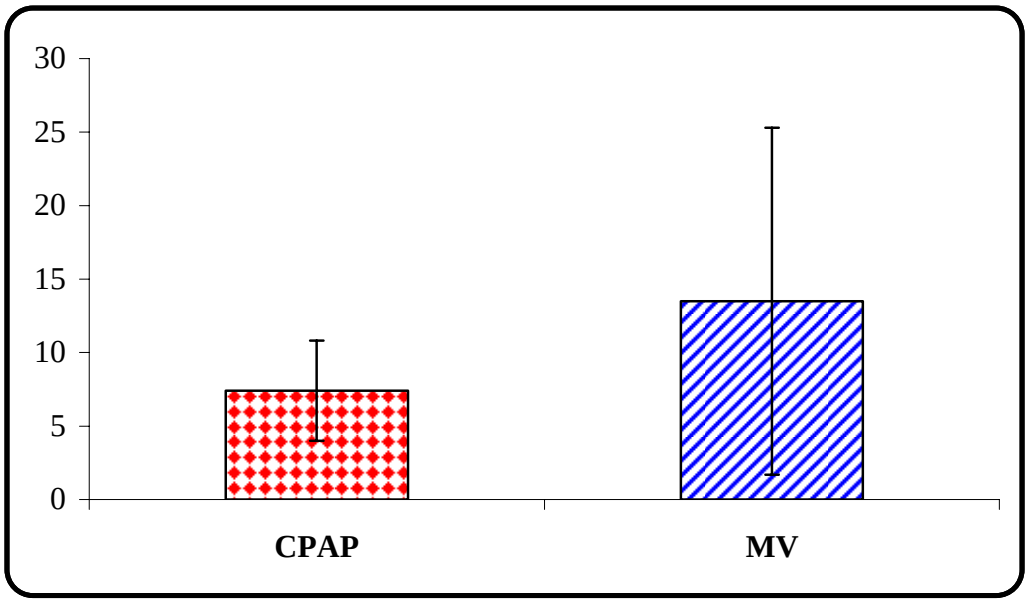


**Fig. (35)** Comparison between the duration on ventilation in both of the study groups.

**Table (41)** The correlation between the duration on the ventilation to the period of stay in NICU.

| | Correlation between Duration on Ventilation& Period of stay | |
|---|---|---|
| | **r** | **P-value** |
| **CPAP** | 0.179 | 0.343 |
| **MV** | 0.717 | 0.000* |

This table shows that in MV group there is significant positive correlation between the duration on ventilation and period of stay in NICU.

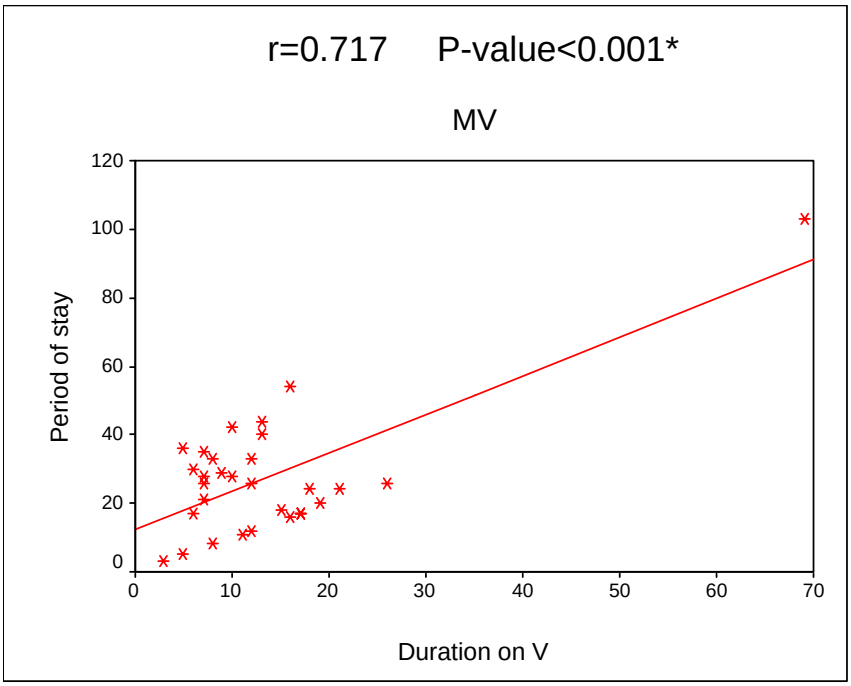


**Fig. (36)** The correlation between the duration on the ventilation to the period of stay in NICU in MV group.

**Table (42)** Comparison between the duration on the ventilation in relation to the results of blood cultures **in both groups of the study.**

