ORIGINAL ARTICLE

A STUDY OF PRESCRIPTION WRITING PRACTICES OF DOCTORS IN GERIATRIC AGE GROUP PATIENTS IN A TEACHING HOSPITAL

G. Sudheer[1], G. Ravi Prabhu[2], M. S. Sridhar[3]

ABSTRACT: CONTEXT: Prescription order is an important transaction between the physician and the patient. Irrational prescribing is found throughout the world but because of scarcity of funds and resources, assumes increasing importance in the developing countries. **AIM:** To find out the elements of prescription writing in the geriatric age group patients in a tertiary care hospital. **SETTINGS AND DESIGN:** Teaching hospital, Tirupati, Andhra Pradesh. The subjects were selected using Systematic Random Sampling design. **METHODS AND MATERIAL:** The study was carried out during January-March 2011 among 140 patients (Both outpatient and inpatient) of the medical units. **STATISTICAL ANALYSIS USED:** The prescriptions were analyzed using MS Excel and Epiinfo 3.3.4 version software and appropriate statistical tests of significance tests applied. **RESULTS:** In all cases, prescription was written in lower writing case with a short signature. Although superscription and transcription was satisfactory, the inscription dose, route and duration were mentioned only in 56.4%, 32.1% and 26.4% cases respectively while subscription was satisfactory in 26.4% only. The prescription was written for inappropriate duration, dose and frequency in 69.3%, 45.0% and 4.3% cases respectively. **CONCLUSIONS:** The prescription writing does not conform to the stipulated guidelines in majority of cases.
KEYWORDS: prescription, subscription, inscription, antibiotics.
KEYMESSAGES: There is a need to train the doctors especially house surgeons and postgraduates on the importance of prescription writing.

INTRODUCTION: Prescription order is an important transaction between the physician and the patient. It brings into focus the diagnostic acumen and therapeutic proficiency of the physician with instructions for palliation or restoration of the patient's health.[1] It has been observed frequently that many doctors are adopting the concept of polypharmacy leading to a steep hike in the cost of the treatment as well as adverse drug effects.[2] Irrational prescribing is found throughout the world but because of scarcity of funds and resources, assumes increasing importance in the developing countries.[3]

Antibiotics are the most commonly prescribed drugs in most countries of the world including India where it varies from 24% to 67%. Antibiotics account for 15-30% of the health budget in India and constitute over 50% of the total value of drugs sold. The increased and most often indiscriminate use of antibiotics is associated with the development of resistance against many commonly used antibiotics as well as several drug induced adverse effects.[4] At present, the number of drugs prescribed for each patient is usually more than what is actually required. In most cases, the number of injections is indeed very large and unnecessary.

In a study in Allahabad, it was found that 85% of the prescriptions were without the basic identification data; subscription was not mentioned in 71%, inscription, transcription and signature

ORIGINAL ARTICLE

were inadequate in 50%, 18% and 35% respectively. The average number of drugs prescribed was found to be 5.1.[5]

In this context, the present study was conducted in out-patients and in-patients of geriatric age group in the Medical Wards of a tertiary care hospital in Tirupati to evaluate the elements of prescription writing.

SUBJECTS AND METHODS: This study cross sectional study was conducted in the outpatient units and Medical Wards (in-patients) of a Tertiary Care Hospital, Tirupati. The study was conducted for duration of 3 months from 1st January 2011 to March 2011. A total of 140 patients of geriatric age group (60 years & above) attending the Department of Medicine formed the subjects of study. Half of the required patients (70) were selected by using systematic random sampling technique from the out-patient section while the remaining 70 patients were selected again by systematic random sampling among in-patients. In each working day, 5 patients were selected separately for outpatient and inpatient section using systematic sampling technique. All the required information from each patient was obtained using a pretested questionnaire developed after a pilot study. The data analysis was done using Epi-info 3.3.4 version.

RESULTS & DISCUSSION:

S. No	Parameter	IP (70)	OP (70)	Total (140)
1.	**Treating doctor**			
(a)	House-surgeon	6 (8.6)	20 (28.6)	26 (18.6)
(b)	Postgraduate	8 (11.4)	35 (50.0)	43 (30.7)
(c)	Asst/Asso.Prof.	52 (74.3)	15 (21.4)	67 (47.8)
(d)	Professor	4 (5.7)	0 (0.0)	4 (2.9)
2.	**Writing case (lower)**	70 (100.0)	70 (100.0)	140 (100.0)
3.	**Signature**			
(a)	Nil	0 (0.0)	0 (0.0)	0 (0.0)
(b)	Short	70 (100.0)	70 (100.0)	140 (100.0)
Table 1: Comparison between Treating Doctor, Writing case & Signature between In- patients & Out-patients				

It was found that among the in-patients, Assistant or Associate Professor prescribed the treatment for the majority of cases (74.3%) while among the out-patients, postgraduates (50.0%) and house-surgeons (28.6%) had prescribed treatment in the majority of cases. In both in-patients and out-patients, the writing case was found to be 'lower case' with short signature.

