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Look alike and Sound alike names of Branded Medicines in Indian Pharmaceutical Market

Nagappa Anantha Naik *, Wal Pranay[1], Puja Kumari, and Wal Ankita[1].
Department of Pharma Mangement, Manipal College of Pharmacuetical Sciences, Manipal University, Manipal, 576104, India. Phone : 919900407416 , +91 820-2922403
[1]Pranveer Singh Institute of Technology, Kanpur-208011. (U.P), India.

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ABSTRACT
Trade names of medicine in India are coined irrationally without any bearing and any relevance to the therapeutic class, molecule or disease for which it is to be used. This has developed into a therapeutic complexity, which is confusing to health care professionals. The study measured the extent of irrational naming practice of branded medicine in India and highlights the possibility of Look alike and Sound Alike (LASA) drugs leading to confusion by classifying the drug names on the basis of generic category. The study tries to quantify the extent of irrational naming practice of branded medicines by classifying branded medicine names into irrational and rational category. If the trade names of drugs had any bearing related to the therapeutic class, molecule or disease for which it is used, it is classified all together in rational category. Any trade name of drug which didn't meet these criteria is classified into irrational category. The result was measured and the percentages of irrelevant brand names were found to be 82%. LASA branded drugs were categorized on basis of generic name to highlight the extent of confusing medicine names in the Indian pharmaceutical market.

Keywords: *LASA; Branded Medicines; Irrational drug names; Confusing drug names.*

INTRODUCTION

One would be amazed to see the names of branded medicine marketed in India**.** Seeing names such as **thank you god, 11 p.m** one could easily guess that there are no strict guidelines for naming branded medicines in India. As a result many pharmaceutical companies name their products with an intention to boost the sale of the product in the market. Trade names of medicines in India are named irrationally without having any bearing or any relevance to the therapeutic class, molecule and disease for which it is intended to be used. This has developed into therapeutic complexity, which is confusing to health professionals and endangering the patient safety.

Related problem with large number of branded medicines in the market has resulted into look alike and sound alike (LASA) brand names. In the United States it has been estimated that LASA drug names are responsible for 25% of medication errors. [1] FDA evaluates all drug names presented for approval using an internal advisory committee and a computer software program known as POCA (phonetic and orthographic computer analysis. [2] Similar drug names, either in writing or in speaking, account for approximately 15% of all reports to USP's MER Program. [3]

Lots of initiatives have been undertaken by WHO INN committee who is the final authority for naming a drug. It was observed that certain word may already exist in another language unbeknownst to the naming party which may be offensive. Some letters such as H, J, K, and W don't exist in some countries or they may sound different in various languages, therefore, generic names of drugs don't begin with these letters. USAN (United States adopted names) council avoid X and Z as they often sound alike. Stems such as brev, vel and mal that either mean or imply something's (brevels,velocity,bad) are not allowed. FDA prohibits branded names associated with products intended to use and will not approve names that imply efficacy.[4] Numerous case reports and studies have thrown light on the confusion over similar drug names.[5-8] The similarity in the nonproprietary names of two cardiac drugs has resulted in 11 medication errors, including one death, and is compelling authorities to propose name changes[9].

Comparatively Indian drug regulatory council has not significantly contributed to regulate naming of branded medicine in India. If the practice of irrational naming of branded medicine will continue with this pace it will be too late to control the aftermath of medication error.

MATERIALS AND METHODS

Materials

(i) To measure the extent of irrational naming practice of branded medicine in India:
The branded names of drugs were taken from Indian Drug Review.

(ii) To highlight the possibility of LASA drugs leading to confusion by classifying the drug names on the basis of generic category.

***Correspondence :** anantha1232000@gmail.com

Branded names of drugs were randomly picked and observed for LASA drug names from CIMS, Indian Pharmaceutical Guide and IDR Pharmacy. A convenient random method was used to interview doctors and pharmacist to identify confused drug names on basis of their experiences from a tertiary care hospital.

