Compounding Rectal Dosage Forms, Part I

GOALS AND OBJECTIVES

Goal: To provide information and support for dosage forms that can be compounded and administered rectally. Objectives: After reading and studying the article, the reader will be able to:

1. List at least five advantages to the rectal administration of drugs.
2. Describe the anatomy and physiology of the rectum.
3. Discuss the factors involved in drug release from different matrices administered rectally.
4. Discuss the characteristics of enemas, microenemas, gels, ointments and aerosols administered rectally.
5. Describe the formulation variables that must be considered in compounding rectal dosage forms.

INTRODUCTION

Rectal administration is not often the first route of choice; but it becomes the usual and preferred route when it is absolute. Relatively low cost and lack of technical difficulties make rectal administration attractive when it can be considered. The advantages of rectal administration include the following:

Advantages to Rectal Administration:

1. Avoiding the first-pass effect
2. Avoiding the lungs and liver
3. Avoiding the stomach
4. Avoiding the gastrointestinal tract
5. Absorption is rapid and relatively complete

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NURSING ISSUES

In the in vitro setting, there are a few practical issues. Part of the formation of enemas, microenemas, gels, ointments and aerosols administered rectally include:

1. The type of drug
2. The amount of drug
3. The preparation
4. The administration

INTERNET RESOURCES

The incorporation of compounding rectal solutions is important. Part of the formulation of enemas, microenemas, gels, ointments and aerosols administered rectally include:

1. The type of drug
2. The amount of drug
3. The preparation
4. The administration

Please fill in the following information on the line below for each drug that you receive and test:

Diluent: (0.9% Sodium Chloride, 10 mL)

Primary State License

License No.

City

County

State

Zip

Home Phone 1

Home Phone 2

Email Address

For more information, please call 1-800-443-1717

REFERENCES


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REFERENCES

Racial administration provides a rapid, and in many cases, effective means of delivering drugs. The advantages and disadvantages of these methods are several parameters that must be considered, since the patient’s health status and the characteristics of the drug can be used. The patient’s health status and the characteristics of the drug can be used. In addition, because the skin is generally chronically damaged, the superficial mantle of the skin is formed by a layer of cylindrical epithelial cells, differentiated from those of the dermis by a rich network of blood vessels. This network provides the skin with the capability to mount an immune response against bacterial or viral infection.

**FORMULATION VARIABLES**

The formulation variables are channeled through the cephalic, cranial, and rectal compartments. These compartments may be divided into three general regions: the skin, the subcutaneous tissue, and the skeletal muscle. The subcutaneous tissue is the major site of drug absorption, and the skeletal muscle is the primary site of drug metabolism.

1. **Skin**: The skin is the largest organ of the body, and it serves as the primary barrier between the external environment and the internal environment. The skin is composed of two layers: the epidermis, which is the outermost layer, and the dermis, which is the underlying layer. The epidermis is composed of epithelial cells, which are responsible for the production of keratin, a protein that gives the skin its strength and elasticity. The dermis is composed of connective tissue, which provides support to the skin and is responsible for the production of collagen, a protein that gives the skin its elasticity.

2. **Subcutaneous tissue**: The subcutaneous tissue is the layer of connective tissue that lies between the skin and the skeletal muscle. It is composed of fat, fibrous connective tissue, and blood vessels. The subcutaneous tissue is the primary site of drug absorption, and it is responsible for the transport of drugs from the site of injection to the systemic circulation.

3. **Skeletal muscle**: The skeletal muscle is the primary site of drug metabolism. It is composed of muscle fibers, which are responsible for the contraction of the muscle. The muscle fibers are responsible for the production of enzymes, which are responsible for the metabolism of drugs. The muscle fibers are also responsible for the production of heat, which is generated during the metabolism of drugs.

**Racial administration** is a method of drug delivery that is designed to deliver drugs to the systemic circulation. It is a method of drug delivery that is used to deliver drugs to the systemic circulation. The method of drug delivery is designed to deliver drugs to the systemic circulation. The main advantage of racial administration is that it provides a rapid and effective means of delivering drugs to the systemic circulation. The main disadvantage of racial administration is that it can cause skin irritation and damage. The skin irritation and damage can be minimized by using a nonirritating formulation, and by using a formulation that is designed to minimize skin irritation and damage.

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Rotal administration provides a rapid, and in many cases, more predictable absorption route than oral administration, but in some cases, the bioavailability of the active ingredient can be restricted. Therefore, for absorption to occur, the drug must cross the mucosal barrier of the gastrointestinal tract, pass through the epithelium, and then reach the systemic circulation. The rate and extent of the absorption will depend on the characteristics of both the drug and the formulation.

**Formulation Variables**

The formulation variables that affect absorption include:

1. The chemical characteristics of the drug, such as solubility, dissociation constants, and mutarotation.
2. The extent of mixing and agitation of the drug and the formulation medium.
3. The presence of excipients that may affect the drug's stability or solubility.
4. The presence of preservatives that can alter the drug's activity.
5. The pH of the medium, which can affect the drug's ionization and solubility.

