SUMMARY

Health care facilities, particularly acute care facilities, are important sites for the development of nosocomial infection. Nosocomial infections are transmitted due to the fact that hospitals house large numbers of people who are sick and whose immune systems are often in a weakened state. Increased use of outpatient treatment means that people who are hospitalized are more ill and have more weakened immune systems than may have been true in the past. Moreover, some medical procedures bypass the body's natural protective barriers. Since medical staff moves from patient to patient, the staff themselves serves as a means for spreading pathogen. It has been estimated that nosocomial infections make patients stay in the hospital about 4-5 additional days.

Neonatal septicemia remains a major clinical problem in neonatology with high morbidity and mortality rates despite the progress in neonatal intensive care and antibiotics. Due to this high mortality and morbidity in this vulnerable population, it was necessary to make efforts to prevent this highly deleterious infection.

Infection control is a relatively new discipline, which is concerned with the prevention of nosocomial infections in order to protect both the patients and the HCWs.

The aim of this work is to identify the impact of applying infection control program on nosocomial neonatal BSI in the NICU.

It is conducted on neonates admitted to neonatal intensive care units in Benha university hospital, Benha general hospital and Benha pediatric hospital during the period from November 2008 to May 2009.

To achieve our objectives, it was at first necessary to identify the present state of the study NICU, regarding the current rate of NIs, the pathogens, and the possible risk factors associated with NIs.

This study is conducted in two periods (before application of

infection control program period) -the "*initial surveillance stage*". This period had covered 150 newly admitted neonates over two months period.

Infection control application stage: During this stage, polices of infection control was defined and distributed and Health education program was conducted.

To measure the outcome of the intervention, a second surveillance period was needed.

The after application of infection control program period ***(the terminal surveillance stage)*** consists of a second period of surveillance. and had covered 150 newly admitted neonates over 2 months period.

During the two surveillance periods (before and after application of infection control program periods) each newly admitted neonate was subjected to the following:

Data collection on a special form which includes personal data, obstetric data, possible risk factors, treatment & interventions, C reactive protein analysis, Blood culture of isolated bacteria.

The results of this study showed that:

The nosocomial infection rate was 33.3% during the first surveillance stage. After applying the infection control program the rate had dropped to 10%.

The mortality rate had dropped from 26.7% to 6.7% after applying the infection control program ($P < 0.05$).

The mean stay period had dropped from 7.9 to 7.1 days, but this drop was statistically insignificant ($P > 0.05$).

Klebsiella pneumoniae was the commonest organism isolated in stage I (63.6%). Followed by CoNS and *Candida albicans* (each 18.2%).

Hospital stay-period, artificial respiration, peripheral and central venous catheter insertion and blood or plasma transfusion are main risk factors of nosocomial infections which has significant direct correlation to them also low birth weight and prematurity are significant risk factors for nosocomial infections which has significant inverse correlation to low birth weight and prematurity.

CONCLUSION

- Infection control program was highly effective in controlling nosocomial neonatal septicemia.
- Infection control program had reduced mortality rate in the study units.
- Infection control programs are simple, inexpensive, but effective.
- Hospital stay-period, artificial respiration, peripheral and central venous catheter insertion, low birth weight and prematurity and blood or plasma transfusion are main risk factors of nosocomial infections.