Research Design and Statistics Used

(i) To measure the extent of irrational naming practice pertaining to trade names of medicine in India, medicines were classified into two categories rational and irrational. If the trade names of drugs had any bearing related to the therapeutic class, molecule and disease for which it is used it was classified all together in rational category. Any trade name of drug which didn't meet these criteria was classified into irrational category.

a) Sampling element
The branded names of drugs were taken from Indian Drug Review popularly used in India.

b) Determination of sample size
Relative precision (estimating single proportion) method was used to determine the sample size of branded names of drugs to be studied.

For this a pilot study was conducted and from the pilot study it was reported that among all trade names of drugs 78% of drugs were categorized in irrational category. It was decided to have 95% confidence interval and 2% relative precision in the estimated 78%.

Based on the formula of relative estimation the minimum sample of branded drug names to be taken was calculated as 2709. So, 3000 branded drugs names were randomly selected.

c) Sampling method
Probability method was used for element selection. Stratified complex random method was used to select the element from each category of generic names of drug which are most preferably prescribed. Total 300 category of generic drug were identified. From each generic category 10 branded names were selected.

First of all, the branded name of drug in given generic category was numbered serially. Then chit system was used to select 10 branded names of drugs from each generic category. This was done to avoid bias in selection of element of study.

(ii) To highlight the possibility of LASA drugs leading to confusion by classifying the drug names on the basis of generic category.

The orthographic (look alike) and phonological (sound alike) drugs observation was tabled into confusing drug names by categorizing drug on basis of generic names.

RESULT

The total number of irrational branded drug names was found out to be 82% of total branded medicine. (Fig 1).

In Fig 2, the number of drugs from different therapeutic category under study was given. The number of irrelevant drug names in different category of drugs under study is given in Fig 3. The Table 1 consists of few examples of list of look alike and sound alike drugs in the Indian market.

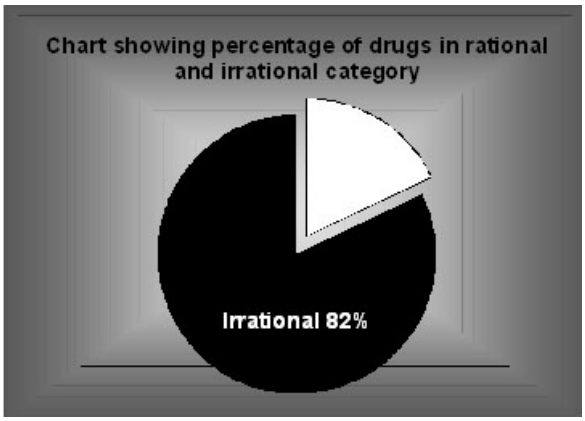

Fig.1: *percentage of irrational names of branded medicine's in India.*

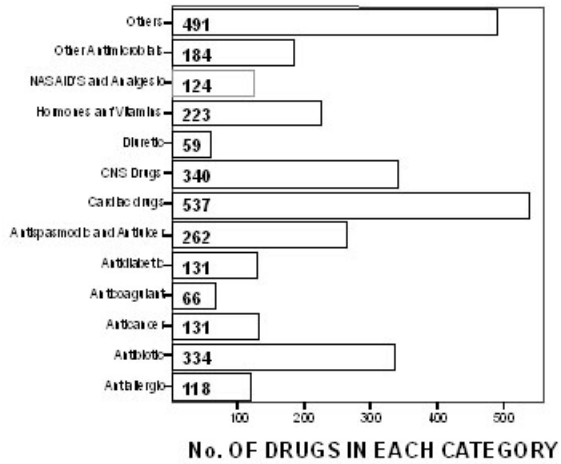

Fig. 2: *number of drugs from different therapeutic category under study.*

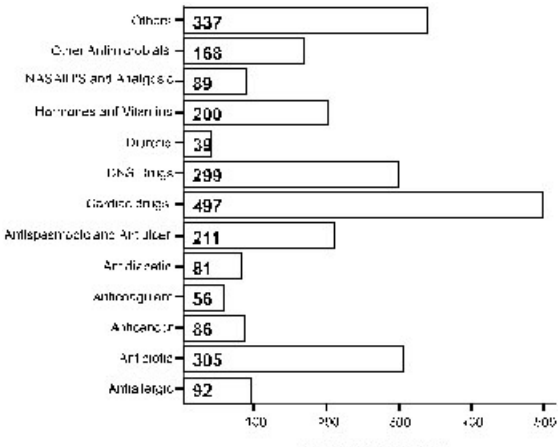

Fig.3: *number of irrelevant drug names in different category of drugs under study.*

