

Irrational and Rational Prescribing Priority areas to look for

Medicine has come a long way from the days of Hippocrates and Sushruta. The advancement has been tremendous in recent years especially in the last few decades. Drugs when used without achieving any tangible goal may be called misuse of the drugs. On the one hand increased attention has been focused on the irrational drug use while, on the other hand lies the attitude of the hospital staff in prescribing drugs. Keeping this in mind doctors should practice rationality in prescribing drugs.

Modern day drugs are a boon to the society as long as they are prescribed rationally by the doctors. It should be dispensed only by a well trained pharmacist. To do this we should be familiar in getting better orientation on the Irrational and rational prescribing.

The reason for irrational prescribing may be due to a variety of reasons such as lack of training in clinical pharmacology and in basic principles underlying rational drug use. Lack of continuing medical education, supervision and critical review of prescribing practices, promotional activities by pharmaceutical companies, too many patients, uncertain diagnosis, relying on their own limited favorable experiences with a drug regardless of scientific merit are also causes for irrational prescription. Irrational prescription can occur when the medication prescribed is incorrect, inappropriate, excessive, unnecessary or inadequate. ^[1] Examples of these are described below:

(a) **Incorrect prescription:** can result when the wrong medication is prescribed for the patient due to erratic and erroneous diagnosis or inadequate knowledge of the drug, limited clinical laboratory facilities, when patient's history is inadequate, ignorance of drugs for an actual therapeutic indication or the availability of alternatives that are clearly safer and are more effective eg: selection of newer NSAID or a Glucocorticoid rather than aspirin for the treatment of rheumatoid arthritis exposes the patient to more expensive medication and may lead to severe side effects. Improper route can render the drug ineffective or can be dangerous.

(b) **Inappropriate Prescription:** most appropriate medication is not selected. An expensive unusual or rarely stocked drug is prescribed in preference to a less expensive readily available drug and prescribing a drug that cannot readily or safely be administered such as I.V preparation of Amphotericin-B.

(c) **Over prescription:** includes prescription of a drug that is not needed in treating a disease or using excessive dose of a drug or giving a drug for too long a period of time often in an attempt to reduce the frequency of patient's visits.

(d) Use of **unnecessary number of drugs** which will produce an equivalent beneficial effect and to minimise adverse effects produced by the primary drug. Selection of alternative primary drug can reduce or eliminate such side effects. Eg: Ampicillin produces diarrhea for which anti-diarrheal drugs are used.

(e) **Under prescription** is an inadequate amount of medication or failure to prescribe a needed drug. Eg: withholding medication of morphine

in terminally ill patients because of an unreasonable fear of producing opioid dependence. Prescribing inadequate drug dosage or using medication for an insufficient period of time to treat the patient. Eg: sub-therapeutic doses of antibiotics promote the development of bacterial resistance.

Promoting rational prescription by training of medical practitioners should be a priority in order to improve prescribing practices.^[2] Medical students and interns training should include elements of a rational prescription in their curriculum.^[3] Medical auxiliaries should be given formal training in clinical pharmacology and therapeutics related to a selected group of drugs. A suitable drug manual should be provided to auxiliary health workers for the selection of appropriate drugs and dosage regimens. It should include information on warnings, precautions and contraindications. The prescribing practices of auxiliary workers should be reviewed on regular basis.

To build up rational drug use, drug information should be provided to all medical and paramedical staff of any health service.^[4] Hospital Committee should follow WHO accreditation guidelines in the maintenance of essential drugs list, review and monitoring of prescribing practices by physicians of the hospital, development of standard treatment regimens and cost of medication prescription on a single occasion and for a course of therapy.

The adverse reactions of drugs leading to morbidity and mortality of patients can be minimized or even eliminated by following rational prescription norms.

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Homicidal Organophosphate Poisoning in Young Infant

Sir,

Organophosphate (OP) poisoning is potentially fatal but completely treatable condition that is still prevalent in our country. Early recognition and judicious management prevent mortality. It is rarely reported in young infants where history may not be forth coming. The initial presentation can some times be misleading.

A previously healthy 6 months old male infant, presented with altered sensorium, cyanosis, copious oro-pharyngeal secretions, and refusal of feeds of sudden onset. On examination baby was afebrile, lethargic and hypotonic, with copious secretions in the mouth and nostrils. Skin showed mottling. Bilateral pin-point pupils were not reactive to light. Initially the patient was diagnosed as respiratory failure. Emergency management was started and baby was intubated and ventilated. We suspected OP poisoning, but parents denied history of exposure to OP poison. Clinically the case was of OP poisoning, hence treatment was started with Atropine infusion 0.05mg/kg/hr and 25mgs of Pralidoxime (PAM) /kg/dose.^[1] after collecting blood sample for cholinesterase levels. After 6 hrs, baby showed improvement with dilatation of pupils, decreased oro-pharyngeal secretion.^[2] Atropine was continued for 5days and baby was discharged after a week. Retrospectively, the mother revealed that they were living in a joint family, and that whenever she was busy, the baby was looked after by the co-sister who has only female children. It is possible that she might have poisoned the baby because of jealousy.

Accidental poisoning is also a possibility. Before discharge, the parents were counselled. Organophosphate compound inhibit

cholinesterase activity and affect central and peripheral muscarinic and nicotinic receptors.^[3] Pinpoint pupils and oro-pharyngeal secretions even in the absence of previous history of serious illness are important in suspecting poisoning in this child. Decreased cholinesterase levels and improved condition with Atropine and PAM confirmed the diagnosis. Strong clinical suspicion and initiation of specific and supportive treatment saved this infant.

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