Review Article

Role of prescription audit of general practitioners to assess rational use of essential drugs and antimicrobials

Jahan BR[1], Habib MA[2], Ashrafuzzaman M[3], Tonu SH[4], Liza JM[5], Akter I[6]

Abstract:

Polypharmacy and irrational drug prescribing has become a major problem in healthcare delivery system of our country. As a consequence patient compliance is also declining day by day. It is observed that World Health Organization core indicator of prescribing is not always followed. Drugs prescribed from essential drug list are below satisfactory level. As a result treatment expenditure and irrational use of expensive antibiotics are increasing. Prescription audit at various level in urban and rural practitioner may change the current situation by developing awareness about prescribing drugs. Specially new practitioners will be benefitted by this auditing programmes. It should start in both government and private sector to look after initial prescriptions. This study was done to observe the prospect of prescription audit to maintain standard of prescription and the rational use of antimicrobials by ensuring cost effective and sound health care delivery to the patient.

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Introduction:

General practitioners are the doctors who are frequently visited by the general public and they treat them for common illnesses. They provide primary health care specially in developing countries as they are easily approachable by the society. General practitioners give treatment of wide variety of diseases at primary health care level and this makes them to prescribe a wide range of drugs of different classes.[1]

In the absence of enough qualified doctors, drugs are often prescribed by unqualified health workers and people can get any drug from any drug store without a prescription. Each day new drugs with higher cost are coming into market in a large scale. Family/individuals have to spend big amount of money for purchasing drugs.[2]

Prescriptions exhibits the instructions given by the prescriber to the patient. A prescription may be handwritten on preprinted prescription forms that are assembled into writing pads, or printed onto similar forms by using a computer printer.[3]

Prescription writing is one of the most important and basic skills that a doctor needs. Prescription errors may lead to adverse drug events. The use of clinical audit for assessing the nature of prescription errors and establishing standards may be one solution for preventing this adverse drug events. Clinical audit is shown to be

1. Dr. Begum Rudaba Jahan, MBBS (DU), M.Phil (BSMMU), Assistant Professor, Department of Pharmacology & Therapeutics, International Medical College & Hospital, Gazipur.
2. Prof. Dr. Md. Anwar Habib, MBBS (RU), Ph.D (RU), Prof. & Head, Department of Pharmacology & Therapeutics, Rajshahi Medical College & Hospital, Rajshahi.
3. Prof. Dr. Mohd Ashrafuzzaman, MBBS (DU), M.Phil (BSMMU), Prof. & Head, Department of Pharmacology & Therapeutics, International Medical College & Hospital, Gazipur.
4. Dr. Samia Haque Tonu, MBBS (BUP), MD (BSMMU), Assistant Professor, Department of Pharmacology & Therapeutics, International Medical College & Hospital, Gazipur.
5. Dr. Jinat Mustary Liza, MBBS (DU), DFM (BSMMU), Assistant Professor, Department of Forensic Medicne, International Medical College & Hospital, Gazipur.
6. Dr. Iasmin Akter, MBBS (DU), DFM (BSMMU), Assistant Professor, Department of Forensic Medicne, International Medical College & Hospital, Gazipur.

Address of Correspondence: Dr. Begum Rudaba Jahan, MBBS (DU), M.Phil (BSMMU), Assistant Professor, Department of Pharmacology & Therapeutics, International Medical College & Hospital, Gazipur.

E-mail: rudabajahan@yahoo.com

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beneficial in many developed countries like United kingdom, where auditing is frequently done.[4] Inappropriate prescription increases the cost of medical treatment and also increases the morbidity and mortality.[5]

It has been observed in many countries that the main thrust of prescribing drugs has shifted from the essential drugs, procurement system and quality of drugs to the big problem of irrational prescribing. Prescribing drugs is an essential skill, which is required to be continuously assessed and refined accordingly. It not only reflects the physicians knowledge of pharmacology and patho-physiology but also his/her skill in diagnosis and attitude towards selecting the most appropriate treatment. The rational prescribing skills of clinicians can be assessed by conducting periodic prescription audits. These audits and studies can also influence the policy makers by informing them about the quality of drug use in the healthy facility.[6,7,8]

Medical audit is a systemic approach to peer review of medical care in order to identify slots for enhancements and provide a mechanism for executing them.[9] Medical audit upgrades the standards of medical treatment at all levels of health care delivery system. Prescription audit is one of the parts of medical audit.[10]

The nature of such prescription audits can be quantitative or qualitative or a combination of both. Quantitative study is concerned with quantifying different facts of drug therapy used within a health care system area group where as qualitative audits compare drug use or practice with predetermined standards or indicator.[11] The audits should be aimed to assess both the quantitative and qualitative type of prescription pattern written by practitioners along with their degree achieved for identification of the level of standard of prescription in respect of different posts and category of physicians

