

Good Prescribing Practices for Better Health Care Outcomes and Reduction in Medication Errors

Chilukuri Parmathma

Community Pharmacist, Raja Drugs, 5-4-137/7, Prakasham Bazar, Nalgonda - 508 001, Telangana State, INDIA.

ABSTRACT

Purpose: Prescribing name of medicines in capital letter and preferably generic name is an effective measure to reduce medication error. Evaluation of prescriptions with regard to capital letter or illegible writing was taken up to assess compliance of circular issued by Director of Medical Education, Telangana State. **Research approach:** Prescriptions presented at twenty five community pharmacies in five districts of Telangana State during a period of six months were grouped under the headings, capital letter and illegible writing. The prescriptions from government hospitals, medical college hospitals, nursing homes, private hospitals, primary health centers and private practitioners were included in the study. **Results:** Analysis of the 206,920 prescriptions revealed that out of seven sources of prescriptions only 29,720 (14.36%) had medicines name written in capital letters, and 177,200 (85.64%) prescriptions were not. **Research value:** As brand name of medicines has many look alike sound alike (LASA) names, illegible writing is a potential cause of confusion during dispensing and administration of medicines or medication errors. This research has wide implications in educating patients and their attendants. Name of medicine in capital letter will leave no scope for guessing and thus ensure accurate dispensing and administration of medicine. **Application:** Findings of this research will encourage patients and their attendants to insist for writing medicine names in capital letters so that after purchasing the medicine(s) patient or his attendant can confirm that the medicines received are the same as prescribed. This will avoid any confusion and ensure therapeutic success as well as patient safety. **Research implications:** This research will encourage periodic analysis of prescriptions to bring transparency in prescribing habits.

Key words: Illegible prescription, Medication error, Capital letter prescribing, Good prescribing practices, Health care outcomes.

INTRODUCTION

Illegible prescription writing is one of the major reasons for medication errors. Medication errors invariably affect health; lead to life threatening problems and even death. Medication errors also increase cost of treatment and quality of life. It also causes loss of wages and productivity.¹ Patient safety is an important public health issue and it is for this reason that all the drug laws are focused on safety issues related to medicines. Therefore, every initiative to achieve prevention of medication errors must be supported to get rid of this evil.

The National Coordinating Council for Medication Error and Prevention (NCC-MERP) has approved the following as its

working definition of medication error: "... any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems including: prescribing; order communication; product labeling, packaging and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use".

Medicines are usually prescribed by brand names. There are look alike sound alike (LASA) brand names, which create confusion during prescribing,²⁻⁴ dispensing and admin-

Received Date : 07/02/2016

Revised Date : 24/03/2016

Accepted Date : 28/03/2016

DOI: 10.5530/rjps.2016.1.4

Address for correspondence

Chilukuri Parmathma,
Community Pharmacist,
Raja Drugs, 5-4-137/7,
Prakasham Bazar,
Nalgonda - 508 001,
Telangana State, INDIA.
Cell: +919848057502
Email: paramathmachilukuri@
yahoo.com
paramathmachilukuri.pc@gmail.
com



www.rjps.in

istration of medicines.⁵⁻⁷ The confusing brand names cause many medication errors and affect life and health of the patient. Medication errors have been widely studied and reported. The consequences of prescribing errors, dispensing errors and administration errors are dangerous to health. Moreover, the errors are preventable.^{8,9} At times many litigations take place and compensation are also awarded to the victims of medication error. In its 4th December 1999 issue British Medical Journal reported a very interesting case. Dr Ramachandra Kolluru, a cardiologist, prescribed Isodil 20 mg every six hours to his 42 year old patient Mr. Ramon Vasquez for angina. It was a handwritten prescription in conventional stylish illegible hand which doctors usually proudly write, as if it is a registered trade mark for them. When the prescription was taken for filling, the pharmacist dispensed Plendil. The dispensed medicine contained felodipine a calcium channel blocker,¹⁰ usual daily dose of which is 5 mg and in no case more than 10 mg daily. The patient took 20 mg four times a day or 80 mg in one day. Next day the patient had heart attack and died after few days. This was a burning example of hazards of illegible prescriptions. In the ensuing litigation a Texas jury attributed the death to an illegible prescription and ordered the doctor who wrote it to pay \$225000 (£140625) compensation to the patient's family. The total judgment of \$450000 included an equal award against the dispensing pharmacist.

