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Short Communication

Rational drug prescribing: Can pharmacologists and clinicians be a team?

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The World Health Organization (WHO) has been taking painstaking efforts to educate the medical community about rational drug use. It has published an essential drugs list which is used by most countries to create their own[1]. It defines rational use of drugs as "patients receiving 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." It has developed prescribing, health-facility, and patient-care indicators to evaluate the practice of rational drug use in healthcare settings.[2]

The WHO core prescription indicators are, average number of drugs per prescription, the percentage of drug prescribed by generic name, percentage of injections prescribed, percentage of drugs prescribed from National List of Essential Medicines (NLEM-21st List), and percentage of injections prescribed.[2]

The WHO has published a guide to good prescribing which suggests a 6 step model for rational use of drugs.[3]

Step 1: Define the patient's problem.
Step 2: Specify the therapeutic objective.
Step 3a: Choose your standard treatment (P-drug).
Step 3b: Verify the suitability of your treatment (P-drug).
Step 4: Start treatment.
Step 5: Give information, instructions, and warnings.
Step 6: Monitor (and stop?) treatment.

In the same guideline they have referred to a Dutch study which tried to decipher how doctors made prescribing decisions. I quote "when a doctor makes a diagnosis, he or she immediately thinks of a number of pharmacotherapeutic possibilities, referred to as the 'evoked set'. Depending on the diagnosis, the 'evoked set' consists of 1.7 to 5 different pharmacotherapeutic options. Although how the final choice of treatment is made for an individual patient is not yet known, it is thought to be either 'unreasoned' (routine) or 'reasoned' (evaluation of the different options)."[3] This covers the first 3 steps of the list above and we can assume the remaining steps follow.

Chaturvedi VP[4] in an editorial has discussed the possible causes of irrational prescribing as patient factors, prescribers' poor training, prescribers' irrationality, and aggressive pharma promotions both overt and covert. He is not willing to attribute irrational prescribing to the prescriber's incompetence alone and would like to factor in ground realities like workplace pressures, overpopulated OPDs, inadequate staff, drug shortages, inadequate laboratory backup and a limited inventory of drugs from which a choice must be made.

Given this situation in most countries, it is not surprising that inspite of painstaking efforts by WHO, results are not spectacular.

In this issue Shine A et al have presented their analysis of the prescribing patterns in pregnant cases with comorbidities in a hospital in Bengaluru. This study aimed to evaluate prescribing patterns, assess rational drug use, and identify inappropriate medication use and drug interactions in this population.

They noticed significant deviations from rational prescribing standards like many drugs per prescription, suboptimal use of generics and drugs on essential drugs list

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(EDL). They have quoted many articles and I also found a few more[1,2,3,4,5] all concluding the same. They have reported that 36 patients had hypertension, 15 diabetes and a few had a combination of diabetes and /or hypertension with hypothyroidism. They have conducted a fine review of adverse events and drug- drug interactions(DDI) but I would have liked to see more on side effects due to medicines for these illnesses.

What caught my attention was that drug interactions were noted in 145 of 362 cases, with interactions due to pharmacodynamic mechanisms being 86 %. I related it to another experience I had recently.

A study was presented for review in an ethics committee of a major hospital, of which I happen to be a member. Here, the pharmacist had planned to study drug incompatibilities in intravenously administered medicines in an Intensive Care Unit(ICU). He would obtain data about drugs prescribed, and review all published data about the physical and chemical nature of the medicines, incompatibilities, possible DDIs if any. If there was credible information about incompatibility, he would inform the intensivist with suggestions to avoid them like administering the medicines sequentially, using another lumen or change of vascular access site. If no data was found regarding incompatibilities, he would observe the cases for any signs of adverse events and check back if they could be explained through available data. After three months the data would be presented to the ICU team and some systems would be set for IV use of medicines in future.

To have a buy in for rational use of drugs at the chief of unit level, the best way is to demonstrate its effectiveness in their own patients. We should first concentrate on the area that hurts the most; adverse events due to DDIs and incompatibilities. The first step towards institutionalising a culture of rational drug use is sensitisation of the prescribing doctor[4], and the clinical pharmacologist is best suited to do this.

All teaching hospitals and every large corporate hospital have a clinical pharmacology unit, but they always play second fiddle to the clinical units, in teaching hospitals due to academics and in private hospitals due to commercial reasons. Clinical Pharmacology in Health Care, Teaching and Research , a review published by Council for International Organizations of Medical Sciences says that clinical pharmacologists with their focus on drug evaluation and on the principles of rational use of medicines are needed in patient care to train healthcare staff and promote the use of guidelines.[6]

The pharmacology group can select one unit and review cases prospectively over three months. They could collect data of all medications, adverse events, evolving symptoms that become adverse events, how these are managed, number of medicines used during the stay, number of injectables, vitamins and nutritionals. Since most hospitals now have electronic healthcare records, this exercise could also be conducted retrospectively and online. While reviewing the data they will study drug incompatibilities, DDIs and adverse events that could have been drug side effects. As per WHO recommendation for practice assessment at specific institutions a minimum sample of 100 must be collected,[2] which should be easy in big institutions.

They will then make a presentation to the treating team to discuss how some of the interactions could have been avoided, how patient could have been spared the adverse events, and show published evidence about the incompatibilities.

Although they have all data to analyse the prescriptions on lines of WHO prescription indicators, I am suggesting they concentrate only on adverse events and drug incompatibilities which the doctors can immediately relate to. Once they have bought in to the idea of the pharmacology department adding value to their patient management, other guidelines can be slowly inculcated over time. This will be a laborious and time-consuming process since it will have to be implemented department wise, step by step. But the light at the end of this tunnel will shine on a hospital where all departments abide by the norms for rational drug use and pharmacology will get a seat at the table.

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Vishwas Bhalchandra Sovani: conceptualisation, planning, writing, reviewing and editing of the manuscript.

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3. Conflict of Interest

None

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