Drugs are a valuable initiative in any health facility and are regarded as an indicator of quality of care worldwide.[12] The extent of drug use is directly affected by prescribing behavior of practitioners, especially in primary care.[13] The prescribing behavior of the physician depends on patients inputs, professional associates, academic documentations, commercial advertisement and government ordinance.[14]

Role of Prescription audit in maintainance of drug use from EDL: Most often Prescribed drugs not confined to the essential drug list.[15] Most leading causes of death and ailments in developing countries can be prevented, treated or at least be mitigated with cost effective essential drugs.[16]

Role of Prescription audit in RUD: Prescription auditing has the extensive potential to encourage the rational usage of drugs.[17] Rational use of drug may be defined as, "Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost to them and their community".[18]

Many branded drug has generic substitute available, which are equivalent both biochemically and therapeutically. Prescription may contain prescribers permission to the pharmacist to provide substitute generic version of the prescribed drug. In case of child patient age must be included in a prescription. It is also helpful to add the weight of the child. Number of refill may also be mentioned in a prescription for the patients concern about more of the same dugs will be continued without getting a new prescription. In case of group practices, the preprinted pro forma of the prescription may contain names of multiple doctors. Prescribers commonly circle themselves to indicate who is the prescriber or there may be a checkbox next to their name.[3]

Drug related problems are classified into two categories : medication errors and adverse drug effects. Medication errors occur at five levels: selection, prescribing, dispensing, administration and therapeutic monitoring. Adverse drug effect includes un-intended clinical effect after administration. Patients are exposing to multiple treatment often with some potentially harmful drugs . Commercial sources of information have more influence than scientific sources on prescribing behavior of general practitioners in under developed and

developing countries. Audit is survey that measure the quantities of supply by estimating actual from provided which analyses drug movement from pharmacy to services measure broad movement or pharmaceutical product out of pharmacies and into hand of patient.[19]

30-40% of total health budget are spent on drugs many of which are prescribed irrationally in the third world countries. The rational use of drugs form the corner stone of successful implementation of rational use of medicines. Medically inappropriate, ineffective, non economical use of pharmaceutical product is commonly observed in developing countries.[5] It is well documented that safe and effective drug therapy is possible when patients are informed about the use of the medications they are using. Every doctor should practice rational drug prescribing.[20]

Irrational prescribing of medicine is a common experience in clinical practice resulting adverse sequels of therapies that may have risks but no benefits, specifically in developing countries with huge population and causing difficulties in health care delivery system.[16] In many situations doctors are prescribing pharmaceutical preparations with specific brand names which may be reachable at very high prices, sometimes even unaffordable by the patients.[21] Irrational use of drug may occur due to confusion over brand name, excessive work load of the doctors and pharmacists, costing, inadequate supply of drugs, lack of institutional formulary and even attitude of patient.[20]

Another important reasons of irrational drug prescription are lack of knowledge about medicines, unethical drug encouragement, and irrational prescribing habits of clinicians.[22] Medication errors result from defective systems, procedures and condition that lead people to make mistakes or disabled to prevent mistakes. Problems can result from unreadable handwriting (For example: In the US, prescribers hurried and careless handwriting kills more than 7,000 people annually), medical use of unpredictable abbreviations, overlooked interactions with other medicines, oral miscommunications and sound-alike or look-alike products.[23]

Irrational drug use can lead to reduction in quality of treatment, increased risk of unwanted effects and may develop drug resistance. There are five important criteria of rational drug use, they are: accurate diagnosis, proper prescribing, correct dispensing, suitable packing and patient adherence. The doctors should diagnose a disease accurately and prescribe rationally and the pharmacist should ensure that the effective form of drug is reaching the proper patient according to the prescribed dosage and amount with clear instructions on its use.[20] In the current situation, practices in writing prescription have been controversial.[24] and required the need for regular self, unit or pharmaceutical audits.[25,26] to observe the prescription writing pattern, intensity and deficits.