| Blood cultures | | Duration on Ventilation | | | T-test | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | t | P-value |
| Negative | CPAP | 25 | 7.360 | 3.581 | -2.209 | **0.033*** |
| | MV | 19 | 13.895 | 14.259 | | |
| Positive | CPAP | 5 | 7.600 | 2.702 | -2.377 | **0.032*** |
| | MV | 11 | 12.818 | 6.080 | | |

This table shows that, the MV group needed more time on ventilation than the CPAP group. This comparison is statistically significant wither the patients have negative or positive blood cultures results.

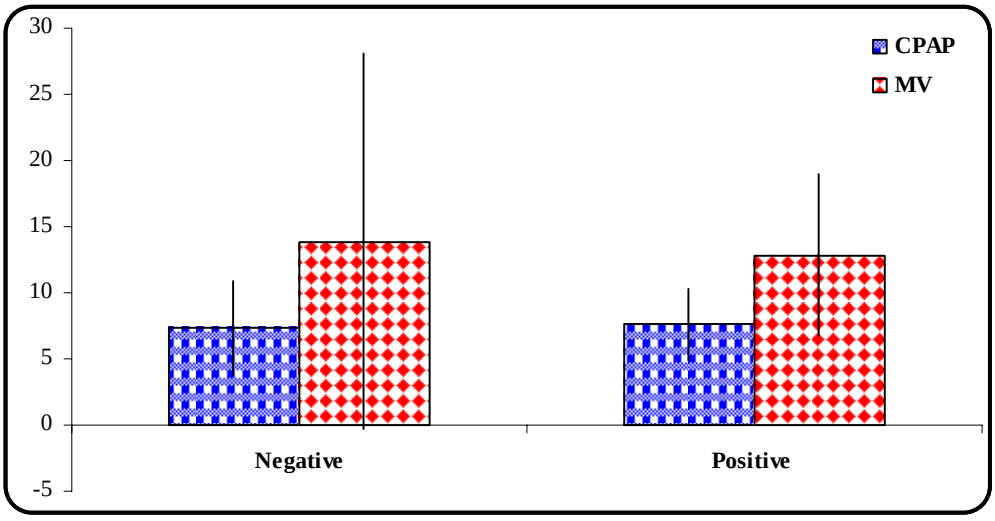


**Fig. (37)** Comparison between the duration on the ventilation in relation to the results of blood cultures results in both groups of study.

**Table (43)** Comparison between the duration on ventilation in relation to the results of Early Endotracheal cultures (in 1st day of life) results in both groups of the study**.**

| Early Endotracheal cultures in 1st day of life | | Duration on Ventilation | | | T-test | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | t | P-value |
| -ve | CPAP | 23 | 7.565 | 3.628 | -2.390 | 0.023* |
| | MV | 11 | 17.000 | 18.493 | | |
| +ve | CPAP | 7 | 6.857 | 2.734 | -2.412 | 0.024* |
| | MV | 19 | 11.474 | 4.742 | | |

This table shows that, the MV group needed more time on ventilation than the CPAP group. This comparison is statistically significant wither the patients have negative or positive cultures results.

