Drug Prescribing Pattern in Internal Medicine

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ABSTRACT

Prescriptions of 75 patients admitted in Internal Medicine ward of a private teaching hospital were studied to find out the pattern of drug utilisation. The number of drugs per patient was 3.6 and generic prescribing was only 38%. Antimicrobials were prescribed in 74% of prescriptions, and a sedative hypnotics is nil.

Drug utilisation studies are essential for educational, clinical and economic purposes[1]. Drug utilisation has been defined as the marketing, distribution, prescription and usage of drugs in a society with special emphasis on resulting medical, social and economic consequences[2]. This assessment can be done at global, national or at a state level and also on a smaller segment as in a hospital or a perticular speciality. Hospital based studies are helpful in establishing prescription guidelines and also for preparing hospital formularies. Despite the importance of such studies, very few have been performed in the developing countries, where they are needed most[3,4,5].

In our country (India) most of such studies are from referral hospitals[1,6,7], and none from private teaching hospital.

The present pilot study was undertaken with the objective of assessing the drug usage in the department of Internal Medicine of MS Ramaiah teaching hospital, Bangalore, which is a private institution.

METHODS

The study sample was comprised of prescriptions of the drugs of 75 patients admitted to one male and one female general wards of one unit of the Department of Internal Medicine.

The prescriptions were ususaly written by the unit's two physicians in charge of each ward. The treatment prescribed during the entire stay of the patient was monitored from his/her case sheets. All the drugs were supplied from the hospital pharmacy. The filling up of the proforma was done by the interns of the medical unit and was scored and audited by one of the authors.

Inappropriate prescriptions fulfilled the following criteria:

1. Inappropriate choice of the drug.

2. The dose of the drug (available in several strength) was not stated

3. Two combinations containing similar ingredients were prescribed.

4. Fixed dose combinations of ingrediants without proven pharmacological actions.

Each drug was counted only once per patient, irrespective of change in dosage or route of administration. Intravenous fluids and transfusions were not included.

RESULTS

The age range and sex distribution are shown in table 1.

The duration of the stay in the hospital ranged from 2-30 days with an average of 6.7 days. The mean drug exposure per patient was 3.6 with a range of 1-9 drugs. Drugs were predominently (62%) prescribed by proprietory names.

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Table 1
The age and sex distribution, duration of stay, number of drugs patient was exposed to, and type of prescribing

Parameter	Total number of patients = 75
Age range	15 – 78 yrs
Male/female	53/22
Duration of stay (range)	2 – 30 days
Average	6.7 days
Drug exposure per patient	
Mean	3.6
Range	1 – 9
Generic prescribing	38%
Proprietory prescribing	62%

Table 2 shows the group of drugs most frequently prescribed. Antimicrobials were on the top of the list. Ampicillin, Ciprofloxin and Cotromoxazole were the most frequently prescribed antimicrobials.

Analgesics and anti-inflammatory group (Ibuprofen, paracetamol) and bronchodilators (Salbutamol and Theophylline) shared the second position.

Table 2
Particular group of drugs with the percentage in a prescription

No.	Therapeutic group	Percentage
1.	Antimicrobials	74
2.	Analgesics, antiinflammatory	38
3.	Bronchodilators	38
4.	Antitubercular	23
5.	Haematinics and Vitamins	29
6.	Diuretics	14
7.	Antihelminthics	11
8.	Antiemetics	11
9.	Antacids	10
10.	Antianginals	14
11.	Digoxin	12
12.	Sedative, hypnotics	Nil
13.	Cough suppressants/Expectorants	8.5
14.	Others	9.5

Table 3
Total number of drugs prescribed in relation to the illness*

Diagnosis		No. of drugs
Bronchiactasis	}	
Acute left ventricular failure	}	
Acute UTI	}	4
Haemorrhagic pulmonary effusion	}	
Hypertension with CHF	}	
Pneumonia	}	5
Acute UTI with Moniliasis	}	
Tubercular Ascitis	}	
Chronic bronchitis with frozen shoulder	}	6
NIDDM with bronchial asthma	}	
NIDDM with hypoproteinaemia with non healing Ulcer	}	7
Status asthmaticus with hypertension	}	
Pulmonary tuberculosis with bronchiactasis	}	8
MI with malignant hypertention	}	9
Tubercular meningitis	}	

* only the cases with 4-9 drug exposure are cited.

Haematinics and vitamins were also prescribed frequently (29%). Cough suppressants/ expectorants and antihistaminics were used minimally, whereas sedative and hypnotics not at all.

Table 3 shows the total number of drugs used in relation to the severity of the illness. The number of drugs prescribed increased when the patient was suffering from more than one ailment.

The audited prescriptions are in table 4.

Table 4
The audited prescriptions

Parameter	Appropriate	Inappropriate
Drug choice	96%	4%
Drug dosage	92%	8%
Dosage form	99%	1%
Duration of treatment	99%	1%

DISCUSSION

This prospective study showed that in general, the drug prescribing was scientific and rational, as the drug choice and dosage were appropriate in 96% and 92% of the cases respectively. The mean drug exposure was 3.6 per patient, which is quite similar to the results from government institutions in Sri Lanka 3.7[3], Singapore 3.9[4], and South Africa 4.3[5], but different from private institutions in Sri Lanka[3] and hospitals in India[8] which reported a higher drug exposure with mean values of 7.2 and 7 respectively. The restricted drug exposure in the present study is a welcome attitude; it reduced the cost and the chances of drug interactions.

Commonly, hospital prescribing is criticised for unnecessary prescritpions such as sedative hypnotics[9] and use of drug combinations of unproven efficacy. It is remarkable in our study that sedative/hypnotics were not prescribed at all and fixed-dose combinations were used in less than 2% of cases, although such combinations were available at the pharmacy.

The excessive use of antimicrobials, is in accordance with studies from other developing countries[10-12]. This may be attributed to high incidence of respiratory diseases in this part of the State. Over prescription of haematinics and vitamins, specially Vit B complex, may be because of the low socio-economic status of general ward patients, with resultant poor nutritional status. The mean haemoglobin of our patients was 9.5 g/dl (Range 4.8-15g/dl).

Duration of treatment was not specified in 1% of prescriptions. Mentioning the duration of treatment, however, may not be as important in inpatients as it is in outpatients, as the former group are monitored daily.

The drug choice was generally appropriate. In one case three antimicrobials with almost similar spectrum of activity were prescribed, and in another instance, two bronchodilators with similar mechanism of action were prescribed for two cases of pulmonary tuberculosis. Such lacunae were found in about 4% of the prescriptions.

Generic prescribing was only 38%. Trade name prescribing (62%) increases the financial burden on the institution wihtout any apparent advantage over generic prescribing.

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