

Prescription Pattern of Antibiotics in NICU in Government General Hospital, Kakinada

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Abstract: ***Objective:** To evaluate the prescription pattern of antibiotics in NICU to promote rational prescription to reduce the emergence of resistant strains. **Methods:** This is a Retrospective Observational study conducted over the period of 3 months from January, 2018 to March, 2018. Clinical and therapeutic data was collected, analysed and evaluated from case sheets of NICU. Data from antibiotic prescription (name, dose, frequency, route of administration, duration) was collected. **Results:** A total of 300 prescriptions were studied. Ampicillin and amikacin (40.6%) were the commonest antibiotics used followed by cefotaxime (18.33%) and sulfacef (6.66 %). The maximum antibiotics were in generic form. 9.99% were prescribed in the form of fixed dose combination. Average antibiotic prescribed per patient is 1.15. **Conclusion:** Ampicillin and Amikacin were most commonly used. In some cases, increased frequency of antibiotics use was seen. Guidelines for the use of antibiotics in neonates are required.*

Keywords: prescription pattern, antibiotics usage, NICU

1. Introduction

Antibiotics are the most commonly prescribed drugs in Neonatal intensive care unit (NICU). Neonates particularly preterm are most vulnerable population group to contact infections.¹ Neonatal septicaemia is the commonest cause of mortality & morbidity throughout the world. It is estimated that 20% of all neonates develop sepsis & is responsible for 30-50% of neonatal sepsis.²

Neonatal sepsis refers to the infection occurring within the first 28 days of life. Sepsis is broadly classified into early & late-onset sepsis. Early onset sepsis is present at birth or present within the first 48 hours of life. Late onset sepsis is present after 48-72 hours of life.³

The most common cases seen in NICU are Sepsis, Prematurity, Neonatal jaundice, Perinatal asphyxia and Congenital malformations.⁴ The most common antibiotics prescribed in neonates worldwide are Aminoglycosides, Cephalosporins, Penicillin & Carbapenems.

Antibiotics resistance is one the biggest threats to global health. It occurs naturally but misuse of antibiotics is accelerating the process. Growing no. of infections are becoming harder to treat as the antibiotics used to treat them are becoming less effective.⁵

Failure to perform culture & sensitivity before initiating antibiotics or prescribe antibiotics of which organisms are not sensitive due to insufficient knowledge are reasons for antibiotic resistance.⁶ Lack of uniformity in antibiotics prescribing, emergence of antibiotics resistance are issues of monitoring & control of antibiotics use. Adherence to guidelines (such as WHO antibiotics dosing for children, 2017) will help physicians to prescribe antibiotics rationally, and also to prevent drug resistance, adverse drug reactions & drug – drug interactions.¹

The present study aims to evaluate the prescription pattern of antibiotics in NICU in order to promote rational prescription to reduce emergence of resistant strains. Few

studies were conducted regarding antibiotics usage in NICU. So, the rationale for conducting this study is to have clear idea of antibiotics usage in our hospital.

2. Materials & Methods

A Retrospective, Observational study was conducted in NICU at Government General Hospital, Kakinada, Andhra Pradesh for a period of 3 months (1st Jan -31st March, 2018). Institutional Ethical Committee approval was obtained.

Inclusion Criteria: Neonates admitted in NICU during study period were included.

Exclusion Criteria: Neonates who were transferred to other hospitals or diagnosed with surgical problem were excluded.

Data from records about antibiotics (name, dose, frequency, route of administration, duration) was collected, analysed & evaluated for 300 cases. Data was entered in excel sheet & was interpreted in percentage.

3. Results

Male preponderance (57%) was seen among the 300 prescriptions that were included in my study.

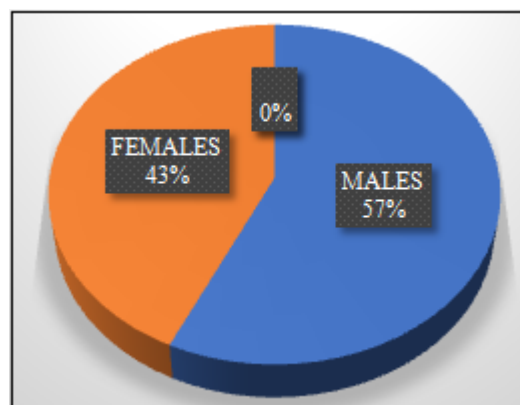


Figure 1: Sex Distribution in Study

The different cases admitted in NICU were Neonatal jaundice (37%), Respiratory distress syndrome (26.66%),

Prematurity (12%), Early-onset sepsis (8%), Late-onset sepsis (2.66%).

