



# Clinical Pharmacology & Toxicology Pearl of the Week

## ~ Medication Safety, Part 1 - Appropriate Medication Prescribing ~

### Background and Rationale

- ✓ Patients vary in age, gender, size and sociocultural characteristics, all of which may affect treatment choices.
- ✓ Patients also have their own perception of appropriate treatment, and should be fully informed partners in therapy.
- ✓ Poor prescribing habits lead to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient, higher costs, and increased vulnerability to influences which worsen irrational prescribing.
- ✓ The World Health Organization (WHO) has developed a six-step Guide to Good Prescribing, which is now taught in many medical schools throughout the world. This Pearl of the Week describes these six steps.

### (1) Define the patient's problem

- ✓ Patients may come with a request, a complaint or a question. All may be related to different problems: a need for reassurance; a sign of underlying disease; a hidden request for assistance in solving another problem; a side effect of drug treatment; non-adherence to treatment; or (psychological) dependence on drugs.
- ✓ Through careful observation, structured history taking, physical examination and other examinations, try to define the patient's real problem.
- ✓ The working diagnosis may differ from how the patient perceives the problem. Choosing the appropriate treatment will depend upon this critical step.
- ✓ In many cases there will be no need to prescribe a drug at all.

### (2) Specify the therapeutic objective

- ✓ Specifying the therapeutic objective allows physicians to direct prescribing to a clear goal with expected outcomes. What do you want to achieve with the treatment?
- ✓ Specifying the therapeutic objective will prevent a lot of unnecessary drug use.
- ✓ It stops physicians from treating two diseases at the same time if they cannot choose between them, and also stops physicians from prescribing drugs without investigating the cause.

### (3) Select the appropriate drug therapy

- ✓ The WHO guide suggests that physicians develop a formulary of personal drugs (P-drugs).
- ✓ P-drugs are effective, inexpensive, well-tolerated drugs that physicians regularly prescribe to treat common problems.
- ✓ Verify whether the P-drug is appropriate for each patient (including active substance, dosage form, dosing schedule, and duration of treatment)
- ✓ The WHO framework for selecting a P-drug (see Table 1):
  - Define the diagnosis
  - Specify the therapeutic objective
  - Make an inventory of effective groups
  - Choose a group according to criteria (efficacy, safety, suitability, cost)
  - Choose a P drug

### (4) Initiate therapy and consider non-pharmacologic therapies

- ✓ Prescriptions should be clear and legible.
- ✓ Eliminating most abbreviations for medication instructions, such as qd (daily), qid (four times daily), and qod (every other day), and drug name abbreviations.
- ✓ Prescriptions should include specific indications for anticipated duration of therapy. For example, write out "as needed for severe back pain" instead of using the abbreviation prn (as needed).
- ✓ Asking a patient directly about therapeutic goals may shed light on his or her willingness to use nonpharmacologic options when available

**(5) Give information, instructions, and warnings**

- ✓ Discuss effects of the drug, side effects, instructions, warnings, future consultations (i.e. when to come back, if at all), and provide opportunity for questions.
- ✓ On average, 50% of patients do not take prescribed drugs correctly, take them irregularly, or not at all. The most common reasons are that symptoms have ceased, side effects have occurred, the drug is not perceived as effective, or the dosage schedule is complicated for patients, particularly the elderly.
- ✓ Although it is impossible to describe each side effect for a given medication, it is important to address the common and the rare but serious ones.
- ✓ Physicians also may want to highlight special drug-related information such as avoiding alcohol when taking metronidazole.
- ✓ Patient adherence to treatment can be improved in three ways: prescribe a well-chosen drug treatment; create a good doctor-patient relationship; take time to give the necessary information, instructions and warnings.

**(6) Evaluate therapy regularly (e.g., monitor treatment results, consider discontinuation of the drug)**

- ✓ Systematically reviewing medications at every visit (Table 2) allows the prescriber to monitor treatment effectiveness and reduce problems, particularly in older patients who are most susceptible to polypharmacy.
- ✓ A medication review may include revisiting a diagnosis, evaluating possible side effects, searching for drug interactions, and ceasing unnecessary medications.
- ✓ A review also helps avoid the prescribing cascade, which involves a physician adding additional drugs to a patient’s regimen to treat side effects of other medications
- ✓ Monitoring the treatment enables you to determine whether it has been successful or whether additional action is needed.
  - Passive monitoring means explaining to the patient what to do if the treatment is not effective, is inconvenient or if too many side effects occur. In this case monitoring is done by the patient.
  - Active monitoring means the physician determines whether the treatment has been effective.

**TABLE 1**  
**STEPS Framework: An Example of How to Select a Personal Drug (P-Drug) for a Patient**

Drug*	Safety	Tolerability	Effectiveness	Price	Simplicity
Hydrochlorothiazide (Esidrix)	F	F	F	SF	SF (once daily)
Lisinopril (Zestril)	V†	F	SF	V	SF (once daily)
Metoprolol tartrate (Lopressor)	F	F	SF	F	F (twice daily)
Metoprolol succinate (Toprol XL)	F	F	SF	U	SF (once daily)

STEPS = Safety, Tolerability, Effectiveness, Price, and Simplicity; F = favorable; SF = strongly favorable; V = varies in safety and price depending on specific patient characteristics and local costs; U = unfavorable

\*—All of these drugs are available in generic form.

†—Lisinopril would get a U rating for safety if the patient was a female of childbearing age who was pregnant or not using reliable birth control.

**Table 1:** The STEPS (Safety, Tolerability, Effectiveness, Price, Simplicity) framework for selecting a P-drug (Pollock et al)

**Was the treatment effective?**

a. Yes, and disease cured: Stop the treatment

b. Yes, but not yet completed: Any serious side effects?  
 •No: treatment can be continued  
 •Yes: reconsider dosage or drug choice

c. No, disease not cured: Verify all steps:  
 •Diagnosis correct?  
 •Therapeutic objective correct?  
 •P-drug suitable for this patient?  
 •Drug prescribed correctly?  
 •Patient instructed correctly?  
 •Effect monitored correctly?

**Table 2:** Evaluating Pharmacologic Therapy

**Additional considerations:**

- ✓ Consider drug cost when prescribing.
- ✓ Use computers and other tools to reduce prescribing errors.

**References**

1. World Health Organization Guide to Good Prescribing: A Practical Manual. Available at <https://apps.who.int/medicinedocs/pdf/whozip23e/whozip23e.pdf>. Accessed July 25, 2019.
2. Pollock et al. *Am Fam Physician* 2007;75:231-6, 239-40



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