



COMPARISON OF PRESCRIPTION PATTERN OF ANTIBIOTICS BETWEEN PRIVATE AND GOVERNMENT HOSPITALS OF ANDHRA PRADESH

K Hema Vasundhara^{1*}, N. Lahari¹, B. Priyanka¹, P.T. Priyanka²

¹Pharm. D. Student, ²Assistant Professor, Raghavendra Institute Of Pharmaceutical Education And Research, Krishnamreddy Palli Cross, Chiyyedu Post, Ananthapur, 515721, Andhra Pradesh, India.

ABSTRACT

Introduction: Infection is defined as an invasion and multiplication of microbes such as bacteria, viruses, and parasites that are not normally present within the body. As resistance is seen with second line and third line agents, physicians are prescribing drugs which are toxic, less effective and more expensive, and which results in more burden on patients. **Aim & Objectives:** To assess prescribing pattern of medications in infectious diseases. To assess the pattern of antibiotic use in the paediatric and medical ward in three hospitals. To assess antibiotic prescribing practice of prescribers in terms of age and sex difference, percentage of generics prescription, percentage of injectables prescription. **Methodology:** These three hospitals are found at different distances ranging from 45-70 km from our place. Data collection taken from paediatric ward and medical ward in charity hospital, private and public hospital. A prospective analysis of 635 prescriptions were collected from three different hospitals, where 335 prescriptions from charity hospital, 237 prescriptions from private hospital and 63 prescriptions from public hospital. **Results & Discussion:** A study conducted in 4 different countries, the average no. of drugs prescribed per encounter are, Nigeria (3.9), Rohtak [India] (2.74), Coimbatore [India] (100), Ethiopia(5) and in our study average no.of drugs per encounter are charity (4.08), private (1.86) and public (3.2). Whereas the percentage of generic drugs prescribed in Kathmandu is 41 % and in Jimma 82% [Palikhe, N, 2014] and in our study percentage of generic drugs prescribed in charity(94.1 %), private (0), public(100 %). Percentage of antibiotics prescribed in Nigeria [75%], Rohtak [85%], Coimbatore [100%], Ethiopia [82%] and in our study percentage of antibiotics prescribed in Charity(39.1%), private(54.8%), public(85%). **Conclusion:** Multicentric prospective studies with a large size in various prescribing setup will give us better insight regarding prescription writing practices. Our results serve as baseline data for further nationwide studies on the prescribing practices with the hope of applying effective interventions to reverse inappropriate use of drugs.

Key Words:-Antibiotics, Prescription Pattern, Infectious Diseases, Andhra Pradesh, Private Hospitals, Retrospective Study.

Access this article online

Home page:
[http://ijptjournal.com/](http://ijptjournal.com)

DOI:
<http://dx.doi.org/10.21276/ijpt.2019.10.4.4>

Quick Response
code



Received:25.05.19

Revised:12.06.19

Accepted:19.06.19

Corresponding Author

K Hema Vasundhara

Pharm D. Student, Raghavendra Institute Of Pharmaceutical Education And Research, Krishnamreddy Palli Cross, Chiyyedu Post, Ananthapur, 515721, Andhra Pradesh.

Email:- hema00028@gmail.com

INTRODUCTION

Infection is defined as an invasion and multiplication of microbes such as bacteria, viruses, and parasites that are not normally present within the body. As resistance is seen with second line and third line agents, physicians are prescribing drugs which are toxic, less effective and more expensive, and which results in more burden on patients (Jimma Likisa Lenjisa *et al.*, 2014). To tackle with this problem, it requires the continuous education of physicians, nurses and pharmacists, which is supported by high quality evidence linking antimicrobial use to the emergence of resistance (Kumari Indira KS *et al.*, 2008). Outlook of doctors has been changed due to power of antimicrobial agents on diseases. Their importance has been increased in developing countries, where infective diseases are common. But inappropriate and indiscriminate use of antimicrobials has led to the emergence of antimicrobial resistant strains, treatment failure and increase in morbidity and mortality. It is the responsibility of the doctors to develop good prescribing habits which will help in reducing the intensity of the problem.

AIM: To assess prescribing pattern of medications in infectious diseases.

OBJECTIVES:

- To assess the pattern of Antibiotic use in the Paediatric and medical ward in three hospitals.
- To assess antibiotic prescribing practice of prescribers in terms of age and sex difference, percentage of generics prescription, percentage of injectables prescription.

