

# Nasal Masks Enhance Patients' Quality of Life

Tubes, machines, and a closed mouth: As a rule, people on ventilators are lost for words. However, new studies show that **NASAL MASKS** can change this—and other things besides.

**HARM KLAAS** heaves a long sigh of relief. Henriette, his wife, smiles back at him. Now that her mouth is free again, he can feed her the tangerine segments she likes so much. She can eat and talk to her husband. For three whole days, there was

no possibility of any verbal communication between the couple, who have been married for 34 years—three days of silent looks, and machines, and hope.

Henriette Klaas was admitted to the hospital with respiratory failure as a result

of chronic bronchitis. She was immediately given non-invasive ventilation (NIV) with a face mask (full-face mask) covering nose and mouth. After a successful response to this treatment, the doctors have now switched her over to a nasal

mask. “The relief after the first three days was enormous; I was finally able to breathe properly again. But after a while I began to feel claustrophobic because of the face mask,” whispers Henriette Klaas, still visibly weakened by her condition. “But with this nasal mask I now feel a lot better.”

Studies show that this procedure can be highly recommended. Together with his colleagues, Dr. Christophe Girault from the University Hospital in Rouen (France) has investigated the influence of the initial choice of mask on the clinical effectiveness and tolerance of NIV in cases of acute respiratory failure (ARF). A total of 90 patients were divided into two groups, the one ventilated with face masks, the other with nasal masks. The results of the study (“Interface strategy during noninvasive positive pressure ventilation for hypercapnic acute respiratory failure” in *Critical Care Medicine*, January 2009, Vol. 37, No. 1; pp. 124 ff.) confirmed what Girault had already observed during many years of clinical experience. “We knew that nasal masks can cause lots of problems due to air leaks, particularly in the early stages of NIV. Our aim was to show that it is therefore better to start off with a face mask in cases of acute respiratory failure, but that the patient can be switched to a nasal mask later on,” says Girault. “The study shows that nasal masks can be just as effective as a face mask, provided the patient cooperates.” The main problem is that patients with a nasal mask also breathe through their mouths, and that leads to air leakages via this opening, thereby necessitating

a change of mask. He therefore sees big potential for the use of nasal masks not only in hospitals but also in the homecare environment—for example, in the treatment of patients with chronic respiratory failure who are already used to NIV.

In the light of this study, it is very fitting that Dräger has been expanding its NIV mask portfolio by two nasal mask lines: the ClassicStar, which has been available since mid-2009, and the NovaStar, which is projected for market launch later this year. The development of these new masks has focused on maximizing patient comfort and minimizing air leakage. The single-patient use ClassicStar nasal mask is equipped with an adjustable mask cushion, which also helps to ensure an effective seal, and the multi-patient use NovaStar nasal mask with a soft silicone-gel cushion and a pliable ring incorporated into the mask body, which allows the mask to be adjusted to the shape of the patient's face precisely.

## A custom fit is crucial for success

As Girault explains, continuous enhancement of the ventilators and improvement of the masks is a key factor in the use of NIV: “A perfect mask fit is crucial for ensuring a greater acceptance and tolerance of NIV and is therefore fundamental to the success and effectiveness of this form of therapy.”

In many cases, invasive ventilation and the resulting complications can be avoided with the use of NIV (cf. *Dräger Review* 96.1; pp. 10 ff.). Even more importantly, the risk of ventilator-associated pneumonia, a possible complication

of invasive ventilation via endotracheal tube can be reduced and the anesthetic generally required for intubation becomes unnecessary.

If there are no contraindications to mask ventilation, Girault would initially recommend the use of a face mask in cases of ARF: “With a face mask, it's much easier for patients to get accustomed to NIV.” The study demonstrated an overall success rate for NIV in over 80 percent of cases—i.e. for four out of five patients intubation was unnecessary. Of the patients initially ventilated with a nasal mask, 75 percent had to be switched to a face mask within a short space of time because of air leaks.

From the third day onward, however, more substantial problems with the face masks began to emerge. Patients felt uncomfortable with the mask, and there were complications involving the skin, ears, nose, and throat. “Switching to a nasal mask in such cases—or, even better, before these complications arise—can avoid such problems,” explains Girault. He recommends changing over to a nasal mask whenever the NIV lasts longer than 48 hours and provided that the patient is stable.

Henriette Klaas has gotten used to being ventilated with a nasal mask. Although she is still struggling with her condition and the respiratory failure has every appearance of becoming chronic, she's positive about the future. That's because the doctors have said that there's a good chance that she will be able to continue using the nasal mask—at home with her husband. **Isabell Spilker**



Form follows function: Using a pump ball (center), the mask cushion (left) is inflated with enough air (right) to create an effective seal with the patient's face. The mask swivel can be rotated through 360 degrees.



Adjustable nasal masks provide a custom fit and help enhance the effectiveness of non-invasive ventilation.