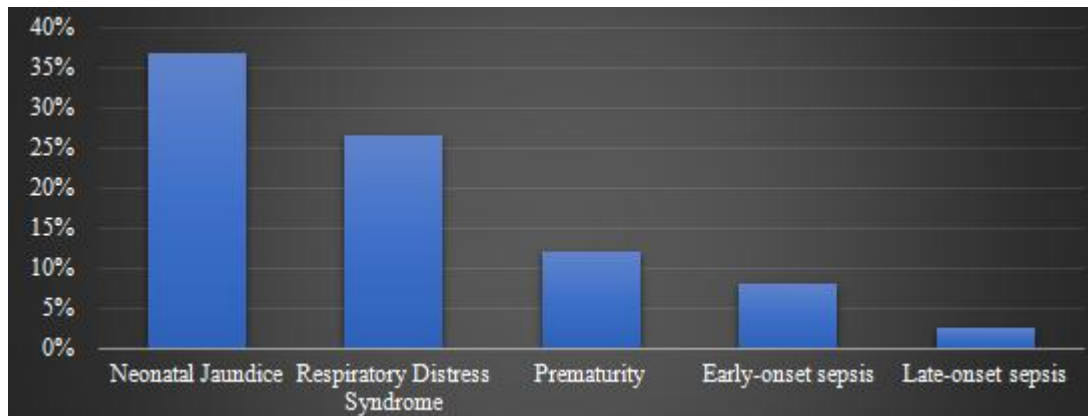


Figure 2: Different Cases Admitted in NICU

Out of 300 cases, 189 cases were prescribed antibiotics. Ampicillin & Amikacin (40.6%) were commonest antibiotics prescribed followed by Cefotaxime (18.33%), Sulfacet (6.66%), Piptaz (3.33%), Gentamicin (1%),

Metrogyl (1%), Meropenam (0.66%), Flucanazole (0.66%), Ciprofloxacin (0.33%), Acyclovir (0.33%).