Alarms of the consequences of medication errors relating to poor handwriting have been raised in Britain too. The high incidence of medical errors in Britain is estimated to cause the deaths of up to 30,000 people each year.¹¹

The Institute for Safe Medication Practices Canada (ISMP Canada) collects and analyses medication errors, reports and develops recommendations for the enhancement of patient safety. They have reported many alarming medication errors such as:¹²

- Instead of heparin 5000 units (0.5 ml) a nondiabetic patient was given 50 units insulin (0.5 ml) and suffered from hypoglycemia causing serious harm.
- A dementia patient was dispensed glimepiride instead of galantamine and experienced recurrent hypoglycemia.
- Another reported incident was dispensing of glyburide instead of prednisone from community pharmacy to two patients who consumed glyburide for many days and suffered severe hypoglycemia. When one of the patients was admitted to hospital, medication review by the pharmacist revealed the error. However, the other patient was not lucky as the error could not be recognized and he died. In this particular incidence the tablet container was labeled as prednisone but it contained glyburide tablets inside.

Analyses of brand names of drugs available in Indian market was done by the author to identify orthographically or phonologically identical names of medicines which have high potential risk of wrong dispensing.¹³ Similar analyses were also reported in 2005⁸ where Indian Drug Review, Drug Index, and Monthly Index of Medical Specialties-India were checked for confusing brand names.

A British Medical Journal editorial in March 2000 issue had designated handwritten prescriptions a 'dinosaur long overdue for extinction'.¹⁴

These background reports and serious incidences of medication error^{6,11} as a result of illegible prescription writing prompted the author to undertake the initiative for mandatory writing of prescription in capital letters as a prime and crucial remedy for confusion during dispensing and administration of medicines with a goal to totally avoid medication error.

In order to make it obligatory for medical practitioners to write prescriptions in capital letters, the author had approached government authorities in the Ministry of Health and Family Welfare of government of India and government of Andhra Pradesh. In the event of inaction on the part of government authorities the author finally approached Andhra Pradesh High Court in PIL No.45 of 2014 with the prayer that doctors should prescribe medicines in capital letters only.

The Hon'ble Chief Justice of the High Court of Judicature of Andhra Pradesh in his Order dated 24.2.2014 observed:

"We feel that the cause is genuine... we direct the Indian Medical Council to look into this aspect and whether this problem can be redressed or not. We desire and hope that the appropriate Legislature may take up the issue if necessary."

Continued pursuing with Ministry of Health & Family Welfare, Government of India and also Medical Council of India resulted in a draft notification sent by Medical Council of India (MCI) to Central Government on 9.6.2014 for approval. This initiative culminated in MCI regulations to mandate doctors to prescribe medicines in capital letters in a "legible" manner and mention the generic names of the drugs. Director of Medical Education (DME), Telangana State issued a circular on 29.07.2015 (Figure 1) to all teaching and allied hospitals under his control that all doctors have to write prescription of drugs in capital letters.

METHODOLOGY

In order to follow up the effect of circular of DME a survey of prescriptions was conducted in the Telangana State during the period from 01.09.2015 to 29.02.2016

i.e. six months. Objective of the study was to ascertain implementation of prescription writing in capital letters. Five districts of the State of Telangana namely, Hyderabad, Rangareddy, Khammam, Warangal, and Karimnagar were included in the study.

The type of institutions under study included government hospitals, medical college hospitals (government), medical college hospitals (private), private hospitals, private nursing homes, primary health centers and private practitioners.

The prescription analyses parameters included medicines names in capital letters or illegible writing. The prescriptions presented for dispensing at 25 retail outlets spread over the five districts were studied for the above four parameters.

RESULTS

The institution wise detail of the prescriptions studied is presented in Table 1 and district wise detail in Table 2.