Study site: Rural Development Hospital (RDT) – Bathalapalli

- Spandana Hospital - Dharmavaram
- Government Hospital - Dharmavaram

Study Design: It is a multicentric cross sectional study designed to know the prescribing pattern in infectious diseases.

Study duration: The study was carried over a period of 6 months from August 2017 to January 2018.

Sample size: A total of 635 cases were collected at 3 hospitals in inpatient departments. 335 cases from RDT, 63 cases from Government hospital, 237 cases from Spandana hospital.

A. Inclusion criteria:

- 1) In-patients for whom antibiotics were prescribed at least once (prescription containing one or more antibiotics).

- 2) Patients of both genders.
- 3) Inpatients of medicine and pediatrics departments.
- 4) Patients showing willingness to participate in the study

B. Exclusion criteria:

- 1) Individuals showing unwillingness towards participation in the study.
- 2) Prescriptions with no antibiotics.
- 3) Patients who are suffering with HIV and Tuberculosis.
- 4) Outpatients were also excluded as it is not convenient to make a regular follow up.

Study methodology:

- ❖ These three hospitals are found at different distances ranging from 45-70 km from our place.
- ❖ Data collection taken from paediatric ward and medical ward in charity hospital, private and public hospital.
- ❖ A prospective analysis of 635 prescriptions were collected from three different hospitals, where 335 prescriptions from charity hospital, 237 prescriptions from private hospital and 63 prescriptions from public hospital.
- ❖ We collected demographic details of patient which includes age and gender.
- ❖ We collected culture reports from case sheets and reports not in case sheets we collected from microbiology department with the permission of HOD of microbiology department.

RESULTS:

Table 1: Shows age distribution of three different hospitals, where high no. of population of all age groups is found at Charity hospital.

Table-2: Shows no. of gender distribution of three different hospitals, where more no. of male population is found in charity hospital and female population is found more in Private and public hospital.

Table-3: Shows ward distribution, where medical cases are more in Private hospital and paediatric cases are more in Charity hospital.

Table 4 Shows no. of treatment types followed in three different hospitals

Table-5. Shows different types of formulations used in three different hospitals, where parenteral formulation is more in Charity and Public hospital and oral formulation is more in Private hospital.

Table-6: Shows different types of combinations of drugs, where Amoxicillin/ clavulonic acid is more prescribed combination in charity and public hospital and Cefoperazone / sulbactam is more prescribed drug in private hospital.

Table 7: Shows prescribing pattern of three different hospitals, where average no. of drugs in private hospital and generic prescribing in public hospital only qualifies WHO standards.

Table 8: Shows prescribing pattern of antibiotics in three different hospitals, where generic prescribing of antibiotics in public hospital only qualifies the antibiotic prescribing indicators.

Table 1. Age distribution

S.no.	Age (years)	No. of patients		
		Charity hospital	Private hospital	Public hospital
1.	1-9	133	50	36
2.	10-19	81	19	12
3.	20-29	56	12	9
4.	>30	42	35	6

Table 2. Gender Distribution

S. no.	Gender	No. of patients		
		Charity hospital	Private hospital	Public hospital
1.	Male	183	90	30
2.	Female	152	147	33
3.	Total	335	237	63

Table 3. Ward distribution of three hospitals

S. no.	Ward	No. of patients		
		Charity	Private	Public
1.	Medical	115	148	20
2.	Paediatric	220	89	43

Table 4. No. of treatment types in different hospitals

S. no.	Treatment type	No. of patients		
		Charity hospital	Private hospital	Public hospital
1.	Definite treatment	235	98	0
2.	Empirical Treatment	100	139	63

Table 5. Antibiotics Formulations

Formulations	Charity	Private	Public
Parenteral	347	63	122
Oral	113	132	50

Table 6. Combinations of drugs of three hospitals

S.no.	Combinations	No. of patients		
		Charity	Private	Public
1.	Sulfamethoxazole/trimethoprim	6	3	6
2.	Artemether/lumefantrine	10	-	5
3.	Amoxicillin/ clavulonic acid	39	-	32
4.	Piperacillin/tazobactam	12	11	12
5.	Cefoperazone/sulbactam	-	46	-
6.	Cefipime/tazobactam	-	2	-
7.	Ceftriaxone/tazobactam	-	4	-

Table 7. Prescribing pattern in three different hospitals as per WHO guidelines

S.No	Prescribing indicator	Charity hospital	Private hospital	Public hospital	Standard
1.	Average number of drugs per encounter	4.08	1.8	3.2	1.6 – 1.8
2.	% drugs prescribed by generic name	94.1	0	100	100 %
3.	% encounters with an antibiotic prescribed	39.1	54.8	85	20 – 26.8 %
4.	% encounters with injections prescribed	35.9	43.7	60.3	13.4 - 24.1%
5.	% prescribed from essential drug list	98.3	90.2	41.08	100 %

Table 8. Frequency & Prescribing pattern of antibiotics in three different hospitals as per antibiotic prescribing indicators.

