

NEBULIZERS

USE IN ASTHMA



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Q. What is a nebulizer ?

A. A nebulizer is a machine that takes an asthma medication and through its compressor, turns it into a fine misty aerosol. The medication thus dispersed is inhaled directly into the airways.

The diameter of the aerosol particles is a major factor that influences its site of deposition inside the lungs. Aerosol particles between 1 to 5 microns (a micron is a thousandth part of a millimeter) manage to reach even the distal parts of the airways where they are most effective.

Q. What are the different parts of a nebulizer?

A. These are shown in the diagram, on the front page.

Q. What is the procedure for using a nebulizer?

- A.
1. Plug the power cord into the electrical outlet.
 2. Open the nebulizer cup by turning the upper part counter-clockwise.
 3. Pour into the cup, the quantity of drug as prescribed by the physician.
 4. Close the nebulizer by turning the upper part clockwise.
 5. Connect the cup to the unit's air outlet by means of the tube.

6. Apply one of the required accessories; mouth-piece or mask, to the cup.

7. Position yourself comfortably in a sitting position in front of the nebulizer.

8. Start the unit by turning the switch on.

9. See that the medication in the nebulizer cup is forming the mist.

10. Put your lips securely around the mouth-piece, or position the mask around your face and inhale as slowly and deeply as possible. Concentrate on inhaling the medication as directed.

11. Hold your breath for one to two seconds and exhale slowly.

12. Continue to breath through the nebulizer until (a) you have used all the drug, or (b) have taken the treatment for the prescribed time.

13. Turn the machine off, and, if needed, cough several times to bring up any mucus or secretions.

Q. Since the aerosol from the nebulizer goes directly inside the lungs, is there a chance of occurrence of contamination of the aerosol, and consequently lung being infected?

A. There is definite risk if adequate precautions are not taken.

Q. What are the precautions that ought to be observed?

A. 1. Wash your hands thoroughly before opening the cup of nebulizer.

2. Unit dose vials should be carefully opened and the contents poured into a thoroughly clean and fresh nebulizer cup.

3. When measuring medications from multi-dose containers, use an eye dropper or syringe as instructed by the pharmaceutical company or doctor. Do not touch the dropper to any surface other than the medication inside the container. Promptly replace bottle caps tightly. Once opened, medication bottles should be stored in the refrigerator.

Q. How is the nebulizer washed and cleaned after each use?

A. 1. Disassemble the nebulizer unit immediately following each treatment.

2. Rinse the disassembled nebulizer cup, and mask or mouth-piece under a strong stream of warm water for thirty seconds.

3. Shake off excess moisture. Allow to air dry on a clean towel or paper towel.
4. Connect tubing to compressor and run several seconds to dry small parts.
5. Store all the parts properly in the space provided inside the nebulizer machine.

Q. How should one maintain the nebulizer unit?

- A. Every week or so, immerse for 30 minutes the nebulizer cup, the face mask and mouth-piece in a disinfecting solution of 1 part distilled white vinegar to 2 parts water. Then rinse in warm running water for 1 minute, and dry on a clean towel. Change filters as needed.

Compressor tubing should be changed as and when necessary. Never use tubing that looks cloudy. Nebulizer cups, and masks or mouth pieces should be replaced when they become discolored. Always keep with you a spare nebulizer cup on hand.

Proper maintenance reduces the chances of bacterial contamination.

Q. Which asthma patients can derive the best advantage out of the nebulizers ?

A. The best candidates for the nebulizers are the elderly who have difficulty with hand-held metered-dose inhalers. The other group is of infants and young children who cannot grasp the concept of the MDIs even when the spacers are used.

Q. Which one serves the purpose better in children: the mask or a mouth-piece?

A. Mouth-piece. As it delivers more medicine effectively than a mask for most children above two years of age.

Q. When is the use of a nebulizer indicated?

A. When a patient has a moderate to severe attack of asthma. Nebulizers are particularly helpful in patients who get moderate to severe symptoms at night. Such patients can use a nebulizer before they go to sleep.

Q. What medication is used for nebulization?

A. Salbutamol, a bronchodilator, is most used for nebulization. Steroids are also used. Most asthma medications are now available in solution form for nebulization.

Q. How much salbutamol solution is needed for each nebulization?

A. 1/2 to 1 ml solution of salbutamol from the vial in 2 to 3 ml of saline solution, or the contents of an ampoule. In children, the dosage is less than in adults. The exact quantity depends on the severity of the attack of asthma.

Q. For how long is nebulization given?

A. The solution put into the working nebulizer cup usually finishes in 10 to 15 minutes. This much time is adequate for nebulization.

Q. How long does effect of nebulization with salbutamol last?

A. It should last for at least 4 hours. By that time other medicines given by mouth start being effective.

If the effect lasts less than 2 hours, then even though nebulization can be repeated, other drugs in the form of tablets or injections, particularly the steroids and deriphylline injections, are indicated.

Q. Can nebulization with salbutamol be combined with oxygen administration if indicated?

A. In very severe attacks of asthma wherein the patient has cyanosis (blue colour) due to deficiency of oxygen in the blood, nebulization is combined with administration of oxygen coming out either from a nearby oxygen cylinder or piped oxygen. Oxygen delivery of upto 5 liters per minute is necessary to produce sufficient force for production of the aerosol mist.

Q. Besides asthma, which other chest conditions benefit by nebulization?

A. Patients with chronic bronchitis having breathlessness, derive a lot of benefit by nebulization. Since in such patients, the symptoms are of a more permanent nature rather than spasmodic as in asthma, they can make regular use of nebulizers.

Q. In what situation can the use of a nebulizer prove more harmful than good ?

A. When the patient having a severe persistent attack decides to make use of the nebulizer repeatedly after short intervals.

At this stage, he needs the help of steroids either as injection or tablets along with nebulizer. If steroids are not taken at this stage, the patient

can go into a dangerous stage.

Q. Can a patient use a nebulizer before going to bed at night and MDIs as and when indicated during the day?

A. Yes, it is all right to use them so. If the patient feels better by using the nebulizer both in the morning and at night, then in consultation with his specialist and after taking care of all the other anti-asthma drugs, she/he can do that also.

Available Publications

1. Managing Asthma	Rs. 30.00
2. Asthma Attack : It Can be Prevented	Rs. 30.00
3. Asthma : Facts and Fiction	Rs. 20.00
4. Asthma Triggers: How to Avoid Them	Rs. 20.00
5. Asthma Attack : Early Signs	Rs. 20.00
6. Anti-Asthma Drugs : Their Proper Use	Rs. 20.00
7. Metered-Dose Inhalers : Use in Asthma	Rs. 20.00
8. Nebulizers : Use in Asthma	Rs. 20.00
9. Space Inhalers : Use in Asthma	Rs. 20.00
10. Peak-Flow Meter : Use in Asthma	Rs. 20.00
11. House Dust Allergy	Rs. 20.00
12. Food Allergy	Rs. 20.00
13. Urticaria	Rs. 20.00
14. Allergic Rhinitis (Sneezing Fits)	Rs. 20.00

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