Preparing Medications for Administration

Problem

Administration of a medication can be defined as “the giving by a nurse or authorized person of a drug to a patient”. A medication is defined as any substance or combination of substances having properties for the treatment or prevention of diseases in human beings.

Drugs are powerful substances that must be administered safely in order to be effective and to avoid adverse effects. According to the National Patient Safety Agency (UK), the administration of medicines intravenously and the preparation of medicines for injection are areas of high concern with respect to patient safety.

Consequence

Medication errors can have severe consequences for the patient, including adverse reactions and possibly death. A nurse who makes a medication error could face disciplinary action by the employer, the professional regulatory body, and may be subject to criminal and/or civil prosecution. Nurses should never underestimate their responsibilities when administering medication or choosing to omit it.

Solution

Here are some suggested steps to take to prevent / avoid medication preparation errors.

General precautions

- Do not handle tablets as the contamination may alter the coating of the medication.
- Do not crush tablets unless this has been identified as a suitable method to administer the medication.
- Do not split capsules unless this has been approved as a suitable method of administration.
- Use the correct equipment and syringes when administering liquid medications.
Withdrawing solution from an ampoule into a syringe

- Tap the ampoule gently to dislodge any medicine in the neck.
- Snap open the neck of the ampoule; if the ampoule is glass, take care that it does not shatter.
- Attach a needle to a syringe and draw the required volume of solution into the syringe; tilt the ampoule if necessary.
- Invert the syringe and tap lightly to aggregate the air bubbles at the needle end; expel the air with care.
- Remove the needle from the syringe and fit a new needle or sterile blind hub.
- Label the syringe if appropriate (see below).
- Keep the ampoule and any unused medicine until the administration to the patient is completed; this allows for further checking if necessary.
- If the ampoule contains a suspension rather than a solution, swirl it gently to mix the contents prior to withdrawal into the syringe.

Withdrawing solution from a vial into a syringe

- Remove the tamper-evident seal from the vial and wipe the rubber septum with an alcohol wipe; allow 30 seconds to dry.
- With the needle sheathed, draw into the syringe a volume of air equivalent to the required volume of solution to be drawn up.
- Remove the needle cover and insert the needle into the vial through the rubber septum.
- Invert the vial; keep the needle in the solution and slowly depress the plunger to push the air into the vial.
- Release the plunger so that the solution flows back into the syringe.
- If a large volume of solution is to be withdrawn, use a push-pull technique – repeatedly inject small volumes of air and draw out an equal volume of solution until the required total is reached.
- An alternative method is to pierce the rubber septum with a second needle to let air into the vial as the solution is withdrawn; the tip of the vent needle must always be kept above the solution to prevent leakage.
- Invert the syringe with the vial still attached; tap the syringe lightly to aggregate the bubbles at the end of the needle prior to pushing the air back into the vial.
• Label the syringe if appropriate (see below).

• Keep the vial and any unused medicine until the administration to the patient is complete.

• If the vial contains a suspension rather than a solution, it should be swirled gently to mix the contents prior to withdrawal into the syringe.

Adding a medication to an infusion

• Check that the infusion solution to which the medication is to be added is the prescribed fluid.

• Check the medication to be added against the prescription.

• Prepare the medicine as described in the sections above.

• Check the outer wrapper of the infusion container for any signs of damage.

• Check the wrapper and the infusion container in a good light for any leaks or punctures.

• Remove the tamper-evident seal as per manufacturer’s instructions.

• Wipe the rubber septum on the infusion container with an alcohol wipe, and allow to dry for 30 seconds.

• If the volume of medicine solution to be added is more than 10% of the initial contents of the infusion container, an equivalent volume must first be removed with a syringe and needle.

• Inject the medicine into the infusion container through the center of the injection port, making sure that the tip of the needle stays away from the side of the infusion container.

• Withdraw the needle and invert the container at least five times to ensure thorough mixing before starting the infusion.

• Do not add anything to any infusion container other than a burette when it is hanging on the infusion stand, since it makes mixing impossible.

• Administration must be stopped before adding a medicine to a hanging burette.

• After adding in the medicine to a hanging burette, swirl it carefully to ensure complete mixing of the medication; re-start the administration.

• Check the appearance of the final infusion for absence of cloudiness, discoloration and particles.

• Label the infusion (see below).
Labeling injectable medicines and infusion containers

The nurse preparing the injectable medication must label the syringe immediately after preparation. A practitioner must NOT be in possession of more than one unlabeled syringe. The syringe labels must contain:

- Name of the patient for which the medication is to be administered
- Name of drug or drugs (if mixed)
- Dose of the medication
- Strength of the medication
- Volume of the medication
- Diluents (if used)
- Date and time the injectable medication was prepared
- Signature and initials of the nurse preparing the injectable medication
- Date and time of expiry of the medication (if appropriate).

References


*Note*: A narrated e-Learning module of this Nugget is available at LearningNurse.com.