

## Prescription pattern in the department of medicine in a tribal district hospital of India

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**Abstract:** *Objectives:* Drug utilization studies can be used as a tool for evaluation of health care system. Hence, the study was conducted in a tribal district hospital of south India to evaluate the prescription pattern which could be useful for improvement of health care facilities in the region. *Materials and Methods:* A total of 50 cases belonging to general medicine department were selected randomly in this retrospective study. Only hospitalized cases were included and all the OPD cases were excluded from the study. *Results:* Common age group was in between 21 to 30 years. Commonest cause of hospitalization was febrile illness. Average number of drugs per prescription was 4.64. Most preferred route was intravenous route. Antimicrobials were the most frequently prescribed drugs and ampicillin (29.73%) was the commonest amongst them. All the cases were managed by empirical treatment. In most of the patient mono antimicrobial therapy was given. 40% drugs were prescribed by generic name. Dose of most of the drugs was inappropriate. *Conclusion:* We conclude that there is an urgent need for correction of some irrational approaches.

**Keywords:** Drug prescription pattern, medicine department, tribal hospital.

### Introduction

Drugs are prescribed irrationally throughout the world which includes not only vitamins and analgesics but also antimicrobials including higher antibiotics [1]. Drugs are prescribed with brand names instead of generic names [2-3], polypharmacy [1] use of drugs unrelated to diagnosis is also common in developed and developing countries [4]. Irrational use of drugs is habit for most of the prescriber which is difficult to correct. Irrational prescription of drugs is responsible for delay in relief, more adverse effects, prolonged hospitalization, increased morbidity and mortality, emergence of microbial resistance, financial loss to patient and community and perpetuation of public health problem [5-7].

Drug utilization studies can be used as a tool for evaluation of health care system [8] since such type of studies provide information regarding prevailing trend of rational and irrational medication in a particular region. Drug prescribing pattern can be evaluated retrospectively by analysis of medical records of a medical centre [9]. Although many studies [10-12] are conducted

in India regarding prescription pattern but prevalent irrationality in different regions of India may not be the same. Hence, the present study was carried out to evaluate the prescription pattern in general medicine department of Rajiv Gandhi Institute of Medical Sciences (RIMS) Adilabad which is a teaching medical hospital of Andhra Pradesh, India having predominantly tribal and rural population [13].

### Material and Methods

It was a retrospective study carried out at RIMS Adilabad, a tertiary care centre of north Telangana Region of Andhra Pradesh India. Period of study was year 2011. A total of 50 cases belonging to general medicine department were included in the study. Case records of the patients were collected from the medical record section of the Institute and 50 cases were randomly selected for the study. All the OPD cases were excluded and only hospitalized cases irrespective of duration of hospitalization were included in the study. Case records were examined for various parameters like gender distribution, age range

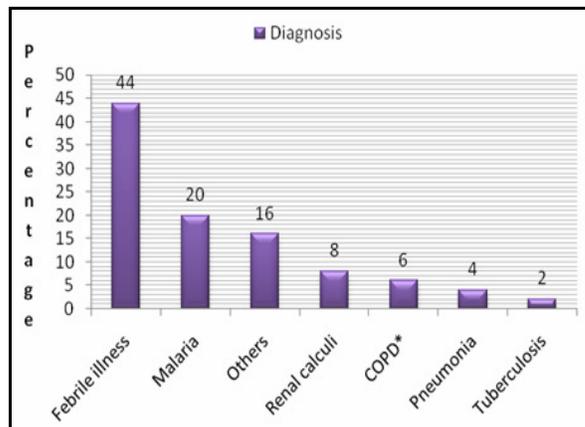
of patients, diagnosis, number of diseases in a single case, route of drug administration, types of drugs consumed, types of antimicrobials used, most common and least common antimicrobials, use of single and multiple antimicrobials, culture and sensitivity tests, use of generic and branded drugs, fixed dose combination, appropriateness of dose and frequency of drugs and non pharmacological measures. The study was permitted by institutional authorities. Data was analyzed using Microsoft Office Excel 2007.

**Results**

Out of 50 cases 19 (38%) were females and 31 (62%) males. Most of the cases were in between the age group of 21 to 30 years 14 (28%) followed by 41 to 50 years of age 12 (24%) while least cases 3 (6%) were in the age group of more than 60 years (Table-1).