Common type of irrational medicine use are:

- The application of too many medicines per patients (Poly pharmacy).
- Inappropriate use of antimicrobials, often in insufficient dosage, for non bacterial infection.
- Over use of parenteral formulations where oral forms would be more applicable.
- Failure to prescribe following clinical guidelines, inappropriate self medication, often of prescription only drugs.[27]

General practitioners rational prescribing can be improved by:

- Face to face learning by organizing seminars.
- Workshops for rational prescription writing.
- Designed order forms.
- CMEs-Continued medical education along with credit points.
- Focused educational campaigns is required for facilitating rational drug prescription.[29]

It was observed that poly pharmacy and FDCs were remarkably prominent in private practitioners prescriptions.[29] FDCs of antimicrobials, analgesics and cold/ cough prescribed more by private practitioners as

compared to tertiary hospital doctors and also more FDCs were not compliant with WHO model list of essential drug.[30] Vitamins and minerals FDCs many times only included to the expenditure bill of the patient without giving any prospective benefit.[31]

Antibiotics: According to Richard Novick, "Antibiotics have been given for everything from headaches to ingrown toenails; they are swallowed, sucked, injected and smeared; they are painted on cuts, dumped into wounds, fed to the chickens and pigs and spread on the floors of the hospital wards." Antimicrobials are effective and powerful device against various life threatening infections and they have saved millions of lives since their first appearance seventy years ago.[32]

Use of AMAs: Antimicrobials are commonly used to treat infectious diseases, caused by various microorganisms. For example: Urinary tract infection, Respiratory tract infection, Infection after surgery, Blood stream infections and many others.[33] They may be grouped according to the microorganisms against which they act primarily (For example: Antibacterial, Antifungal, Antiviral, Antiprotozoal and Antihelminthic). They may also be classified as bacteriostatic (Inhibits bacterial growth) and bactericidal (Kills bacteria).

Antimicrobial resistance (AMR): Antimicrobial resistance is resistance of a microorganism to an antimicrobial agent that was originally effective for treatment of infections caused by it. Resistant microorganisms (including bacteria, fungi, viruses and parasites) are able to combat attack by antimicrobial agents, such as antibacterial drugs (e.g., antibiotics), antifungal, antiviral, and antimalarials, so that standard treatments become ineffectual and infections persist, increasing the risk of spread to others. The evolution of resistant strains is a natural phenomenon that happens when microorganisms replicate themselves inaccurately or when resistant traits are exchanged between them. New resistance mechanisms appear and spread worldwide threatening our capacity to treat common infectious diseases, resulting in death and disability of individuals who could continue a normal course of life. If anti-infective treatment becomes ineffective, It will cause failure of many standard medical treatments or converted into very high risk procedures.[34]

The reduction in the use of antibiotics and injections, other factors like average number of drugs per encounter, use of fixed dose combination and multivitamins, drugs prescribed from essential drug lists, cost of prescription and drugs prescribed in generic name have not changed and need corrective steps.[35]

Role of Prescription audit In prevention of AMR: Worldwide increase in antibiotic resistant bacteria is of great concern but not adequately described in the developing countries. So it is the responsibility of the doctors to develop good prescribing habits which will reduce the intensity of the problem. Use of expensive drugs become mandatory due to high level of community antimicrobial drug resistance. But this drugs are almost unaffordable by majority of the patients in developing countries. Another alarming problem is most of the second and third line drugs are becoming ineffective in clinical practice day by day. The slow pace with which new molecules of antimicrobials are coming to the market is very much inadequate to face this global threat.[36]

To prevent the emergence of antibiotic resistance, implementation of effective antibiotic policy can be a significant step. The basis of antibiotic policy lies on generating microbiological data and prescription auditing at any one geographical place. But there is unavailability of informative literature on classified biogrammes. This is why it is almost impossible to formulate a local, regional or national level antimicrobial policy. Prescription auditing and biogramme could help us in controlling resistance and using antibiotics rationally in our country. Understanding the concept of time and concentration dependant class of antibiotics with their corresponding pharmacokinetics and pharmacodynamics are important for successful antimicrobial policy.[21]

Irrational prescription and use of antimicrobials are rampant throughout the country, With an estimated half of all antimicrobials being sold

without prescriptions.[37] Clinically inappropriate and inefficient use of medicines is a serious problem. More than half the medicines in Bangladesh are inappropriately prescribed, dispensed or sold.[38] Self-medication is widespread and all types of medicines can be purchased without a prescription.[39]

The misuse of antibiotics by health care professionals, unskilled practitioners and patient can be alleviated by auditing antibiotics, limiting antibiotic choice, developing prescription guidelines and highlighting continuing medical and public education.[41] Prescription monitoring and drug utilization studies can help to identify the problems in giving treatment and improve the rational drug prescribing[15] Variations in types of drugs used is significant in comparing physicians working within same area.[41]

Conclusion:

Though it is becoming an emergency situation for public health care, there is a need of auditing of prescriptions from various practitioners having different category of degrees to observe the standard of prescription writing pattern and to evaluate the rational use of antimicrobials to improve the situation by ensuring cost effective and rationally sound health care delivery to the patient.

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