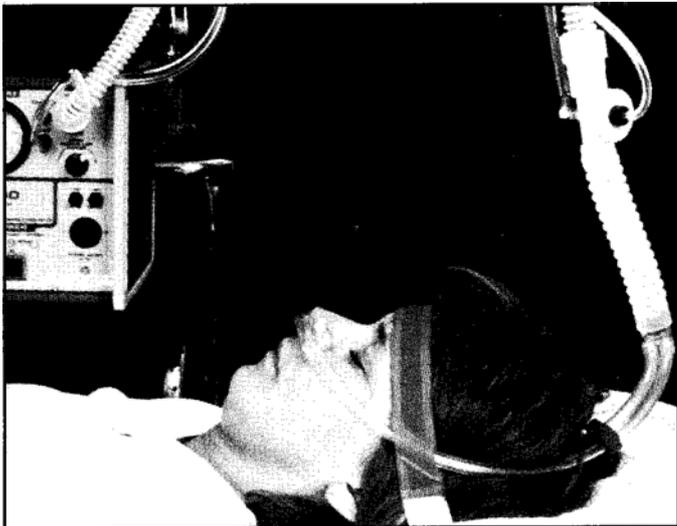


THE INDIVIDUAL REMMER NASAL MASK

by Lennart J. Remmer

There are now several reports of good results with assisted, noninvasive intermittent positive pressure ventilation (NIPPV) with a nasal mask in people with respiratory failure in neuromuscular disorders. A comfortable mask permitting minimal leakage without causing tissue damage is critical for treatment success. This is not always achieved with commercially available nasal masks. The Remmer nasal mask has been in use since 1989, and more than 200 people have been equipped with it.

The mask is made by first taking an alginate impression of the nose. A high-quality impression is desirable but this is not always easy because the individual being fitted often has a reduced breathing capacity. He or she may be unable or unwilling to lie down, and the technician must accept



a more upright position. To achieve a good result, the individual should be calm and well-informed of the procedure. Facial movements during the making of the impression should of course be avoided, especially movement of the nose, because this will affect the fit of the mask.

The impression mold is made of PVC and is available in different sizes. The alginate is a superb material for impressions and can be mixed so that it has a fairly liquid consistency. The first layer of material can be spread out around the nostril openings with a finger. The remaining material is applied thickly and air bubbles should be avoided. The mold does not normally need to be sealed if the impression material has the correct consistency. It is also important that the mold is not moved during the setting period; the resultant impression may be incorrect. Sometimes the impression material can run toward the individ-

ual's eyes, but if the eyes are closed there is no discomfort.

After the impression material has set, the mold is removed from the face. The impression is examined and if of the desired quality, the mask is then completed. The mask material is presently a light curing resin. Recently, I tried to make the nasal openings using a soft curing resin for increased comfort and minimal leakage, but it did not work. After 20 masks were in use for more than three months, I could see the soft material had delaminated and had also shrunk, and people were complaining of more leakage and sores, so I went back to the original method.

The mask and headgear are then tried on and adjustments are made. The individual comes to the outpatient unit for training in the use of the mask, and then continues use at home. Individually adapted equipment significantly increases the quality of life, enables the individual to function better socially, and results in fewer hospitalizations. Rhinitis or drying out of the nose is the most common problem, but the use of simple unheated humidifiers integrated into the tubing can solve that.

My associate Hanna Laine and I followed 67 people using the Remmer mask at home. Of these, 40 had symptoms of night-time hypoventilation. Of these 40, 33 people could sleep more than 6 hr per night with the nasal mask. A reduction in symptoms was observed in morning headaches (86%); daytime drowsiness (82%); chronic fatigue (72%); sleep disturbance (63%); and depression/irritation (55%). More than 90% of the individuals are satisfied with the fit and handiness of the mask.

NIPPV with a Remmer nasal mask in people with moderate respiratory insufficiency can be successful with appropriate technical and medical assistance. Reduction in symptoms of alveolar hypoventilation and improvement in blood gases can be expected after six months of treatment.

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