Table 1: *List of Look alike and sound alike drugs*

	DRUG NAME	CONFUSED NAME	DRUG NAME	CONFUSED NAME
1 2 3	LASIX (furosemide) Diuretic	LENEX (diclofenac) NASIADs	INTAC (ranitidine) H2 Blocker	INTAX (cefotaxime) Cephalosporin
1 2 3	ALLEGRA (fexofenadine) Anti allergic	VIAGRA sildinafil Nitro vasodilator	ISORDIL (isosorbide dinitrate) Anti anginal	PLENDIL (felodipine) Calcium channel bloker
1 2 3	AMARYL (glimepiride) Hypoglycemic agent	REMINYL (galantamine) Acetyl-choline Esterase inhibitor	LORAM (losartan+ramipril) AT1 antagonist	LORAN-D (loratidine+psedoephedrine) H2 blocker
1 2 3	AMBISOME (amphotericin-B) Anti fungal	AMBIFORM (secnidazole) Anti helimenthic	LOMOTIL (atropine sulphate) Anti cholenergic	LOMTIN (lomustine) Anti neoplastic
1 2 3	ANTIBIN (rifampicin+isoniazid) Anti tubercular	ANTIBAN (clopidogrel) Anti platelet	LEXCID (omeprazole) Proton Pump Inhibitor	LEXCIN (amikacin) Aminoglycoside
1 2 3	ANTIDEP (imipramine) Anti depressant	ANTILEP (carbamazepine) Anti epileptic	MICROZIDE (hydrochlorothiazide) Diuretic	MICROCID (indomethacin) NSAIDs
1 2 3	ARASID (cytarabine) Anti cancer	ARABID (roxithromycin) Antibiotic	MIRCOLAC (vit B1, B12 complex) VITAMIN	MICRONAC (aceclofenac) NSAIDs
1 2 3	ASTIN (atorvastatin) Anti hyperlipidimic	ASTHALIN (salbutamol) Anti asthamatic	METOLAR (metoprolol) beta bloker	METOPAR (metoclopramide+Paracetamol) Anti emetic
1 2 3	BALLANZ (lansoprazole) Proton pump inhibitor	BALANSE (beta histine) Anti histaminic	PAXIL (paroxetine) Anti depressant	PLAVIX (clopidogrel) Anti platelet
1 2 3	BLASTOFEM (tamoxifen) Anti cancer	BLASTOLEM (cisplatin) Anti cancer	PIONORM (pioglitazone) Anti diabetic	PERINORM (metronidazole) Anti amoebic
1 2 3	CELEBREX (celecoxib) COX-2 inhibitor	CELEXA (citalopram) Anti depressant	PERCOCET (acetaminophen) Analgesic	PROCET (hydrocodone+ acetaminoquinone) Morphine derivative
1 2 3	DIALOX (tinidazole+diloxanide) Anti helimenthic	DIAMOX (acetazolamide) Diuretic	SPASMONICE (nimesulide) NSAIDs	SPASMONIL (dicyclomin+Paracetamol) Analgesic
1 2 3	DILOCOR (diltiazem) Calcium channel blocker	PILOCAR (pilocarpine) Cholinergic	SESIL (clotrimazole) Anti fungal	SETIL (prochlorperazine) Anti psychotic
1 2 3	DIOVAL (antacid) Antacid	DIOVAN (valsartan) AT-1 antagonist	TRIMA Moclobemide Anti depressant	TRIMO (colloidal bismuth sub citrate) Anti ulcer
1 2 3	ENDOCIN (amikacin) Aminoglycoside	INOCIN (indomethacin) NASIADs	VALANCE (divaproex sodium) Anti epileptic	BALANSE (beta histine) Anti histaminic
1 2 3	ENAPRIL (enalapril) ACE inhibitor	INPRIL (salbutamol) Anti asthamatic	VORANIN (progesterone) steriods	WORMIN (mebendazole) Anti helimenthic
1 2 3	INDOZID (ceftazidime) Cephalosporin	INDOCID (indomethacin) NASIADs	VENOMASE (hemocoagulase) Anti coagulant	VENOMEZ (omeprazole) Proton pump inhibitor
1 2 3	INDOMAL (artesunate) Anti malarial	INDOBOL (nandrolone) Anabolic steriods	VIOXX (rofecoxib) Cyclo-oxygenase 2 inhibitor	ZYVOX (linezolid) Antibiotic
1 2 3	INDERAL (propranolol) beta blocker	ADDERALL (amphetamine+ dextroamphetamine) CNS stimulant	ZANTAC (ranitidine) Anti ulcers	ZYRTEC (cetirizine) Anti inflamatory

