Drug & Poison information

Introduction to Drug Information Resources Available

Definition of Drug Information Resources

- Drug Information (DI) resources are comprehensive tools that provide updated, evidence-based data on pharmaceuticals, including their indications, contraindications, interactions, side effects, dosing, pharmacokinetics, pharmacodynamics, availability, and therapeutic uses.
- Clinical pharmacists rely on these resources to support rational drug use, optimize therapy, and prevent medication-related problems.

Importance of Drug Information Resources:

- Clinical pharmacists use drug information to:
  - Ensure safe medication practices
  - Avoid drug interactions or errors
  - Guide clinicians in evidence-based practice
  - Educate patients on proper drug use

Types of Drug Information Resources

Drug information resources are classified into **three categories**:

1. **Primary Resources**

   - These are original research articles and clinical studies published in peer-reviewed journals.
   - They provide firsthand data and are most useful when evaluating new therapies, clinical trial results, or rare adverse events.

   Examples:

   - New England Journal of Medicine (NEJM)
   - The Lancet
   - JAMA (Journal of the American Medical Association)
   - BMJ (British Medical Journal)

   Usefulness:

   - Critical appraisal of new evidence
   - Evidence-based clinical decisions
   - Pharmacovigilance activities

2. **Secondary Resources**

- These are indexing and abstracting databases that organize and provide access to primary literature.
- They are used to search for specific articles or evidence efficiently.

Examples:

- PubMed / MEDLINE
- EMBASE
- Scopus
- CINAHL (Cumulative Index to Nursing and Allied Health Literature)

Usefulness:

- Literature search using keywords or MeSH terms
- Quick access to peer-reviewed studies
- Building systematic reviews or clinical guidelines

3. Tertiary Resources

- These are summarized and interpreted data from primary and secondary sources.
- Clinical pharmacists often use them for quick reference and day-to-day practice.

Examples:

- Lexicomp
- Micromedex
- Martindale: The Complete Drug Reference
- AHFS Drug Information (American Hospital Formulary Service)
- Harrison's Principles of Internal Medicine
- Goodman & Gilman's Pharmacological Basis of Therapeutics

Usefulness:

- Quick and reliable drug facts
- Dose adjustments in renal/hepatic impairment
- Safety in pregnancy and lactation
- Drug-drug and drug-food interactions

Web-Based and Mobile Drug Resources

- Many tertiary resources are now available as apps and web portals, which are widely used by clinical pharmacists:
  - UpToDate
  - Drugs.com

- DailyMed
- Epocrates
- Medscape

Selection Criteria for Resources

- When choosing DI resources, the clinical pharmacist must evaluate:
  - Accuracy and evidence quality
  - Date of last update
  - Ease of use
  - Availability (institutional vs. personal access)
  - Cost-effectiveness
  - Specialty-specific content (e.g., oncology, pediatrics)

Systematic Approach in Answering Drug Information (DI) Queries

Importance of a Structured Approach

- In clinical settings, drug information queries may come from physicians, nurses, pharmacists, or patients.
- To provide accurate, relevant, and time-sensitive information, a systematic approach ensures quality and consistency.

Steps in the Systematic Approach

Step 1: Receive and Understand the Question

- Clarify the question being asked.
- Identify the type of information required (e.g., dosing, interaction, adverse effect).
- Identify the person asking the question (physician, patient, etc.).
- Consider the context (e.g., patient age, sex, diagnosis, co-morbidities, renal/hepatic function).
- Determine the urgency (Is it an emergency?).
- **Example:**
  - Query: "Can we give amikacin to a patient with renal failure?"
  - Clarify: What is the level of renal impairment (e.g., creatinine clearance)?
  - Context: Is the patient on dialysis? Age? Weight?

Step 2: Classify the Question

- Drug information questions can be:
  - **Descriptive:** Dose, brand name, formulation
  - **Evaluative:** Which drug is better for condition X?
  - **Therapeutic:** What is the best treatment for disease Y?
  - Adverse reaction-related
  - Drug interaction-related
  - Pharmacokinetics-based
- Classification helps in selecting the right resources.

Step 3: Search for the Answer

- Use a hierarchy of sources:
  - Start with tertiary sources (textbooks, compendia)
  - If not found, use secondary sources (PubMed, Cochrane)
  - Finally, refer to primary sources (clinical trials, research articles)
- Use databases with filters (e.g., age group, language, study type) for focused results.

Step 4: Evaluate the Information

- Check if the information is reliable, current, and scientifically valid
- Consider the level of evidence:
  - Is it a randomized controlled trial or just a case report?
  - Are guidelines available from trusted bodies (e.g., WHO, NICE)?

Step 5: Formulate the Response

- Answer clearly and concisely
- Support with evidence and references
- If the question is clinical, include recommendations or alternatives
- **Example Response:**
  - "Amikacin can be used in patients with renal impairment, but the dose must be adjusted based on creatinine clearance.
  - Therapeutic drug monitoring is recommended to avoid nephrotoxicity. Refer to Lexicomp guidelines and KDIGO recommendations."

Step 6: Follow-up

- Ask if the inquirer needs more help
- Document the query and response for future reference

Critical Evaluation of Drug Information and Literature

Introduction:

- In clinical pharmacy, information is often gathered from various resources—journals, textbooks, databases, and online platforms.
- However, not all information is equally reliable or applicable to a given patient case.
- Therefore, critical evaluation of drug literature is essential to ensure that only high-quality, evidence-based information is used in clinical decision-making.

Why is Critical Evaluation Necessary?

- To assess accuracy and validity of the data
- To determine if the study results are applicable to the patient
- To avoid biases and misinterpretation of information
- To ensure evidence-based practice in clinical decisions

Key Elements of Critical Evaluation:

To critically appraise any piece of drug-related literature, the pharmacist should examine several components:

A. Source Evaluation:

- **Author credentials:** Is the author an expert in the field?
- **Type of publication:** Peer-reviewed journal? Editorial? Sponsored material?
- **Date of publication:** Is the information current and relevant to today's practice?
- **Conflict of interest:** Is the study sponsored by a pharmaceutical company?

B. Study Design:

- Study design determines the strength of evidence.

C. Hierarchy of Evidence (from strongest to weakest):

- Systematic reviews and meta-analyses
- Randomized Controlled Trials (RCTs)
- Cohort studies
- Case-control studies
- Case reports
- Expert opinion

D. Check:

- Is the study design appropriate to answer the research question?
- Are the inclusion/exclusion criteria clearly defined?

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