S. No	Parameter	IP (%) N=70	OP (%) N=70	Total (%) N=180
1.	Superscription	70 (100.0)	70 (100.0)	140 (100.0)
2.	Inscription dose	50 (71.4)	29 (41.4)	79 (56.4)
3.	Inscription route	39 (55.7)	6 (8.6)	45 (32.1)
4.	Inscription duration	8 (11.4)	29 (41.4)	37 (26.4)

ORIGINAL ARTICLE

5.	Subscription	14 (20.0)	23 (32.9)	37 (26.4)
6.	Transcription	70 (100.0)	64 (91.4)	134 (95.7)
Table 2: Comparison of Prescription writing between In-patients & Out-patients				

It can be noted that superscription and transcription were written in almost all patients (100.0% and 95.7% respectively). The inscription dose, route and duration were mentioned in 56.4%, 32.1% and 26.4% cases respectively. The subscription was written only in 26.4% patients. Allahabad study[5] found similar findings that superscription was not mentioned in 71% of patients while inscription and subscription were deficient in 50% and 18% respectively.

S. No	Parameter	IP (%) N=70	OP (%) N=70	Total (%) N=140
1.	Number of Medicines			
(a)	Generic	212 (57.5)	134 (56.8)	346 (57.2)
(b)	Brand	157 (42.5)	102 (43.2)	259 (42.8)
(c)	Total	369 (100.0)	236 (100.0)	605 (100.0)
2.	At least 1 antibiotic	56 (80.0)	12 (17.1)	68 (48.6)
3.	At least 1 injection	54 (77.1)	12 (17.1)	66 (47.1)
4.	Essential drugs	64 (91.4)	58 (82.9)	122 (87.1)
Table 3: Comparison of type of drugs prescribed between In-patients & Out-patients				

It was found that out of a total of 605 drugs prescribed, generic names of drugs were mentioned for 346 (57.2%) and brand name of drugs was written for 259 (42.8%) patients. Lucknow study[6] found the proportion of generic drugs prescribed to be 27.1% only. A study in Madurai[7] however revealed a lower proportion of brand drugs (3.5%). In the present study, around half (48.6%) of patients were prescribed antibiotics. A similar proportion of 42.8% was prescribed antibiotics in a study in Nepal [8]. In the present study, at least one injection was prescribed in 47.1% cases.

S. No	Parameter	IP (%) N=70	OP (%) N=70	Total (%) N=140
1.	Inappropriate duration	50 (71.4)	47 (67.1)	97 (69.3)
2.	Inappropriate dose	22 (31.4)	41 (58.3)	63 (45.0)
3.	Inappropriate frequency	0 (0.0)	6 (8.6)	6 (4.3)
Table 4: Comparison of Inappropriate elements of Prescriptions Between In-patients and Out-patients				

The prescription was written for inappropriate duration, dose and frequency in 69.3%, 45.0% and 4.3% cases respectively. Prescription was given for inappropriate duration in comparatively higher proportion of in-patients while dose and frequency was inappropriately prescribed in a higher proportion among out-patients. The study in Pune[9] found that more than 30% prescriptions were irrational in terms of duration, dose and frequency.

ORIGINAL ARTICLE

S. No	Number of drugs prescribed	IP (%) N=70	OP (%) N=70	Total (%) N=140
1.	Single drug	0 (0.0)	6 (5.6)	6 (4.3)
2.	Two drugs	3 (4.3)	29 (41.4)	32 (22.9)
3.	Three drugs	14 (20.0)	23 (32.9)	37 (26.4)
4.	Four drugs	31 (44.3)	6 (8.6)	37 (26.4)
5.	Five or more drugs	22 (31.4)	6 (8.6)	28 (20.0)
	Total	**70 (100.0)**	**70 (100.0)**	**140 (100.0)**
Table 5: Comparison of Number of drugs prescribed between In-patients & Outpatients				

χ^2=55.3; df = 4; P<0.001; S.

