Chapter-12

Medication errors

Medication errors: Definition, types, consequences, and strategies to minimize medication errors, LASA drugs and Tallman lettering as per ISMP

Drug Interactions: Definition, types, clinical significance of drug interactions

Medication errors:

Definition:

- A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.
- Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use.

Types of Medical Errors:

Medical errors refer to preventable adverse events or outcomes that occur during medical treatment. These errors can result from human error, system failures, or a combination of both. Here are some common types of medical errors:

- Medication errors: This includes errors in prescribing, dispensing, or administering medication, such as giving the wrong medication or dosage, administering a drug to the wrong patient, or administering a drug via the wrong route.
- Diagnostic errors: These errors occur when a patient is misdiagnosed, or a correct diagnosis is delayed, resulting in incorrect or delayed treatment.

- Surgical errors: These are mistakes made during surgery, such as wrong-site surgery, leaving a foreign object inside a patient, or performing the wrong procedure.
- System failures: These errors occur when the healthcare system fails, such as inadequate staffing, faulty equipment, or poorly designed systems and processes.
- Infections: These errors occur when a patient acquires an infection during medical treatment, such as healthcare-associated infections, including those acquired during surgery.
- Falls: These errors occur when a patient falls during medical treatment, such as in a hospital, nursing home, or other healthcare facility.

Consequences:

Medical errors can have serious consequences for patients, their families, and healthcare providers. Here are some of the consequences of medical errors:

1. Patient harm or death: Medical errors can cause physical harm, emotional trauma, or even death to patients.
2. Longer hospital stays: Medical errors can result in extended hospital stays, increasing healthcare costs, and delaying the recovery process.
3. Increased healthcare costs: Medical errors can lead to additional medical interventions, prolonged hospital stays, and increased healthcare costs.
4. Loss of trust: Patients may lose trust in their healthcare providers or the healthcare system as a whole due to medical errors.
5. Legal consequences: Medical errors can result in malpractice claims, lawsuits, and legal actions against healthcare providers or institutions.
6. Psychological impact: Medical errors can cause emotional trauma, stress, anxiety, or depression for patients, their families, and healthcare providers.
7. Reputation damage: Medical errors can damage the reputation of healthcare providers or institutions, leading to loss of business or negative publicity.

Strategies to minimize medication errors:

FDA looks for ways to prevent medication errors. Before drugs are approved for marketing, FDA reviews the drug name, labeling, packaging, and product design to identify and revise information that may contribute to medication errors. For example, FDA reviews:

- Proposed proprietary (brand) names to minimize confusion among drug names. With the help of simulated prescriptions and computerized models, FDA determines the acceptability of proposed proprietary names to minimize medication errors associated with product name confusion.
- Container labels to help healthcare providers and consumers select the right drug product. If a drug is made in multiple strengths – e.g., 5 mg, 10 mg, and 25 mg, – the labels of those three containers should be easy to differentiate. The label design may use different colors or identify the strength in large bold numbers and letters.
- Prescribing and patient information to ensure the directions for prescribing, preparing, and use are clear and easy to read.

LASA drugs:

LASA" stands for "Look-Alike-Sound-Alike" drugs, which are medications that have similar names or packaging but differ in their active ingredients or dosages.

Look Alike Sound Alike (LASA) medications involve medications that are visually similar in physical appearance or packaging and names of medications that have spelling similarities and/or similar phonetics

This can lead to medication errors if healthcare providers or patients mistake one drug for another.

To prevent medication errors with LASA drugs, healthcare providers should always double-check the medication name and dosage before administering or prescribing it, and patients should always confirm with their healthcare provider or pharmacist that they have received the correct medication.

In addition, it's important to store medications in their original packaging and to keep a current list of all medications, including their names, dosages, and purposes.

Common Risk Factors

Common risk factors associated with LASA medications includes:

- Illegible handwriting
- Incomplete knowledge of drug names
- Newly available products
- Similar packaging or labelling
- Similar strengths, dosage forms, frequency of administration
- Similar clinical use

Strategies to avoid errors with Look Alike Sound Alike Medications

- Procurement

- Storage
- Prescribing
- Dispensing/ Supply
- Administration
- Monitoring
- Information
- Patient Education
- Evaluation

Tallman lettering as per ISMP:

- Drug name confusion, particularly because of look-alike/sound-alike (LASA) name attributes, can be a contributing factor to medication related adverse events.
- TALLman lettering is a method of applying upper-case lettering to sections of LASA drug names as a differentiation strategy.
- Tallman lettering is a technique used by healthcare professionals to differentiate look-alike or sound-alike medication names to prevent medication errors.
- The technique involves using mixed case letters and placing a tall letter (typically the first letter) in the name in uppercase letters to make it stand out.
- The Institute for Safe Medication Practices (ISMP) has recommended specific guidelines for the use of Tallman lettering.
- According to ISMP, the tall letters should be at least twice the height of the other letters in the name and should be printed in uppercase letters.