S .no.	Antibiotic prescribing indicators	Charity hospital	Private hospital	Public hospital	Standard
1.	No. of prescriptions	335	237	63	-
2.	No. of prescriptions with antibiotics	335	237	63	-
3.	Average no. of antibiotics / prescription	1.59	1.02	2.73	1.6-1.8
4.	% prescription with antibiotics	100	100	100	-
5.	% of antibiotics from all drugs	30.5	17.7	12.5	20-26.8 %
6.	% of antibiotics in generic name	79.7	0	100	100 %
7.	% of injectable antibiotics	78.6	13.2	70	13.4-24.1 %

Figure 1. Graph representation

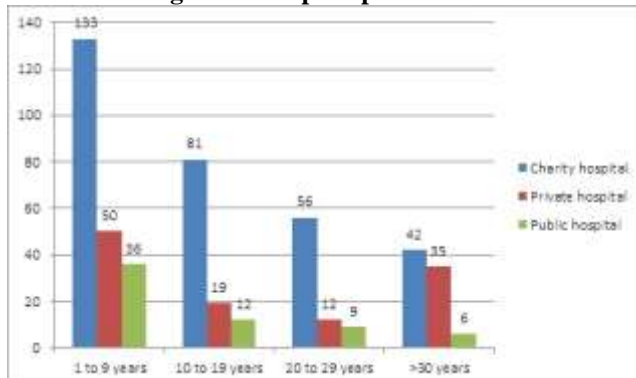


Figure 2. Graph representation

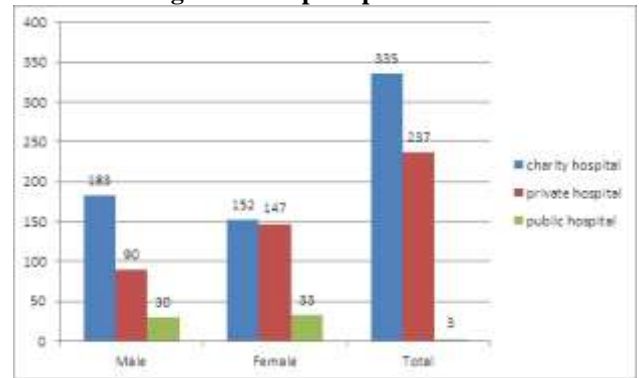


Figure 3. Graph representation

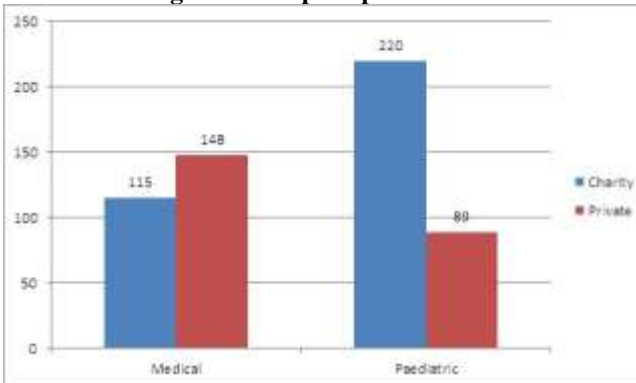


Figure 4. Graphical representation

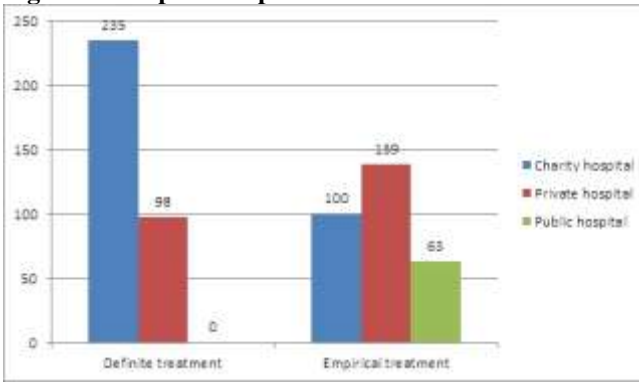


Figure 5. Graphical representation

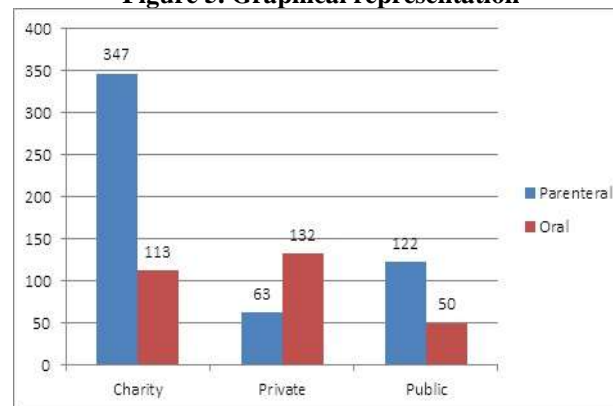
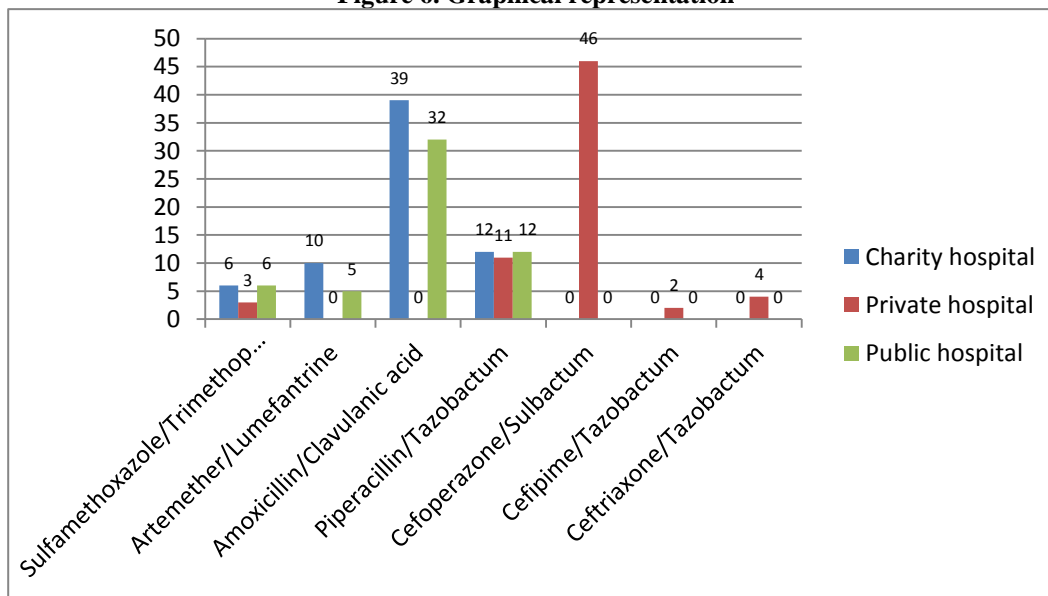


Figure 6. Graphical representation



DISCUSSION:

The main objective of this study is to determine prescribing pattern in various infectious diseases, their prevalence and sensitivity pattern of different antibiotics. A prescription provides an insight into a prescriber's attitude to the disease being treated and the nature of health care delivery system in the community [Patrick 23]. The study was done in three different hospitals namely RDT [Charity] in Bathalapalli, Spandana [Private] and Government (Public) hospital in Dharmavaram. Antibiotics represent most commonly used drugs (World Health Organisation). The majority of common childhood illnesses are caused by viruses which do not require antibiotics so excessive and inappropriate use leads to a no. of consequences in term of cost, drug interactions, hospital stay and bacterial resistance (FDA.Antibiotics, 2012).

Our study conducted in RDT hospital, assessing of prescribing patterns showed that only generic drugs is near to standard value and drugs prescribed from Essential Drug List are almost near to standard value. Study conducted in Spandana hospital, showed that only average no. of drugs per encounter is in standard value and drugs prescribed from EDL is near to standard value and the study conducted in government hospital, showed only generic drugs is in standard value.

