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Diploma in Pharmacy 2nd Year

Hospital & Clinical Pharmacy

Experiment

To perform the SC vaccination and injection techniques using mannequins

Aim:

To perform the SC vaccination and injection techniques using mannequins

Reference :

‘ Dr. Gupta G.D. , Dr. Sharma Shailesh, Dr. Sharma Anshu, “Practical Manual of Hospital & Clinical Pharmacy” Published by Nirali Prakashan, Page no 57 – 60

Materials Required

1. Medication order
2. Appropriate syringe (3-ml., tuberculin, or insulin syringe)
3. Needle of appropriate gauge and length (usually 25 to 27 gauge, 5/8-inch length [insulin 29 to 31 gauge with 1/2-inch length])
4. Medication appropriate for medication order
5. Alcohol wipe
6. Adhesive bandage.

Theory :

Subcutaneous Vaccination and Injection Techniques : The process of injecting medication under the skin in the subcutaneous layer, ie., between the muscles and skin, is known as subcutaneous injection. The drug in this process is always administered using a short needle. The injected medication gets absorbed slowly (over 24 hours) to provide sustained release of drug in the bloodstream.

Purpose

1. It gives prolong and rapid action of the drug.
2. Medications having poor absorption in GIT after oral administration are administered through this route.
3. Medications that have toxic and irritant effect to the GI mucosa are administered through this route.

Sites

1. Outer part of upper arm
2. Upper back area.
3. Drug absorption is fastest in the abdominal area from the rib margin to the iliac crest (avoiding 2 inch area around the navel).
4. Drug absorption is slower 4 inches below the top of the thigh to 4 inches above the knee in the front of thigh.
5. Drug absorption is slowest between the upper area of buttock, behind the hip bone.

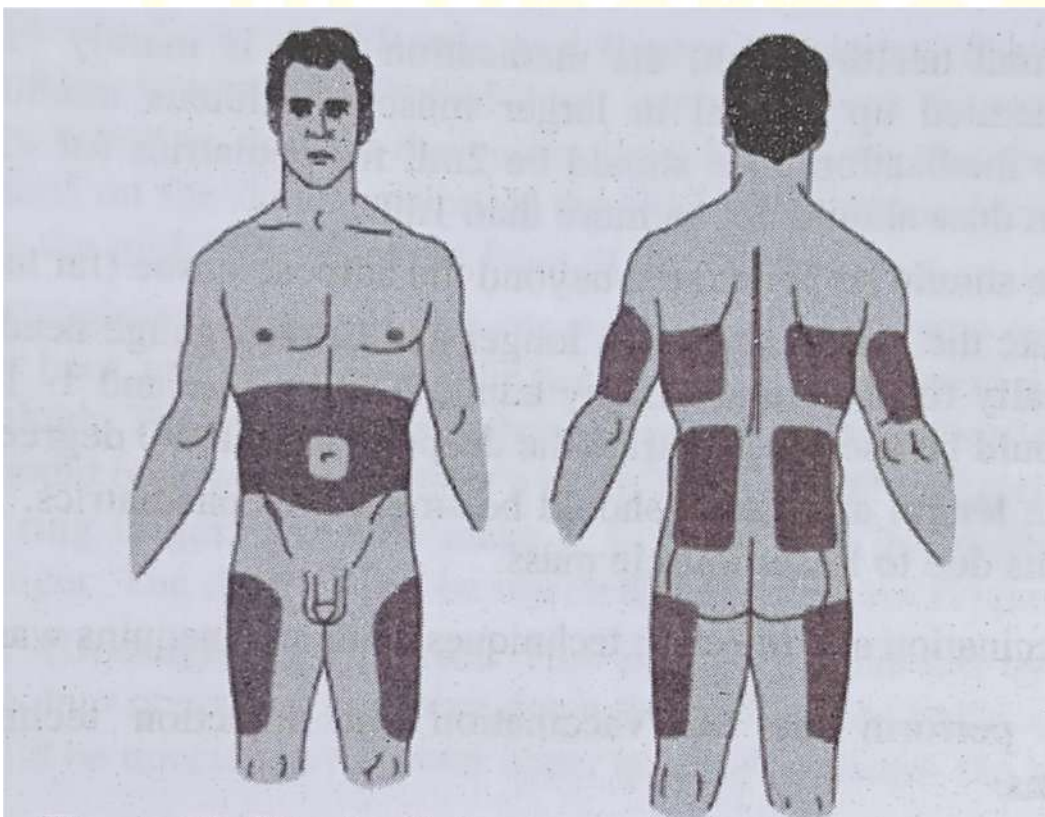


Figure 15: Sites for Subcutaneous Injection. (Adapted from Hunt SA, *Saunders Fundamentals of Medical Assisting*, St Louis, 2007, Saunders.)

Procedure

- The dose should be prepared as given in the medication order.
- The injection site should be identified and wiped in circular motion using an alcohol swab.
- The targeted area skin should be firmly held with the non-dominant hand and subcutaneous tissue should be gently pinched between the thumb and index finger to avoid discomfort.
- The needle should be inserted at 45-degree angle in a healthy adult; however, the angle may be increased or decreased in obese or thin or paediatric, respectively.
- The needle should be withdrawn at the same angle in which it was inserted.
- To stop bleeding from the injection site, the site should be gently rubbed by applying pressure with alcohol swab, Adhesive bandage should be applied, if required
- The used needle and syringe should be discarded in a specified waste container. Gloves should also be discarded in biohazard waste container Hands should be thoroughly sanitised

Special Considerations: subcutaneous tissue is not richly supplied with blood vessels, therefore, the drugs administered through this route do not get rapidly absorbed. The following guidelines should be considered while administering subcutaneous injections:

1. Aqueous-based non-viscous and non-irritating medications are always preferable for subcutaneous administration in smaller doses ($\leq 2\text{ml}$).
2. The posterior upper arm, the abdominal area, and the interior thigh area are preferred as the fastest absorption sites for subcutaneous drug administration. The dorsal gluteal sites and upper back area (convenient for those who self-administer insulin) may also be considered for administration.

3. Any infectious area, lesions, scars, bony area and large underlying nerves or muscles should be avoided for subcutaneous drug administration.
4. To prevent tissue damages, the injection site should be rotated regularly.
5. The needle length and insertion angle should be determined on the basis of the amount of subcutaneous tissue at the injection site. For a normal person, a 25 gauge. 5/8 inches long needle with a regular or short bevel should be used at 30- 35 degrees angle of insertion. A longer needle should be used in an obese patient.

Result :

SC vaccination and injection techniques using mannequins was performed.



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