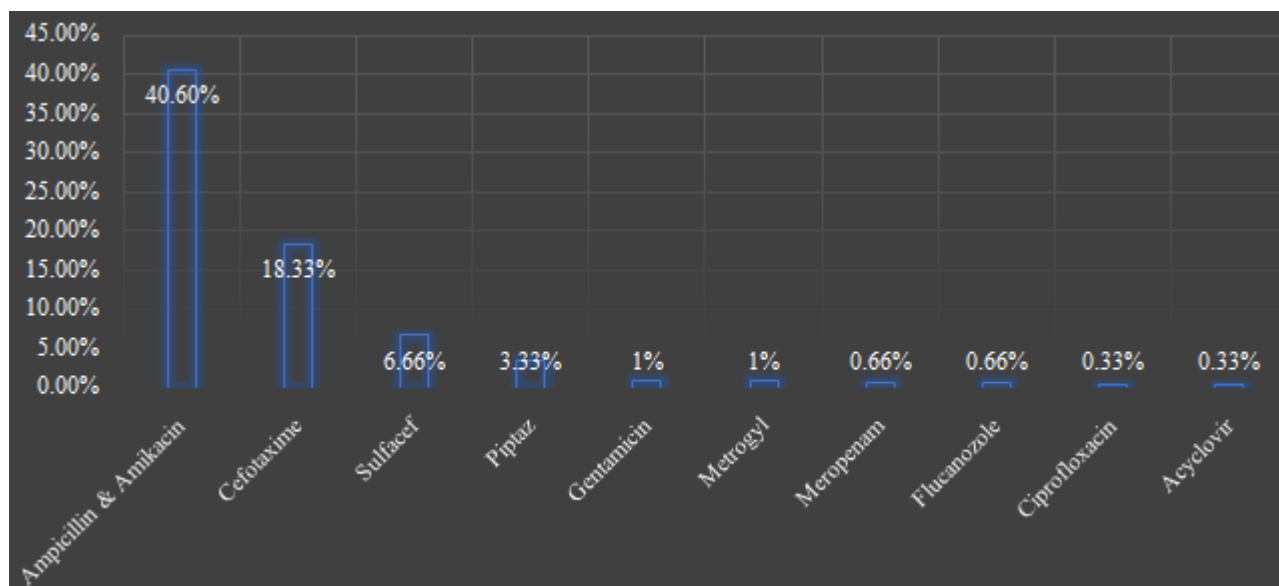


Figure 3: Antibiotics Prescribed in Order of Frequency

Average no. of antibiotics used per patient is 1.15. Majority of neonates 63.6% received between 1-2 antibiotics, 33.3% received 3-5 antibiotics & 3.1 received > 5 antibiotics.

Table 1: No. of Antibiotics Prescribed

No. of Antibiotics used	% Received
1-2	63.6%
3-5	33.3%
>5	3.1%

The maximum antibiotics used were in generic form. 9.99% were prescribed in the form of fixed dose combination.

4. Discussion

In the present study, that was conducted in 300 neonates for 3 months duration, Amikacin & Ampicillin were most commonly used in NICU followed by Cefotaxime, Sulfacet.

Maximum no. of antibiotics were in generic form. 9.99% were prescribed in fixed dose combination.

In Sonali et al study which was conducted during April-Sep 2014 (6 months), Amikacin, Cefotaxime & Levofloxacin was commonly prescribed.¹

In Sharanappa et al study which was conducted in Bellary, Southern India during January -June 2013 (6 months) data from 100 case records were studied. Among 100 neonates, 57% were females & 43% were males. Most common antibiotics used were Ceftriaxone followed by Amikacin.²

In Shrestha et al study which was conducted on 48 neonates admitted during Jan-March 2011 (3 months) at Kathmandu. Commonly used antibiotics were Amikacin, Imipenem & Ciprofloxacin.³

In Kouti et al study conducted in Iran during January-March, 2016 (3 months) studied 193 neonates prescription. Gentamicin as most common prescribed antibiotics.⁴

In Shinde et al study which was conducted in Western Maharashtra, 237 neonates prescription were studied during October, 2011-March, 2012. Amikacin was commonly prescribed followed by Cefotaxime & Ampicillin. 68.75% antibiotics were in generic form & 12.5% were prescribed in fixed dose combination.⁶

In Chatterjee et al study which was conducted in Eastern India during March-August, 2005 (6 months), 176 neonates

prescription were studied. Among prescribed drugs, 30.2% were antibiotics. Amikacin was commonly used followed by Cefotaxime, Cefoperazone & salbactam and Gentamicin. 79.7% antibiotics were prescribed in generic form.⁷

In Shailesh et al study which was conducted during July 2014- March 2015 in Mumbai, 460 neonates prescription were studied. Commonly prescribed drug was antibiotics (69.6%) followed by NSAIDs. Among antibiotics, Amikacin was mostly prescribed followed by Meropenam.⁸

Table 2: Comparison with Other Studies

Study	Present study	Sonali et al study	Shinde et al study	Shailesh et al study	Chatterjee et al study	Shrestha et al study	Kouti et al study
Sample size	300	528	237	460	176	48	193
Duration (in months)	3	6	6	9	6	3	3
Results (Most Common antibiotics prescribed)	Ampicillin & Amikacin	Amikacin, Cefotaxime, Levofloxacin	Amikacin	Amikacin, Meropenam	Amikacin, Cefotaxime	Amikacin, Imipenem, Ciprofloxacin	Gentamicin

5. Limitation

Limitation of my study was that the data obtained is only specific to the site of study. Study population should be more & multicentric for better understanding.

6. Conclusion

In present study, Ampicillin & Amikacin were commonly used in NICU of Government General Hospital. Empirically & Prophylactic use of antibiotics for prolonged period of time should be discouraged. Use of antibiotics should be guided by culture sensitivity testing. Antibiotics usage policy should be framed in NICU & periodically reviewed for their rationale use. Implementing Antibiotic Stewardship program in our hospital will be helpful to influence proper use of antibiotics.

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8. Declaration

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Conflict of Interest: Nil

Ethical Approval: Institutional Ethics committee approval at Government General Hospital has been taken to conduct this study.

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