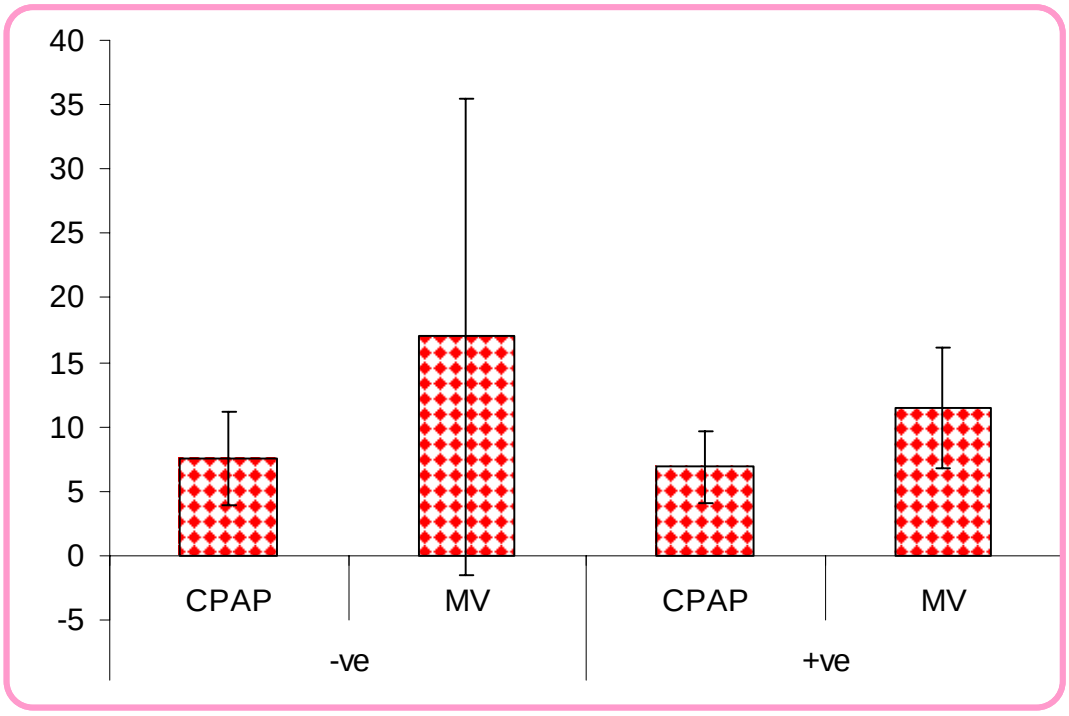


**Fig. (38)** Comparison between the duration on ventilation in relation to the results of Early Endotracheal cultures (in 1st day of life) results in both groups of the study**.**

**Table (44)** Comparison between the duration on ventilation in relation to late endotracheal cultures in the 5th day of life results in both groups of study**.**

| late Endotracheal cultures in the 5th day of life | | Duration on Ventilation | | | T-test | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | t | P-value |
| -ve | CPAP | 24 | 6.958 | 2.274 | -3.024 | 0.004* |
| | MV | 19 | 10.632 | 5.387 | | |
| +ve | CPAP | 5 | 10.200 | 6.380 | -1.004 | 0.332 |
| | MV | 11 | 18.455 | 17.575 | | |

This table shows that, the cases with negative late endotracheal cultures results in the 5th day of life have longer duration on the ventilation in the MV group than the CPAP group. This comparison is statistically highly significant.