Data presented in Table 1 reveal that only 13.66 percent of the prescriptions written in government hospitals were found to have medicine names in capital letters, whereas in case of private hospitals 17.64% prescription were written in capital letters and in case of private practitioners it was only 12.87%. In case of private hospitals and private practitioners' clinics every patient pays consultation fee. It is unfortunate that doctors are not at all serious about the consequences of their handwriting and the dangers posed by their careless writhing.

Data presented in Table 2 reveal that in the five districts of Telangana State only 14.36% prescriptions contained medicine names in capital letters and 85.64% prescriptions were written illegibly where dispensing were to be done by guessing only and there were no scope for the patient or her/his attendant to confirm that the dispensed medicine is what was actually prescribed.

DISCUSSION

This study commenced one month after the circular was issued by DME, Telangana State. This gestation period was allowed to enable the doctors to be fully aware of the instruction for writing medicine names in the prescription in capital letters.

In this study prescriptions from sources other than the teaching hospitals under the control of DME were included in order to compare the effect of circular on prescription writing habit of doctors.

Results presented in Table 1 and Table 2 reveal that out of the total of 206, 920 prescriptions studied only 29, 720 (14.36%) were written in capital letters in compliance to the DME circular (Figure 1). Majority of the prescriptions 177, 200 (85.64%) coming from different institutions were written as usual in cursive or illegible handwriting and chances of confusion during dispensing and administration persisted. Among the 206, 920 prescriptions under study highest numbers were from medical college hospitals and the lowest were from

Table 1: Institution wise prescription analyses

Institution	Total prescription	Capital letter	Illegible	% total	% capital	% illegible
Government hospital	31,850	4,350	27,500	15.39	13.66	86.34
Medical college hospital(Govt.)	35,060	4,360	30,700	16.94	12.43	87.56
Medical college hospital(private)	37,050	5,850	31,200	17.91	15.79	84.21
Private hospital	30,050	5,300	24,750	14.52	17.64	82.36
Private Nursing home	31,660	5,070	26,590	15.30	16.01	83.99
Primary Health Center	13,980	1,280	12,700	06.76	09.16	90.84
Private practitioner	27,270	3,510	23,760	13.18	12.87	87.13
Total	206,920	29,720	177,200	100	14.36	85.64

Table 2: District wise details of prescription

District	Total prescriptions	Capital letter	Illegible	% total	% capital	% Illegible
Hyderabad	39,650	4,250	35,400	19.16	10.72	89.28
Ranga Reddy	39,100	3,400	35,700	18.99	08.70	91.30
Karimnagar	43,210	6,460	36,750	20.88	14.95	85.05
Warangal	66,750	11,150	55,600	32.26	16.70	83.30
Khammam	18,210	3,860	14,350	08.80	21.20	78.80
Total	206,920	29,120	177,200	100	14.36	85.64

OFFICE OF THE DIRECTOR OF MEDICAL EDUCATION, TS, HYDERABAD.

Dated.29.07.2015.

Re.No.Spl/DME/Peshi/2015.

CIRCULAR

SUB: DME (T) -To Write their prescriptions of drugs in Capital letters - Regarding.

<><>

All the Superintendents of teaching hospitals and allied hospitals under the control of Director of Medical Education are hereby informed that all the doctors working in their hospital has to write their Prescriptions of drugs in Capital letters only as per the MCI instructions.

Further, doctors should prescribe generic drugs only except in critical care cases, where they think generic drug may not be immediately effective.

Hence, all the Superintendents are requested to circulate all the doctors of each unit to follow the same.

This order should be following scrupulously without any deviations.

Sd/- Dr. M. RAMANI,
Director of Medical Education.

To,

All the Superintendents of teaching hospitals and allied hospitals in the State.

Copy to the Special Officer, O/o DME, TS, Hyderabad & Superintendent, SRRIT&CD, Hyderabad.

Copy to the O.S.D. Hon'ble Minister for Medical & Health, Government of Telangana, Hyderabad.

Copy submitted to the Principal Secretary to Government, HM&FW Department, Government of Telangana, Hyderabad.