Among in-patients, majority (44.3%) of cases were prescribed four drugs followed by five or more drugs (31.4%). Among out-patients, majority (41.4%) were prescribed 2 drugs. Among in-patients, the number of drugs prescribed was found to be significantly higher compared to that of out-patients (P<0.001; S). The mean number of drugs was found to be 3.3 per patient. The study in Hyderabad [10] found a lower mean number of drugs (2.2) while the study in Lucknow[6] has found a comparable number of mean drugs per patient of 3.1. The study in Nepal[8] found a higher mean level of 5.3 while Allahabad study[5] found the mean number to be 5.1 being higher in private compared to government sector.

CONCLUSION AND RECOMMENDATION: The present study found that the prescription writing does not conform to the stipulated guidelines in majority of cases. There is a definite overuse of drugs especially antibiotics and also injections. Hence there is a need to train the doctors especially young doctors like house surgeons and postgraduates on the importance of prescription writing with regard to dose, duration, route and frequency of drug administration.

REFERENCES:
1. Bennett PN & Brown MJ. Clinical Epidemiology. 9th ed. Gurgaon: Elsevier India Private Limited; 2005: 15-22.
2. Puthawala AK & Mansuri SM. Pharmacy practicals for medical students. 2nd ed. Ahmedabad: Jaypee Brothers Pvt Limited; 1986:13-18.
3. Melrose D. Double deprivation of public and private drug distribution from the perspective of the third world's poor. World Dev 1983; 11: 181-6.
4. Dunea G. Shopping bag syndrome. Br Med J 1977; 2: 240-1.
5. Ansari KU, Singh S, Pandey R.C., Evaluation of prescribing pattern of doctors for rational drug therapy. Indian J Pharmacol 1998; 35: 43-6.
6. Kumari R, Idris MZ, Bhushan V, Khanna A, Agarwal M, Singh SK. Assessment of prescription pattern at the public health facilities of Lucknow district. Indian J Pharmacol 2008; 40: 243-7.

ORIGINAL ARTICLE

7. Kanakambal S, Murugesh N, Shanthi M. Drug prescribing pattern in a tertiary care teaching hospital in Madurai. Indian J Pharmacol 2001; 33: 223.
8. Harmeet SR, Nagarani MA, Moushmi R. A study on the drug prescribing pattern and use of antimicrobial agents at a tertiary care teaching hospital in eastern Nepal. Indian J Pharmacol 1989; 30: 175-80.
9. Kshirasagar MJ, Langade D, Patil S, Patki PS. Prescribing patterns among medical practitioners in Pune, India. Bull World Health Organ 1998; 76: 271-5.
10. Shobha JC, Naidu MU. Prescribing practices: neurology outpatients in a tertiary care hospital. JAPI 2003; 51: 1274.