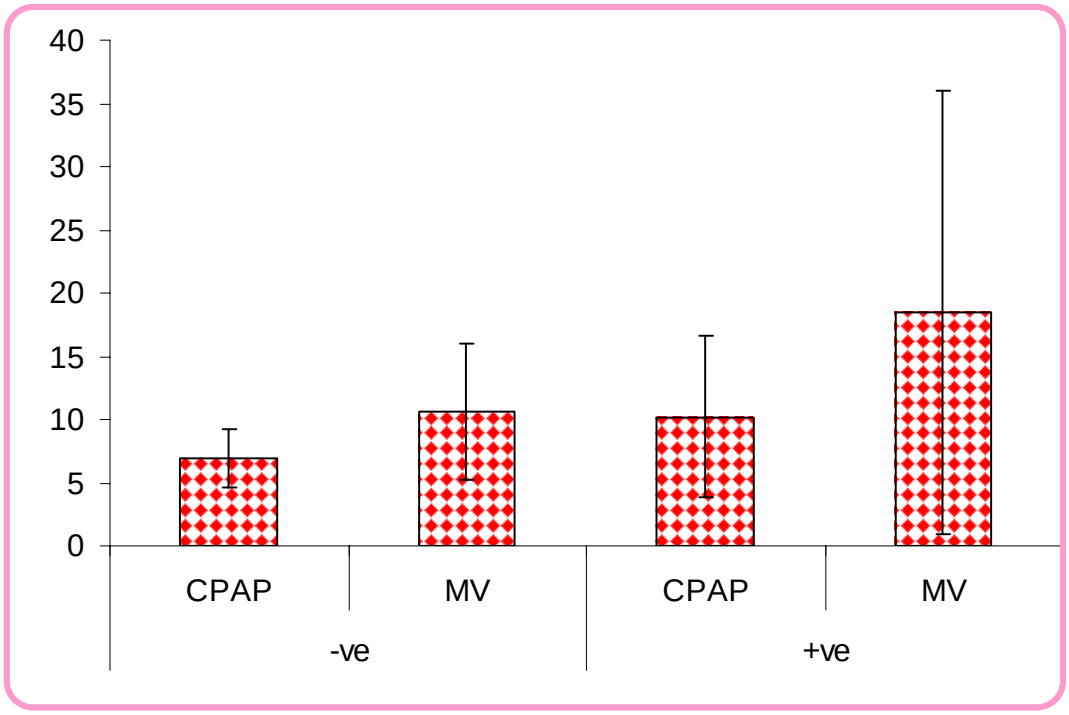


**Fig. (39)** Comparison between the duration on ventilation in relation to late endotracheal cultures in the 5th day of life results in both groups of study**.**

**Table (45)** Comparison between the duration on the ventilation in each of the study groups and the results of blood cultures.

| Blood cultures | | Duration on Ventilation | | | T-test | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | t | P-value |
| CPAP | -ve | 25 | 7.360 | 3.581 | 0.141 | 0.888 |
| | +ve | 5 | 7.600 | 2.702 | | |
| MV | -ve | 19 | 13.895 | 14.259 | -0.237 | 0.8144 |
| | +ve | 11 | 12.818 | 6.080 | | |

This table shows that, no significant statistical results in the Comparison between the duration on the ventilation in relation to the results of blood cultures in each of the study groups.

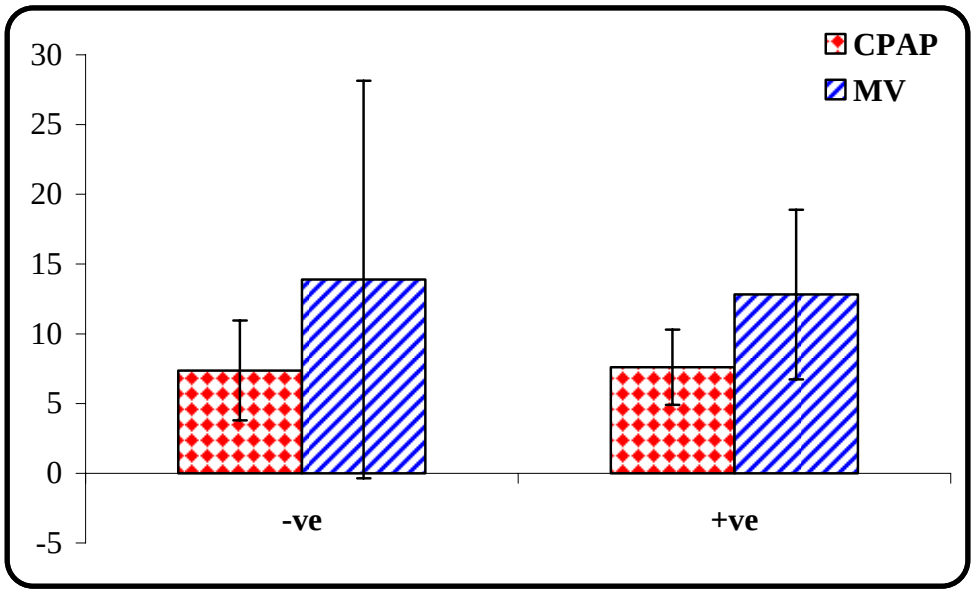


**Fig. (40)** Comparison between the duration on the ventilation in relation to the results of blood cultures results in each of the study groups.

**Table (46)** Comparison between the duration on ventilation in each of the study groups and the results of Early Endotracheal cultures (in 1st day of life) results.

| Early Endotracheal cultures in 1st day of life | | Duration on Ventilation | | | T-test | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | t | P-value |
| CPAP | -ve | 23 | 7.565 | 3.628 | -0.475 | 0.638 |
| | +ve | 7 | 6.857 | 2.734 | | |
| MV | -ve | 11 | 17.000 | 18.493 | -1.248 | 0.222 |
| | +ve | 19 | 11.474 | 4.742 | | |

This table shows that, no significant statistical results in the Comparison between the duration on the ventilation in relation to the results of Early Endotracheal cultures (in 1st day of life) in each of the study groups.