Age Group (Years)	Male	Female	Total
10- 20	4.0 (8%)	4.0 (8%)	8.0 (16%)
21- 30	9.0 (18%)	5.0 (10%)	14.0 (28%)
31- 40	4.0 (8%)	2.0 (4%)	6.0 (12%)
41- 50	9.0 (18%)	3.0 (6%)	12.0 (24%)
51- 60	2.0 (4%)	5.0 (10%)	7.0 (14%)
>60	3.0 (6%)	0.0 (0%)	3.0 (6%)
<b>Total</b>	<b>31 (62%)</b>	<b>19 (38%)</b>	<b>50 (100%)</b>

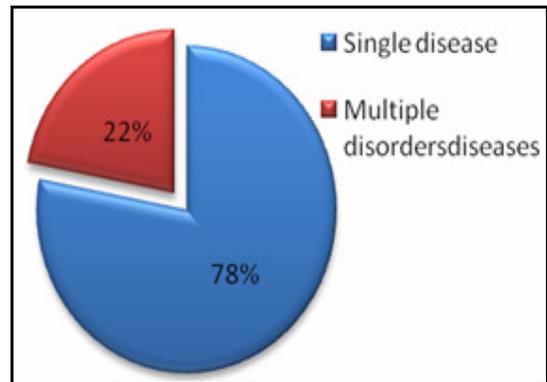
**Chart-1: Common diagnosis (n=50)**



COPD\*= Chronic Obstructive Pulmonary Disease

Commonest cause of hospitalization was febrile illness (44%) followed by malaria (20%) while least number of cases was of pulmonary tuberculosis (2%). Other group of disorders constituted (16%) in which each disorder was less than 1% of the total diagnosis (Chart- 1). 78% patients were hospitalized due to single disease while remaining 22% were suffering from multiple disorders or primary disease associated complications (Chart- 2).

**Chart-2: Single and multiple disorders (n=50)**

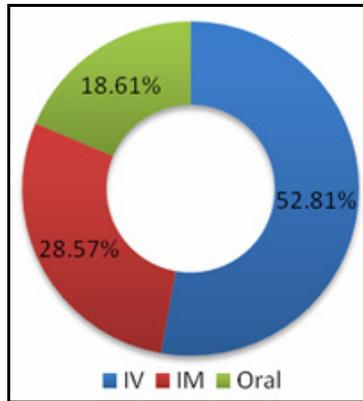


A total of 213 drugs prescribed by the physicians to the 50 cases. Average number drugs per prescription was 4.64 (median 4). Most preferred route of drug administration was intravenous route (122 drugs) followed by intramuscular (66 drugs) and oral (43 drugs) route (Chart- 3). Antimicrobials were the most commonly prescribed drugs (32.03%) followed by antihistamines which constitute 21.21%. In other group of drugs, different groups were used with less than 5% drugs in each group (Table- 2).

Group of drugs	Total
Antimicrobials	74 (32.03%)
Antihistamines	49 (21.21%)
*NSAIDs	12 (05.19%)
Vitamin & other supplements	05 (02.16%)
Others	91 (39.39%)

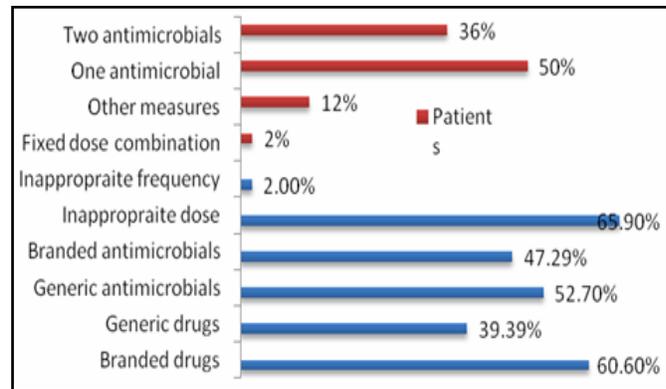
\*NSAIDs= Nonsteroidal antiinflammatory drugs

**Chart-3: Route of drug administration (n=50)**



IV= Intravenous, IM= Intramuscular

**Chart-4: Some other parameters (n=50)**



Out of a total 74 antimicrobials, ampicillin (29.73%) was the most commonly used antimicrobials followed by cefixime (21.62%) while ceftriaxone (1.35%) and norfloxacin (1.35%) were least used drugs (Table- 3). All the cases were managed by empirical treatment and culture and sensitivity was not done in cases of antimicrobial recipients. In most of the patient mono antimicrobial therapy was given although 36% patients were also treated with two antimicrobials while three and four different antimicrobials were prescribed to 6% and 2% patients respectively (Chart- 4). Out of all the 213 drugs, almost 40% drugs were prescribed by generic name but more than 50% generic antimicrobials were prescribed in antimicrobials group. Dose of most of the drugs was inappropriate while frequency of drug administration was inappropriate only in 2% drugs. Fixed dose combination was given to 2% cases in which iron and folic acid was used. 12% patients were additionally managed by non pharmacological measures like cold sponging (Chart- 4).