A study conducted in 4 different countries ,the average no. of drugs prescribed per encounter are, Nigeria (3.9), Rohtak [India] (2.74), Coimbatore [India] (100), Ethiopia(5) and in our study average no.of drugs per encounter are charity (4.08), private (1.86) and public (3.2). Whereas the percentage of generic drugs

prescribed in Kathmandu is 41 % and in Jimma 82% (Palikhe, N, 2014) and in our study percentage of generic drugs prescribed in charity (94.1 %), private (0), public(100 %). Percentage of antibiotics prescribed in Nigeria [75%], Rohtak [85%], Coimbatore [100%], Ethiopia [82%] and in our study percentage of antibiotics prescribed in Charity (39.1%), private(54.8%), public(85%). The proportion of antibiotic prescription was 48.3 % in a study conducted in Northern Ethiopia. High prevalence of antibiotic use could be due to nosocomial infections which commonly develop after a prolonged hospital stay (Agalu A and Mekonnen H, 2012).

In our study the most commonly prescribed antibiotics in all age groups were Ceftriaxone and Cefoperazone/Sulbactam. In a study conducted in Northern Ethiopia, most commonly prescribed antibiotics in all age groups were Penicillins, Cephalosporins and Macrolides (Haftey *et al.*). Percentage of injections prescribed in Nigeria [53%], Rohtak [54%], Coimbatore [99.5%], Ethiopia [66%] and in our study percentage of injections prescribed in Charity (35.1%), private(43.7%), public(60.3%).

Essential Drug List is taken from National List of Essential Medicines. Percentage of drugs prescribed from EDL in charity hospital was [98.3%], in private hospital [90.2] and in public hospital [41.08%]. When compared to a study conducted in Northern Ethiopia is 95.2%.

A study conducted in Yemen, also showed that the prescribing pattern in one of the hospital in Yemen

not qualifies the standards of WHO (Abdul Kareem m. Al-Shami *et al.*, 2011).

CONCLUSION:

This study has documented polypharmacy, overuse of antibiotics in three hospitals. Prescriptions with injections is totally out of the recommended values in three hospitals. There is need to encourage the drugs to

give from EDL in public hospital as it is lower in public hospital. Multicentric prospective studies with a large size in various prescribing setup will give us better insight regarding prescription writing practices. Our results serve as baseline data for further nationwide studies on the prescribing practices with the hope of applying effective interventions to reverse inappropriate use of drugs.

REFERENCES

- Abdul Kareem M, Al-Shami *et al.* Evaluation of the Quality of Prescriptions with Antibiotics in the Government Hospitals of Yemen: *Journal of Clinical and Diagnostic Research*, 5(4), 2011, 808-812808 808.
- Agalu A and Mekonnen H. Drug prescribing practice in a paediatric ward in Ethiopian. *International Research Journal of Pharmacy and Pharmacology*, 2(6), 2012, 132-138.
- CDC. A Joint Statement on Antibiotic Resistance. Centers for Disease Control and Prevention, CDC.2012:1-12.
- FDA. Antibiotics and Antibiotic Resistance U.S Food and Drug Administration; 2012.
- Haftey *et al.* Antibiotics prescribing pattern in paediatric unit of Ayder referral hospital, Tigray region, Northern Ethiopia. *Journal of Scientific and Innovative Research*, ISSN 2320-4818.
- Jimma Likisa Lenjisa *et al.* A Retrospective Analysis of Prescribing Practices through WHO Prescribing Indicators at Four Selected Hospitals of West Ethiopia: *J Bioanal Biomed*, 6, 2014, 2014, 4
- Kumari Indira KS, Chandy SJ, Jeyaseelan L, Kumar R, Suresh S. Antimicrobial prescription patterns for common acute infections in some rural and urban health facilities of India. *Indian J Med Res*, 128, 2008, 165-71.
- Palikhe, N. prescribing pattern of antibiotics in paediatric Hospital of Kathmandu valley. *Journal of Nepal Health Research Council*, 2(2), 2004, 31-36.
- World Health Organisation regional office for Europe: The role of pharmacist in encouraging prudent use of antibiotics and averting antimicrobial resistance: a review of policy and experience in Europe.

Cite this article:

Hema Vasundhara K, Lahari N, Priyanka B, Priyanka PT. Comparison Of Prescription Pattern Of Antibiotics Between Private And Government Hospitals Of Andhra Pradesh. *International Journal of Pharmacy & Therapeutics*, 10(4), 2019, 114-119. DOI: <http://dx.doi.org/10.21276/ijpt.2019.10.4.4>



Attribution-NonCommercial-NoDerivatives 4.0 International