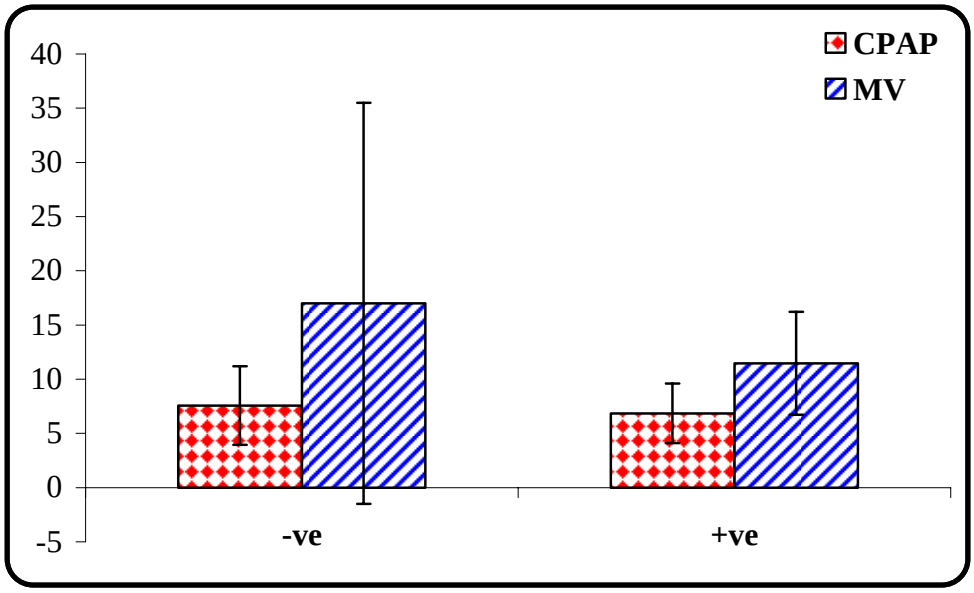


**Fig. (41)** Comparison between the duration on the ventilation in relation to the results of blood cultures results in each of the study groups.

**Table (47):** Comparison between the duration on the ventilation in each of the study groups and the results of Late Endotracheal cultures in 5th day of life results.

| late Endotracheal cultures in the 5th day of life | | Duration on V | | | T-test | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | t | P-value |
| CPAP | -ve | 24 | 6.958 | 2.274 | 2.042 | 0.05* |
| | +ve | 5 | 10.200 | 6.380 | | |
| MV | -ve | 19 | 10.632 | 5.387 | 1.818 | 0.079 |
| | +ve | 11 | 18.455 | 17.575 | | |

This table shows that, the cases with negative late endotracheal cultures results in the 5th day of life have shorter duration on the ventilation than the cases having +ve culture in the both groups. This comparison is statistically highly significant in the CPAP group only.

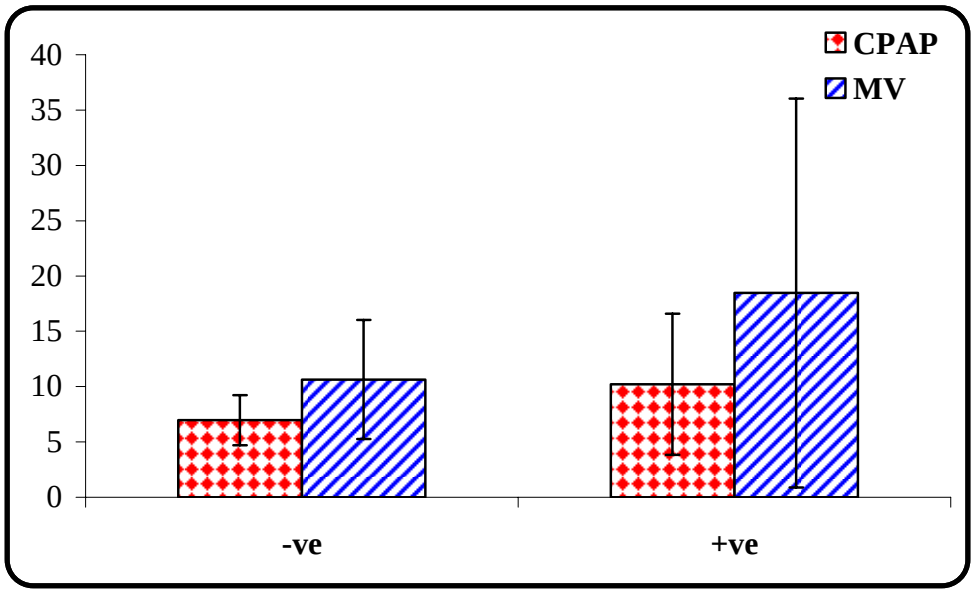


**Fig. (42)** Comparison between the duration on ventilation in relation to the results of Early Endotracheal cultures in 1st day of life results in each of the study groups.