The letters should be placed in the middle of the word or at the beginning of the word if it is a short name.

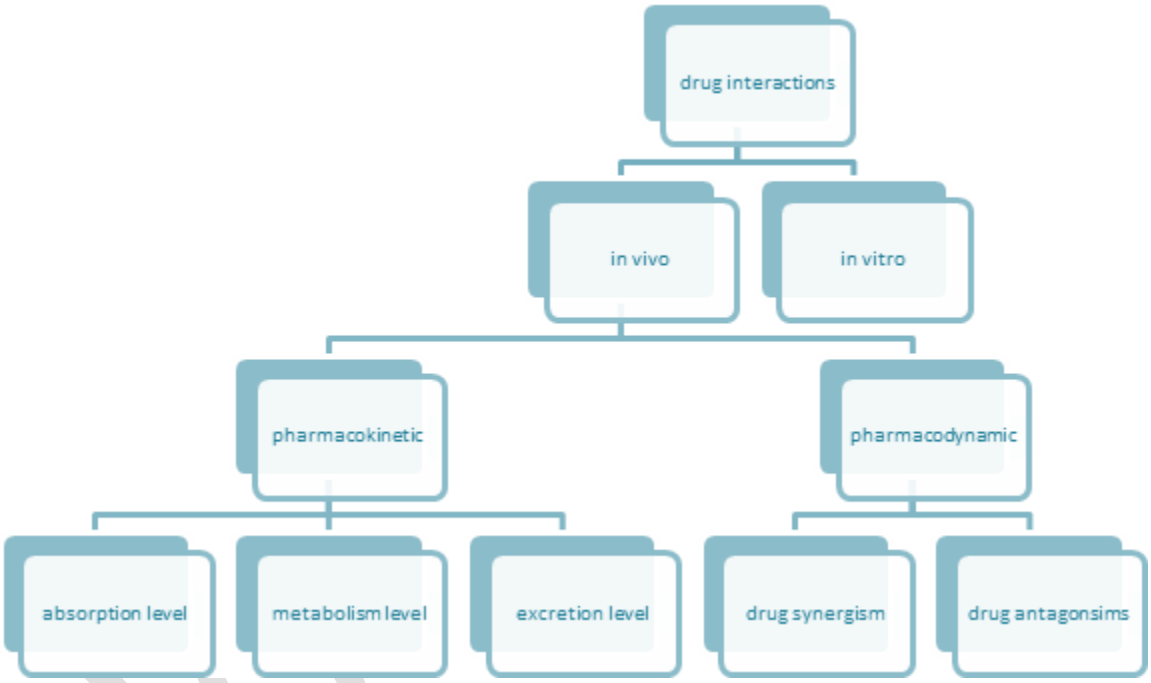
- For example, the names "vinBLAStine" and "vincrisTINE" are two chemotherapy drugs that have similar names and could easily be confused.
- To differentiate between the two names, Tallman lettering can be used to highlight the differing letters: "vinBLAStine" and "vincrisTINE.

Drug Interactions: Definition, types, clinical significance of drug interactions

Drug Interactions:

- A drug interaction is a reaction between two (or more) drugs or between a drug and a food, beverage, or supplement.
- Taking a drug while having certain medical conditions can also cause a drug interaction. For example, taking a nasal decongestant if you have high blood pressure may cause an unwanted reaction.

Types of Drugs Interaction:



Clinical significance of drug interactions:

1. Decreased effectiveness: When two drugs interact, the effectiveness of one or both medications may be reduced. This can result in a decreased therapeutic effect, which can lead to inadequate treatment of the underlying condition.
2. Increased toxicity: Drug interactions can also result in an increased risk of adverse effects or toxicity. For example, when two drugs that are metabolized by the same enzyme are taken together, they may compete for the enzyme, leading to an accumulation of one or both drugs and an increased risk of toxicity.

3. Altered pharmacokinetics: Drug interactions can also alter the pharmacokinetics (i.e., the way the drug is absorbed, distributed, metabolized, and eliminated) of one or both medications. This can result in changes in the blood levels of the drugs, which can affect their effectiveness and toxicity.

4. Potentiation: Drug interactions can also result in a potentiation of the effects of one or both drugs. For example, when two drugs that have a similar effect on the central nervous system (such as two sedatives) are taken together, they may have a greater effect than when taken alone.