SUMMARY

CPAP is a low-cost, simple and noninvasive option for places which lack facilities of mechanical ventilation. So where resources are limited, such as in developing countries, CPAP for RDS may have a beneficial role

Another advantage of CPAP system is the flexibility/mobility which permits all nursing procedures easily, nursing in prone position or kangaroo method, breast feeding or even bathing. The overall failure rate is among the lowest reported with any CPAP system

There are significant increases of the incidence of CLD and pneumothorax in MV group more than in CPAP group regarding the complications during the period of stay in NICU. There were **6/30** cases had CLD and 7/30 cases having pneumothorax in the MV group compared to zero cases with pneumothorax or CLD in CPAP group.

There is high incidence of nasal iatrogenic complications and the comparison between both groups is statistically significant. As all the cases in MV group had nasal scar/ ulcers compared to 25 /30 cases in CPAP group. Prolonged use of CPAP has been reported to cause nasal excoriation, trauma and damage to the septal mucosa, but less than that in MV group.

The incidence of positive results in blood cultures, early endotracheal cultures and late endotracheal cultures is higher in the MV group than in the CPAP group. Blood cultures results in CPAP group were negative in **25** cases, Blood cultures were positive in **5** cases that showed no or a different microorganism in early ET cultures, suggesting another site for entry of microorganism to blood stream.

There is high incidence of Klebsiella infections in positive cultures in both groups of the study .In CPAP group, there are 2 / **5** cases having positive blood cultures with a percentage of (40%).Also there were **5** / **7** having positive early endotracheal cultures in 1st day of life with a percentage (71.43%) and 3 / 6 cases having positive late Endotracheal in the 5th day of life in percentage (50 %),Compared to MV group, there were 5 / 11 cases having positive blood cultures in percentage (45.45%).Also there were 13 / 19 having positive early endotracheal cultures in 1st day of life in percentage (68.42%) and 7 /11cases having

positive late endotracheal in the 5th day of life with a percentage (63.64 %).

The numbers of infected cases decreased between early endotracheal cultures results (in the 1st day of life) and late endotracheal cultures results (in the 5th day of life) in both groups of the study. Sequential evaluation of tracheal aspirates may be useful to track changes in bacterial flora at neonatal intensive care units. To evaluate, sequentially, tracheal aspirates from patients admitted to a neonatal intensive care unit and to associate these pathogens with length of hospital stay, previous use of antimicrobial therapy and diagnoses of ventilator-associated pneumonia.

Death among MV group is higher than CPAP group cases. The patients who died in both groups of the study were having positive cultures results either blood or endotracheal .But in each of the study group, we found significant statistical differences between the results of late endotracheal cultures (in the 5th day of life) in relation to their fate in MV group. There were 3/17 cases (10%) having positive late endotracheal cultures, were discharged and 8/13 cases (26.67%) died .But in CPAP group, 4/26 cases (13.33%) having positive late endotracheal cultures were discharged and one /3case (3.33%) died.

Immaturity is associated with problems in enteral nutrition of low birth weight (LBW) infants. The associations between need of invasive mechanical pulmonary ventilation (IMPV) and early age, reduced breast feeding and cyanosis demonstrate diminished physiological reserves in the young infant with lower respiratory infection. These patients require prolonged and intensive hospital support and readmission. There are no statistically significant differences between the two groups regarding the age at the start of trophic Ryle feeding in days, their weight in kg at the start, also their age on start of oral feeding in days and their BW in kg at the start of feeding orally.

The patients on mechanical ventilation needed longer duration of ventilation than the patients on CPAP. The duration of admission in both of the study groups did not show statistically significant differences. There was significant positive correlation between the duration on ventilation and period of stay in NICU only in MV group. The longer the duration on mechanical ventilation, the longer the period of stay in NICU.

In patients having negative cultures results (whether the cultures were taken from the blood, early endotracheal or late endotracheal), the MV patients needed longer duration on ventilation than patients on CPAP. Also, within cases having positive cultures results, MV patients needed longer duration on ventilation than patients on CPAP. These comparisons were statistically significant whether the cultures were taken from the blood, or early endotracheal but not with late endotracheal. The patients who died in both groups of the study needed more days with ventilation than the patients who had been discharged.

Cases put on MV needed longer duration of antibiotics and consumed larger varieties (brands) of antibiotics than cases put on CPAP. Within each group (CPAP or MV), the more the baby needed the ventilation modality, the more the duration the baby needed on antibiotics. This correlation was statistically highly significant in the MV group but not in the CPAP group. The more the baby needs ventilation (CPAP or MV), the more the varieties of antibiotics consumed and this correlation was statistically highly significant. (P value= 0.001). Also, the more the patient stayed in the NICU, the more the varieties of antibiotics used (P value= 0.001).

Nosocomial infections are the most common complications encountered in the neonatal intensive care unit (NICU). They are associated with high mortality and prolonged duration of hospitalization in the survivors, contributing to an increased cost of health care.