**Table (48)** Comparison between the duration on the ventilation and the fate of patients in each group of the study.

| | FATE | Duration on Ventilation | | | Mann-Whitney | |
|---|---|---|---|---|---|---|
| | | N | Mean | SD | Z | P-value |
| **CPAP** | Discharged | 26 | 6.962 | 2.306 | -0.679 | 0.497 |
| | Died | 4 | 10.250 | 7.455 | | |
| **MV** | Discharged | 17 | 12.765 | 14.814 | -1.972 | 0.049* |
| | Died | 13 | 14.462 | 6.489 | | |

This table shows that, the patients who died in both groups of the study needed more days on the ventilation than the patients who have been discharged. This Comparison is statistically significant in MV group but not in the CPAP group.

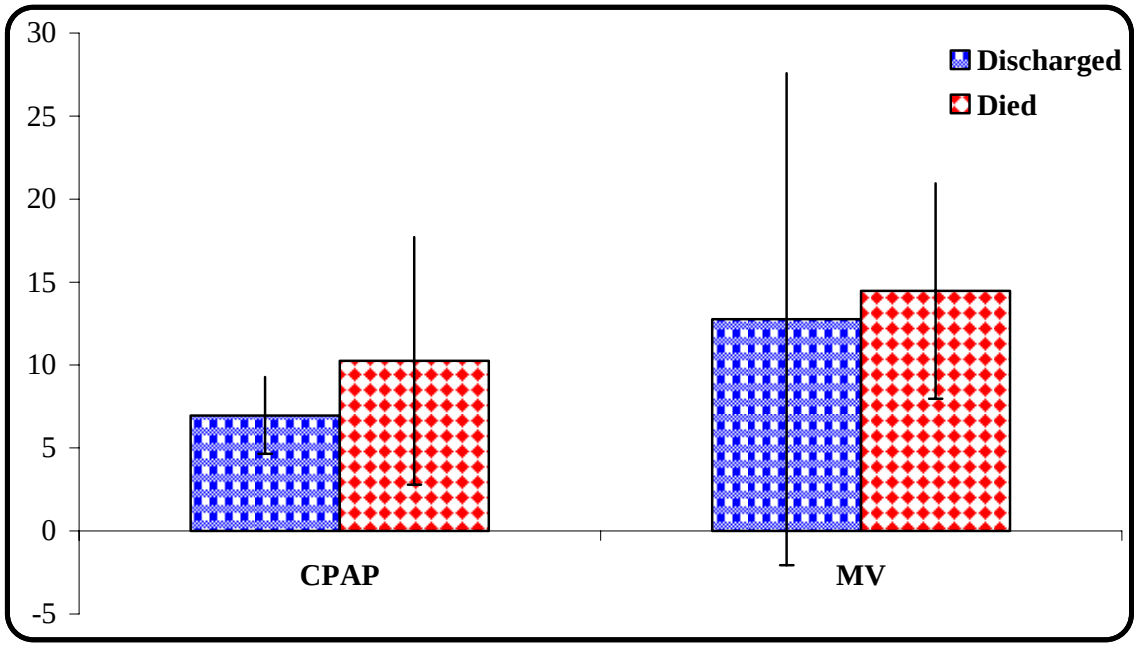


**Fig. (43)** Comparison between the duration on ventilation and the fate of patients in each group of the study.

**Table (49)** Comparison between Duration of antibiotics use &BW in kg at the time of removal of the cannula (when patients became on no antibiotic therapy) in both groups of the study.

| Drugs | | Range | | | Mean ± SD | | | T-test | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | t | P-value |
| **Duration of antibiotics use** | **CPAP** | 10 | - | 52 | 23.308 | ± | 11.644 | -1.326 | 0.198 |
| | **MV** | 14 | - | 98 | 30.471 | ± | 20.187 | | |
| **Cannula off (Body weight)** | **CPAP** | 1.000 | - | 2.400 | 1.633 | ± | 0.333 | -1.757 | 0.095 |
| | **MV** | 1.300 | - | 5.000 | 2.003 | ± | 0.826 | | |

This table shows no significant statistical differences between both groups of study as regard the age in days &BWin kg at the time of removal the cannula& patients became on no antibiotic therapy.