Figure 1: Director of Medical Education, Telangana State circular

primary health centers (PHC). The PHCs are government owned and supply quite a sizable number of medicines free of cost, hence less prescriptions for purchase of medicine from market.

Coming to the point of implementation of DME's circular, Table 1 reveals that only 16.94% prescriptions from Government medical colleges had medicine name written in capital letter, whereas a slightly higher 17.91% prescriptions from private medical college hospitals complied with the circular. Although these percentages are higher compared to other sources as evident in Table 1, the compliance is completely unsatisfactory.

Table 2 reveals that out of the five districts under study, least number of capital letter prescriptions (8.70%) was from Ranga Reddy district which is adjacent to Hyderabad, the capital city and no district has reached even 25% of prescriptions in capital letters. The NGOs and social workers need to be active to create awareness among patients and their attendants to see to it that hand written prescriptions contain names of medicines in capital letter so as to avoid prescription related medication errors in future.

This study indicated that habit hardly dies and therefore, who will guard the guards themselves? A prescription

cannot be like "Rome has spoken, the cause is ended." Every prescription must be transparent. It is the right of patient to get a healing and not a killing prescription under any circumstances.

CONCLUSION

From this study it can be concluded that even after a lapse of seven months implementation of DME's circular is hardly visible. It may also be stated that the period is long enough to conclude that the circular remains completely unnoticed by the doctors or the doctors are reluctant to comply it for lack of penal provision. The author, therefore, finally concludes that Good prescribing practices remain a far out cry.

ACKNOWLEDGMENT

The author expresses his deep gratitude to all the patients who allowed analysis of their prescription.

CONFLICT OF INTEREST

The author declare no conflict of interest.

REFERENCES

1. Institute of Medicine, Committee on Identifying and Preventing Medication Errors, Preventing Medication Errors. National Academies Press; 2007:124-25.
2. Huminer D, Dux S, Rosenfeld JB, Pitlik SD. Inadvertent sulfonylurea-induced hypoglycemia. A dangerous, but preventable condition. Arch Intern Med. 1989;149(8):1890-2.
3. Kurth MC, Langston JW, Tetrad JW. "Stelazine" versus "selegiline"- A hazard in prescription writing. N Engl J Med. 1990;323(25):1776.
4. Lambert BL, Lin SJ, Chang KY, Gandhi SK. Similarity as a risk factor in drug-name confusion errors: The look-alike (orthographic) and sound-alike (phonetic) model. Med Care. 1999;37(12):1214-25.
5. Hazra A. Confusing brand names. Indian J Pharmacol. 2002;34:367-8.
6. Hoffman JM, Proulx SM. Medication errors caused by confusion of drug names. Drug Safety. 2003;26(7):445-52.
7. Gogtay NJ, Jakhere SG, Waingankar SP, Dalvi SS, Kshirsagar NA. Therapeutic drug monitoring as a tool to identify medication errors. Drug Safety. 2004;27(2):143-4.
8. Aronson JK. Medication errors resulting from the confusion of drug names. Expert Opinion. Drug Safety. 2004;3(3):167-72.
9. Rataboli P V and Garg A. Confusing brand names: Nightmare of medical profession. J Postgrad Med. 2005;51(1):13-16.
10. Charatan F. Family compensated for death after illegible prescription. BMJ. 1999;319(7223):1456.
11. Medical errors 'kill thousands'. BBC News Online. 2000. Available at [http:// http://news.bbc.co.uk/2/hi/uk_news/682000.stm](http://http://news.bbc.co.uk/2/hi/uk_news/682000.stm) (accessed 27 February 2016)
12. Unexpected Hypoglycemia: Consider Medication Error in the Differential Diagnosis. ISMP Canada Safety Bulletin. 2007;7(1).
13. Chilukuri Paramathma. Potential Hazards of Illegible Prescription: Look Alike Sound Alike Trade and Generic Names. Journal of Pharmaceutical Research. 2015;14(4):98-101.
14. Leape L, Berwick D. Safe health care: are we up to it? BMJ. 2000;320:725-6.