***Appendix 1: Example of a Bad Prescription.
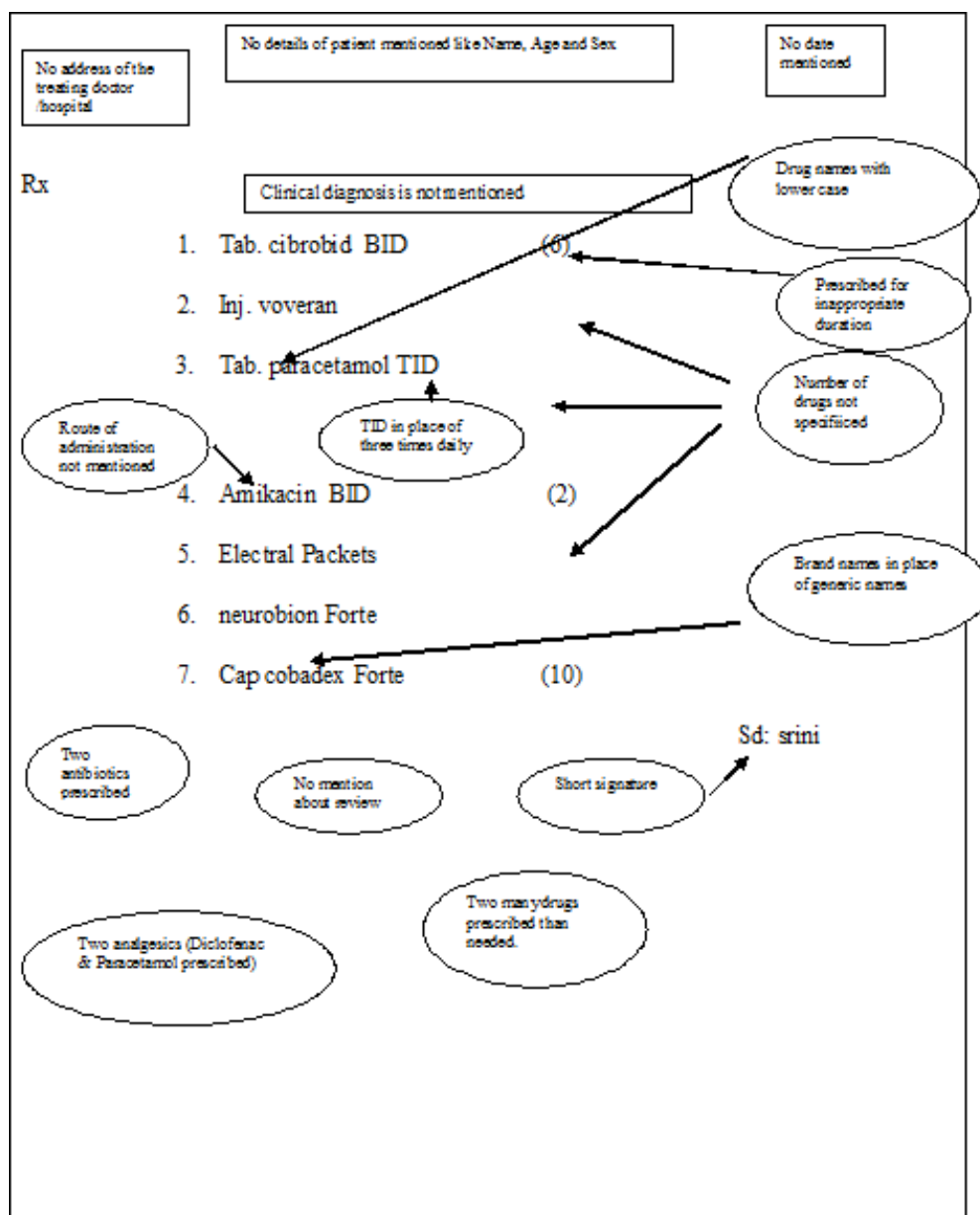
ORIGINAL ARTICLE

Appendix 2: Example of a Good Prescription.

SVRR Govt. Gen. Hospital.		
Dept. of General Medicine,	Patient Details:	
II Unit	M. UMA MAHESWARA RAO	Date: 04-02-2011
Under Prof. Dr.M.S.Sridhar	Male, 51 years.	

(Case seen by Dr.M.Srehari, Final Year Postgraduate in MD (Gen. Medicine)

Salient Case Notes	Diagnosis: ENTERIC FEVER		
Fever - 12 days	Rx		
Loose motions – 2 days	1	Tab CIPROFLOXACIN 500 mg two times daily after food for 10 days	(20)
Examination findings			
Pulse – 102 /mt	2	Tab. PARACETAMOL 500 mg three times daily after food for 5 days	(10)
Temp – 105 ⁰F			
Relative bradycardia +	3	Cap. B-COMPLEX 1 tab. Daily at bed time for 10 days	(10)
Investigations:	4	ORS SOLUTION 1 glass (200 ml) for every liquid stool.	(4) packets of ORS
Blood for Widal test			
Blood for culture.	Review after 5 days i.e on 09-02-2012		

Sd (full signature)
(Dr. M. SREEHARI)
Dt. 04-02-2012

POINTS OF GOOD PRESCRIPTION:
1. Superscription elements like Patient Name, Age, Sex, Hospital address, details of Names & designations (addresses) of doctors mentioned clearly.
2. Inscription elements like Salient case notes, Names of drugs prescribed are entered in capital letters with generic names (not brand names), dose and route of administration mentioned clearly. There no inappropriate drugs in terms of frequency and type. Only the required drugs are prescribed (3 drugs and 1 solution). No duplication of drugs (Redundant drugs).
3. Transcription details like number of tablets, how many times to be given (with food or before food) are specified.
4. Subscription like Review if any, Signature (full signature with date) are mentioned.

ORIGINAL ARTICLE

AUTHORS:
1. G. Sudheer
2. G. Ravi Prabhu
3. M. S. Sridhar

PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Pharmacology, Venkateswara Medical College, Tirupati.
2. Professor, Department of Community Medicine, Sri Venkateswara Medical College, Tirupati.
3. Professor, Department of General Medicine, Sri Venkateswara Medical College, Tirupati.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:
Dr. G. Ravi Prabhu,
Professor,
Department of Community Medicine,
S. V. Medical College,
Tirupati.
E-mail: raviprabhu1610@gmail.com