

Noninvasive Assisted Ventilation



Figure: A patient on Non-invasive Assisted Ventilation

What is the procedure?

Noninvasive assisted ventilation is the process to support a patient's breathing by a machine (ventilator) through a nasal mask or a facemask. The process is therefore called noninvasive, in contrast with another procedure called Invasive Assisted Ventilation where the breaths are delivered with placement of a tube directly into the windpipe (trachea).

Why is there a need to do it?

Breathing is essential for bringing in oxygen and removing carbon dioxide. Common causes of breathing and gaseous failure include chest infection by bacteria or viruses (pneumonia), chronic obstructive airway disease, asthma and acute pulmonary edema (lungs flooded with fluid as a result of heart failure). Noninvasive assisted ventilation reduces the effort required for breathing in patients with respiratory failure. At the same time, it avoids injury and discomfort related to putting a tube directly into trachea.

How is it done?

Before the procedure, a mask of appropriate size will be applied on the face to connect the patient to the breathing machine. The doctor will adjust the machine setting and then start the noninvasive assisted ventilation. The ventilation mask should be kept in place. The airflow may distort the voice and affect communication. Writing pad may be used for communication. Only gentle movement is allowed to prevent disconnection of the machine circuit. During the procedure, eating and drinking may not be allowed. Dry mouth and dry throat may be experienced. Physiotherapy will be arranged if necessary to clear the lungs of sputum and improve lung expansion.

When to stop?

Removal of the assisted ventilation may be considered when the patient's condition improves. It depends on severity of the disease and the patient's response to treatment. If the patient's condition deteriorates or the patient cannot tolerate noninvasive assisted ventilation, doctor may consider to use invasive assisted ventilation.

Risks and complications

The procedure is generally safe, but the following could occur:

- Skin ulcer from the face mask due to tight-fitting or prolonged use
- Dry nose and mouth
- Nose bleed
- Eye irritation
- Nasal sinus pain or congestion
- Difficulty in coughing
- Sensation of suffocation
- Barotrauma: pressure from the ventilator leading to lung injury

Possibility that the procedure cannot be carried out

There is a possibility that the procedure cannot be carried out, for example, if the face mask does not fit the face, or occurrence of side effects which require stopping of the procedure.

Other treatment options

The patient may choose to not undergo this procedure. The degree of impact this decision may have on the patient's health condition depends on a variety of clinical factors, such as the individual patient's physical condition before the onset of illness, the type of disease, the response to treatment and the progress. The doctor will explain suitable alternative options to the patient and family members.

Disclaimer:

The information provided in this booklet is for general reference only. The risks and complications listed above are not exhaustive. Please consult your attending doctor for details.