KeyPoints

Advantages and disadvantages of solutions as dosage forms

Advantages

- Drug available immediately for absorption
- Flexible dosing
- May be designed for any route of administration
- No need to shake container
- Facilitates swallowing in difficult cases

Disadvantages

- Drug stability often reduced in solution
- Difficult to mask unpleasant tastes
- Bulky, difficult to transport and prone to container breakages
- Technical accuracy needed to measure dose on administration
- Some drugs poorly soluble
- Measuring device needed for administration

KeyPoints

Dissolution will normally take place in a glass beaker, not a conical measure, for a number of reasons.

- Firstly, owing to the shape of the conical measure, any solid added to a conical measure will tend to cake at the bottom of the measure and hamper any attempt to stir the solid around with the stirring rod which aids dissolution.
- Secondly, the action of the stirring rod may scratch the inside of the glass conical measure, permanently altering the internal volume of the measure.

General method

The following general method should be used in the preparation of a solution:

1. Write out the formula either from the prescription (unofficial) or from an official text (official).
2. Calculate the quantities required for each ingredient in the formula to produce the required final volume. Remember, it is not usual to calculate for an overage of product in the case of solutions as it is relatively easy to transfer the entire final contents of the conical measure. Additionally, as far as is practically possible, the product will be assembled in the final measure, thus reducing any transference losses.
3. Complete all sections of the product worksheet.
4. Prepare a suitable label.
5. Weigh all solids.
6. Identify the soluble solids and calculate the quantity of vehicle required to dissolve the solids fully. If more than one solid is to be dissolved, they are dissolved one by one, in order of solubility (i.e. the least soluble first). In almost all cases, dissolution will take place in a glass (or occasionally plastic) beaker, not a conical measure. Remember that the solubility of the soluble solids will be dependent on the vehicle used.
7. Transfer the appropriate amount of vehicle to a glass beaker.
8. If necessary, transfer the solid to a glass mortar and use the glass pestle to reduce particle size to aid dissolution (Figure 2.1).
9. Transfer the solid to the beaker and stir to aid dissolution. If a mortar and pestle have been used to reduce particle size, ensure that the mortar is rinsed with a little vehicle to ensure complete transfer of the powders.
10. When all the solid(s) has/have dissolved, transfer the solution to the conical measure that will be used to hold the final solution.