1-Branded drugs names 2-Generic name of drugs 3-Therapeutic category of drugs

DISCUSSION

The Indian pharmaceutical industry is one of the key components of growing Indian economy, which is projected to be growing on an average of 8%.Globally the Indian pharmaceutical industry ranks fourth in terms of volume(with an 8% share in global sales) and thirteenth in terms of value(with a share of 1% in global sales). Indian pharmaceutical companies contributed 37% of the total drug master file submitted world wide during 2006. Of late, mergers and acquisitions of overseas companies by Indian counter parts is becoming a norm.[10] Indian Pharmaceutical market during 2006 was $ 7.42 billion, with a number of large and medium and small manufacturers, totaling to about 24000 manufacturing units. It is estimated that country has nearly 0.1 million registered branded medicines.[10] The manufacturers are finding scarcity of rational names. The regulations of naming are not clear in the country. This has given impetus to choose any name of the manufacturer choice to register. The list of LASA classified on the basis of therapeutic category unfolds large number of drugs which can lead to medication error .The current regulations need to be amended so that nomenclature of branded medicines becomes simple to follow by the health care professional. The safe use of medicines in therapeutics in both pre and post marketing processes through following action can be implemented.

i) Requiring pharmaceutical companies to name branded medicine using FDA approved method.

ii) Requiring Indian pharmaceutical companies to change the branded drug names if its currently not under the FDA norms.

iii) To develop sophisticated and effective methods for determining the likelihood of confusion created by LASA drugs names.

iv) Using best practice to minimize medication error related to names of drugs. For instance Bruce Lambert a pharmacist at university of Illinois used software to identify LASA drugs.

USP has a Medication Errors Reporting Program that watches for similar-sounding or look-alike drug names and the FDA has a Medication Errors Committee that monitors reported medication errors and occasionally makes recommendations.[11] Therefore in India there is need of forming such committee to look into the matter. Drug Controlling Authority in India should seriously look into the issue and establish rules and regulation for naming branded medicine

Limitation

Certain limitation of this study should be considered. To highlight LASA drugs, manual method was used to figure out similarity in terms of drug name. The criteria used to categorize drugs into rational and irrational category are based on assumptions that the branded medicine if named should be based either in three categories i.e. therapeutic class, molecule or disease for which it is used.

FUTURE RESEARCH

The statistical findings from this study provide evidence that future research is needed to find reasons of such irrational practice in India. Certainly more research is needed to widen the eyes of drug controlling authority in India. Research on new methods and standards for naming branded medicine is required. Research pertaining to this issue can be initiated by Indian pharmaceutical company so that they know trends in global market to survive competitively with major MNCs before their branded medicine are banned due to irrelevant naming practice.

CONCLUSION

Numerous errors have occurred in the past due to misinterpretation of written or spoken names due to the availability of large number of irrelevant names of branded medicine in India. As new products are made available, additional confusion is bound to occur. Thus, it is the need of the hour to give a wake-up call to the drug controlling authority of India to set up a committee to solve this issue. We should not forget that the unfortunate patient, for whom all the brand names are made, is ultimately at the receiving end of this confusion.

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