**Table (50)** Correlation between the duration on the ventilation to the duration of antibiotics use (Cannula off) in each group of the study.

| | CPAP / M.V | | Duration on Ventilation |
|---|---|---|---|
| **Duration of antibiotics use** | **CPAP** | **r** | 0.319 |
| | | **P-value** | 0.112 |
| | **MV** | **r** | 0.930 |
| | | **P-value** | <0.001* |

This table shows significant positive correlation between the duration on the ventilation and the duration of antibiotics use.
The longer duration on MV lead to prolonged duration of antibiotic therapy while In case of CPAP group: there are no significant correlations.

**Table (51)** Comparison between the varieties of antibiotics used during the period of stay in NICU in the two groups of study.

| varieties of antibiotics | | CPAP | | MV | | Total | |
|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % |
| **2** | | 4 | 13.33 | 1 | 3.33 | 5 | 8.33 |
| **3** | | 11 | 36.67 | 7 | 23.33 | 18 | 30.00 |
| **4** | | 6 | 20.00 | 5 | 16.67 | 11 | 18.33 |
| **5** | | 4 | 13.33 | 12 | 40.00 | 16 | 26.67 |
| **6** | | 4 | 13.33 | 3 | 10.00 | 7 | 11.67 |
| **7** | | 1 | 3.33 | 1 | 3.33 | 2 | 3.33 |
| **9** | | 0 | 0.00 | 1 | 3.33 | 1 | 1.67 |
| **Total** | | 30 | 100.00 | 30 | 100.00 | 60 | 100.00 |
| **Mann-Whitney** | **Z** | -1.900 | | | | | |
| | **P-value** | 0.05* | | | | | |

This table shows that the MV group consumed larger numbers of antibiotics varieties more than the CPAP group. This Comparison is statistically significant.

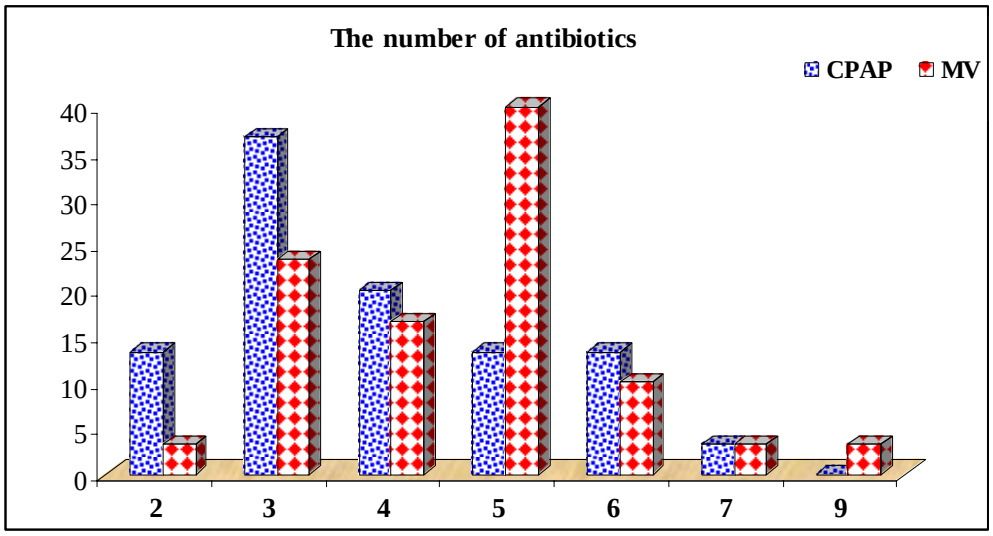


**Fig. (44)** Comparison between the number of antibiotics varieties used during the period of stay in NICU in the two groups of study.

**Table (52)** The correlation between the varieties of antibiotics used and the periods of NICU stay & the correlation between the number of antibiotics used and the duration on the ventilation in both groups of the study.

| | varieties of antibiotics | |
|---|---|---|
| | **R** | **P-value** |
| **Period of stay** | 0.512 | <0.001* |
| **Duration on Ventilation** | 0.637 | <0.001* |

This table shows significant positive correlation between the number of antibiotics varieties used and the duration on the ventilation. Also there is significant positive correlation between the number of antibiotics varieties used and the periods of stay in NICU.Both correlation are statistically significant.