Disintegration Time

The disintegration time of a drug product is the time required for a tablet or capsule to disintegrate into a form suitable for absorption. This time can vary from a few seconds to several minutes, depending on the formulation and condition of the formulation medium.

**Rectal Absorption**

Rectal absorption is the process by which drugs are absorbed through the rectal mucosa and enter the systemic circulation. This route of administration is often used when oral administration is not feasible or when the drug is not absorbed following oral administration. The rectum is a site with a large surface area and a high blood flow, which makes it an ideal site for drug absorption. However, the rate and extent of absorption can vary depending on the characteristics of the drug and the formulation.

**Physical and Chemical Factors Influencing Rectal Absorption**

Several factors can affect the rate and extent of rectal absorption, including:

1. The nature of the drug and its excipients, which can affect the drug's solubility, dissolution rate, and ionization.
2. The pH of the formulation, which can affect the drug's ionization and solubility.
3. The presence of preservatives, which can affect the drug's stability.
4. The presence of buffering agents, which can affect the pH of the formulation.

**Rectal Routes of Administration**

There are several routes of administration that can be used to deliver drugs rectally, including:

1. Microenemas
2.RECTAL GELS
3. Rectal suppositories
4.RECTAL SOLUTIONS/SUSPENSIONS

**Enemas**

Enemas are dosage forms designed to be administered rectally for the diagnostic visualization of the gastrointestinal tract. Emulsions may be prepared by several methods, depending upon the type of drug and the preferred route of administration. Enemas are often used for the treatment of inflammatory bowel disease, anal fissures, and rectal infections.

**Rectal Ointments**

Rectal ointments are semisolid systems consisting of dispersions made up of finely divided drug particles in a vehicle that serves to enhance the activity of the drug. Rectal ointments are often used for the treatment of rectal diseases, such as hemorrhoids, anal fissures, and anal infections.

**Rectal Capsules**

Rectal capsules are generally used for the treatment of inflammatory bowel disease, and are often used for the treatment of hemorrhoids. Rectal capsules are typically placed in a freezer, which also causes shock cooling. The addition of oil to the capsule base can alter the manufacturing and compounding processes in a similar way to shock freezing. Shock cooling also causes fat and cocoa butter to decompose, forming an oil-soluble drug that is not water soluble.

**Rectal Gels**

Rectal gels are semisolid systems consisting of dispersions made up of finely divided drug particles in a vehicle that serves to enhance the activity of the drug. Rectal gels are often used for the treatment of rectal diseases, such as hemorrhoids, anal fissures, and anal infections.

**Rectal Suppositories**

Rectal suppositories are dosage forms designed to be administered rectally for the treatment of inflammatory bowel disease, anal fissures, and anal infections. Rectal suppositories are often used for the treatment of inflammatory bowel disease, anal fissures, and anal infections.

**Rectal Microenemas**

Rectal microenemas are dosage forms designed to be administered rectally for the treatment of inflammatory bowel disease, anal fissures, and anal infections. Rectal microenemas are often used for the treatment of inflammatory bowel disease, anal fissures, and anal infections.

**Rectal Solutions/Suspensions**

Rectal solutions/suspensions are dosage forms designed to be administered rectally for the treatment of inflammatory bowel disease, anal fissures, and anal infections. Rectal solutions/suspensions are often used for the treatment of inflammatory bowel disease, anal fissures, and anal infections.
drug, and special conditions, pharmacokinetics, pharmacodynamics, pharmaceutics, pharmacology, and toxicology.

1. The nature and form of the active principle; only;
2. The nature and form of the vehicle; only;
3. The vehicle.

Physical State: An active drug can be either a solid, liquid, or gas. Solids can be either crystalline or amorphous, while liquids can be either aqueous or non-aqueous. Gases are usually referred to as vapor or gas phase. The physical state of the drug is important because it affects its dissolution rate and bioavailability.

Solubility: Whether or not the active ingredient is soluble in the vehicle can also determine the rate and extent of absorption. The solubility of the drug is also affected by the pH of the intrarectal fluids, which can be alkaline, neutral, or acidic. The pH of the intrarectal fluids can be affected by the presence of certain drugs or substances, such as pH modifiers. The pH of the intrarectal fluids can also be influenced by the type of dosage form selected.

Bioavailability: The bioavailability of a drug is the fraction of the dose that is absorbed and reaches the systemic circulation. Bioavailability is affected by the type of dosage form selected, the formulation, and the conditions of administration. The bioavailability of a drug can be enhanced by the use of appropriate formulations, such as enteric-coated tablets or capsules, or by the use of lipid-based carriers.

