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A TOW YEAR REVIEW ON THE BACTERIOLOGICAL PROFILE OF NEONATAL SEPSIS AT PRINCE RASHID BIN AL-HASSAN MILITARY HOSPITAL

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ABSTRACT

Aim: To identify the bacteriological profile of neonatal sepsis in the neonatal intensive care unit at Prince Rashid Bin AL-Hassan Military Hospital. **Material and Methods:** All patients who were admitted to our unit from 1/1/2016 all through 31/12/2017 were included in our study. A blood culture specimen was taken for each of them to identify the bacterial isolates. **Results:** The total number of sample during the two year span of the study was 2120 newborns, 52.7% male and 47.3% female infants. The preterm neonates were 44.7% (n=948). The distribution according to the low birth weight was as follows LBW, VLBW and ELBW (31.2%, 7.2% and 2.6% respectively) (p=<0.001).The positive blood culture result was 12.5 %(n=266) of the total number of sample. We found that in the early onset sepsis cases the most common organisms were gram negative (62%) and also in the late onset sepsis cases (60.34%).The most frequent isolates were *Escherichia coli* (35.55%), *Staphylococcus aureus* (29.2%), *Klebsiella* pneumonia (15.7%), *Coagulas Negative Staphylococcus epidermidis (CoNS)* (6.05%) **Conclusion:** In conclusion, we achieved a worldwide advanced rank in terms of infection control, although we still need to work on gram negative sepsis prevention in both early and late onset sepsis.

KEYWORDS: Neonatal sepsis, Gram negative, early onset, late onset, Escherichia coli, Staphylococcus aureus, Klebsiella pneumonia, Coagulas Negative Staphylococcus epidermidis (CoNS).

INTRODUCTION

Neonatal sepsis is a major cause for neonatal morbidity and mortality. Our unit at Prince Rashid Bin Al-Hassan hospital is one of the largest units among Jordan. The pathogens that may play a role in both early (<72 hours of life) and late (>72 hours of life) are highly variable. In the developing countries gram negative bacteria are more prevalent as a cause of neonatal sepsis.[1] So, it was so imperative to stand on the bacteriological profile at our unit so that we can both prevent and treat the claimed pathogens.

MATERIAL AND METHODS

A prospective study was conducted at the NICU in the Prince Rashid Bin Al-Hassan hospital in the north of Jordan. All patients who were admitted to the NICU with the suspicion of neonatal sepsis in the period from 1/1/2016 to the end of 31/12/2017 were included in our study. Every patient has to be >26 weeks gestational age and <28 days of life. A blood sample was extracted from each of them and sent for culture and sensitivity. The bacterial isolates followed up and analyzed using the SPSS version 21.

RESULTS

The total number of sample during the two year span of the study was 2120 newborns, 52.7% male and 47.3% female infants. The preterm neonates were 44.7% (n=948). The distribution according to the low birth weight was as follows LBW, VLBW and ELBW (31.2%, 7.2% and 2.6% respectively) (p=<0.001). A male predominance over female pattern is noticed in our analysis, (64%, and 35.7% respectively).

The positive blood culture result was 12.5 %(n=266) of the total number of sample. We found that in the early onset sepsis cases the most common organisms were gram negative (62%) and also in the late onset sepsis cases (60.34%).

The most frequent isolates were *Escherichia coli* (35.55%), *Staphylococcus aureus* (29.2%), *Klebsiella* pneumonia (15.7%), *Coagulas Negative Staphylococcus epidermidis (CoNS)* (6.05%). The frequency of causative organisms between early and late onset sepsis is shown in the following table:

The distribution of organisms in early and late onset sepsis in the study

No.	Organism	Early onset (n= 150)	Late onset (n= 116)
1.	Escherichia coli	55 (36.66%)	40 (34.48%)
2.	Staphylococcus aureus	43 (28.66%)	35 (30.17%)
3.	Klebsiella pneumoniae	31 (20.66%)	11 (09.48%)
4.	Pseudomonas	5 (03.33%)	3 (02.58%)
5.	Staphylococcus epidermidis (CoNS)	0 (0.0)	16 (13.79%)
6.	Streptococcus sp	2 (1.33 %)	3 (02.58%)
7.	Acinetobacter	8 (5.33%)	3 (02.58%)
8.	Enterobacter	6 (4.0%)	2 (01.72%)
9.	MRSA	0(0.0%)	3(2.58%)

DISCUSSION

Its very well known that the culture positivity in NICU's is highly variable worldwide, which varies from 6.7%-55.4 %.[2, 3] In our study we showed that our NICU has a low rate compared to the global rates (12.5%), which is remarkably rewarding.

Our sample showed that the male neonates are more likely to get sepsis than the female neonates in consistency with the other studies that we reviewed.[3,4]

Gram negative organisms (namely E.coli) are the most frequent isolates in our NICU are the same as those of other NICU's in developing countries in comparison to the developed countries, were the gram positive isolates are more predominant (Group B streptococcus).[2, 4- 8]

CONCLUSION

In conclusion, we achieved a worldwide advanced rank in terms of infection control, although we still need to work on gram negative sepsis prevention in both early and late onset sepsis.

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