Antimicrobials	Percentage
Ampicillin	22 (29.73%)
Cefixime	16 (21.62%)
Metronidazole	04 (05.41%)
Ciprofloxacin	13 (17.57%)
Ceftiraxaone	01 (01.35%)
Norfloxacin	01 (01.35%)
Chloroquine	17 (22.97%)

**Discussion**

Predominance of male cases and involvement of productive age group indicates two things either such group suffers with more disorders or elderly patients are neglected. Both types of possibilities exist since productive age groups have more responsibilities. Poor financial conditions in most of the situation may be the reason behind negligence towards geriatric patients. Paediatric cases are not hospitalized in general medicine wards. In one of the study conducted by Dash SK et al [14] regarding morbidity and mortality related to organophosphorus poisoning also found predominance of males although hospitalization was due organophosphorus poisoning. Kiran N et al [15] also have the similar views like us as far as male predominance is concerned indicating similar trend in India.

Commonest reasons behind hospitalization were febrile illness and malaria. These conditions are the typical diseases of developing countries specifically of under developed regions of such countries. Involvement of significant number of cases with associated complications and multiple disorders also indicates substandard health care facilities at primary and secondary level. Moreover, patients are probably ignoring the febrile conditions and get medication only after worsening of the conditions. Reasons might be financial since the regional population is poor [13] and most of the poor patients use government health care facilities. In our institute 4.64 drugs were prescribed per

patient and in more than half of the cases drugs were administered intravenously while oral route was least preferred. Kumari R et al [16] in their study which was conducted in Lucknow, north India found polypharmacy as common trend and the lowest average number of drugs was  $2.6 \pm 1.6$  at tertiary level. But they also found considerable number of prescription without any drugs. Pattern of polypharmacy was also observed by Bapna JS et al [17] at primary health care level in southern India. A similar pattern was also observed by Hazara A et al [18]. Irrational and excessive use of injectable drugs was reported by Patel et al [1] but Rehan et al [19] in their study in north India found that interns used only 1.7% injections in their prescription.

As studies indicate polypharmacy and use of injectable drugs are common in India which is similar to our observations. There might be many reasons behind such type of lack of treatment protocol and lack of information regarding adverse complications of the drugs. Moreover, in India patient believe more in injectable drugs instead of oral medications and insist for injectable drugs. In our study most of the drugs used were under the category of antimicrobials and antihistamine group. A substantial number of different varieties of drugs were also used. Majority of antimicrobials were ampicillin, cefixime and ciprofloxacin although culture and sensitivity was not done. Use of multiple antimicrobials was also common. Kuruvilla A et al [20] in their study which was conducted in Vellore, southern India found use of nutritional products, vitamins, and analgesics were the most commonly. Christenson and Anokbonggo [21] observed at least use of one antimicrobial in each prescription of almost 57% cases. Moghadamnia AA et al [22] in Iran, Shankar P et al [23] in western Nepal and Bapna et al [18] in southern India also observed common trend of use of antimicrobials, antihistamines, vitamins and analgesic/antipyretic drugs.

Use of antimicrobials might be due to requirement of the disease itself. It may be also to get fast results since the region is backward in nature and patients are hospitalized at relatively late stages. Lack of culture sensitivity is again due to insufficient health care infrastructure. But increase use of unnecessary drugs per prescription can cause increase in the cost of disease management. Moreover, common pattern of use of multiple antimicrobials and that also without culture sensitivity test indicates irrationality of prescription pattern in the region. We have not observed major difference between prescription of generic and branded drugs. Our findings are contrary to findings of other studies in which either use of generic drugs was less common like in India [18] and in other countries where it was more common [24]. Less use of generic drugs may be due to influence of pharmaceutical companies or might be due to false belief of inferiority, it increases treatment cost. Use of inappropriate doses of drugs can create problems like emergence of antimicrobial resistance, delayed relief and failure of treatment. Rarity of fixed dose combination shows rationality at this front which is a welcome thing for the region.

### Conclusion

We conclude that irrational prescription pattern exists in the region. There is an urgent need for correction of this problem. Strict policy for rational use of medicine, regular continuing medical education of doctors, better investigative approaches and most important is improvement of the existing infrastructure is needed.

### Acknowledgment

We are thankful to Mr. M. Salimuddin record section incharge, RIMS Adilabad for his invaluable help during data collection.

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