Drug formulation and administration are critical factors in determining the characteristics of a drug that are relevant to its absorption, distribution, metabolism, and excretion. The drug formulation and administration are also influenced by the properties of the drug itself, such as its solubility, stability, and pharmacokinetic behavior. The drug formulation and administration are also influenced by the properties of the drug itself, such as its solubility, stability, and pharmacokinetic behavior. The drug formulation and administration are also influenced by the properties of the drug itself, such as its solubility, stability, and pharmacokinetic behavior. The drug formulation and administration are also influenced by the properties of the drug itself, such as its solubility, stability, and pharmacokinetic behavior.
OBJECTIVES

Goal: To provide information and support for dosage forms that can be compounded and administered rectally.

1. List at least five advantages to the rectal administration of drugs.
2. Describe the anatomy and physiology of the rectum.
3. Discuss the factors involved in drug release from different matrices administered rectally.
4. Discuss the characteristics of ointments and aerosols administered rectally.
5. Formulate the variable formulations that must be considered in compounding rectal dosage forms.

GOALS AND OBJECTIVES

Introduction

Rectal administration is not often the first route of choice, but it becomes a normal administration route in an unwell patient. Low dose therapy and limited absorption capacity for many drugs is widely recognized. The advantages of rectal administration include the following:

1. Rectal administration can be used as an alternative route of drug delivery for patients who cannot take oral medication.
2. The medications can be delivered directly to the site of absorption, bypassing the first-pass effect.
3. Rectal administration can be used for patients who have difficulty swallowing or have a gastrointestinal tract obstruction.
4. Rectal administration can be used for patients who are unable to take oral medications due to vomiting or nausea.
5. Rectal administration can be used for patients who are unable to take oral medications due to poor gastric emptying.

Ointments

- Look for soft consistencies
- Use aseptic technique
- Cleanse the site, if necessary
- Apply the ointment sparingly
- Cover the ointment with a gauze pad or a sterile barrier

Suppository Administration

- Read the label carefully
- Check the expiration date
- Check for signs of defect or damage
- Insert the suppository slowly and carefully
- Avoid applying too much pressure
- Allow the suppository to dissolve

Suppository Dosage Forms

- Rectal suppositories
- Vaginal suppositories
- Anal suppositories

References


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1. When administering rectally, what is the most important aspect to consider?
   A. The patient's comfort level
   B. The medication's safety and efficacy
   C. The medication's dosage form
   D. The medication's route of administration

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   B. The medication's safety and efficacy
   C. The medication's dosage form
   D. The medication's route of administration
OBJECTIVES: After reading this chapter, the reader should be able to:

1. Describe the anatomy and physiology of the rectal area.
2. Discuss the factors involved in drug administered rectally.
3. List at least five advantages to the rectal administration of drugs.
4. Discuss the characteristics of enemas, microenemas, gels, ointments and aerosols administer rectally.
5. Provide information and support for dosage forms that can be compounded in the pharmacy.

GOALS AND OBJECTIVES

Goal: To provide information and support for dosage forms that can be compounded and administered rectally.

Objectives: After reading and studying the article, the reader will be able to:

1. List at least five advantages to the rectal administration of drugs.
2. Describe the anatomy and physiology of the rectum.
3. Discuss the factors involved in drug release from different matrices administered rectally.
4. Discuss the characteristics of enemas, microenemas, gels, ointments and aerosols administered rectally.
5. Discuss the formulation variables that must be considered in compounding rectal dosage forms.

INTRODUCTION

Rectal administration is not often the first route of choice, but it becomes equal to oral in many situations. Rectal administration is non-invasive. It is well accepted that many active ingredients can be administered rectally. It provides a relatively constant absorption mechanism without the first pass effect. It is beneficial to those who are unable to administer drugs subject to extensive first pass metabolism upon oral administration. This chapter will be divided into two parts. Part I will discuss the anatomy and physiology of the rectum, and the advantages and disadvantages of administering drugs rectally. Part II will provide information on dosage forms that can be compounded by the pharmacist.

Advantages to Rectal Administration

The advantages to rectal administration include the following:

1. Fewer effects: Absorbed at least partially, the systemic effects are reduced.
2. Drug delivery: Delivery of drugs subject to extensive first pass metabolism can be avoided.
3. Drug stability: Avoiding the breakdown of active ingredients.
4. Convenience: Patients can take their medication without a partner, eliminating the need to carry a toilet kit.
5. Elderly patients: Elderly patients often have a decreased ability to swallow or digest food.
6. Psychological: Psychological reasons may apply, such as in patients with terminal illness.

The disadvantages of rectal administration include:

1. Cost: Compounded rectal formulations may be more expensive than their parenteral equivalents.
2. Compliance: The patient must be motivated to administer the medication orally.
3. Drug absorption: Intrinsically low drug absorption compared to intravenous or intramuscular injection.
4. Infection: The patient’s cleanliness must be considered.
5. Irritation: Some products may irritate the anal canal.

REFERENCES


If you have any questions or concerns, please do not hesitate to contact me. I am always available to discuss any topics related to pharmacy practice.

Best regards,

[Your Name]