

## PATIENT CASE REPORT. CATEGORY: ADULT

# LONG-TERM PATIENT WITH SEPSIS, MORBID OBESITY AND ANXIETY DISORDER – SUCCESSFUL WEANING WITH NEURALLY ADJUSTED VENTILATORY ASSIST

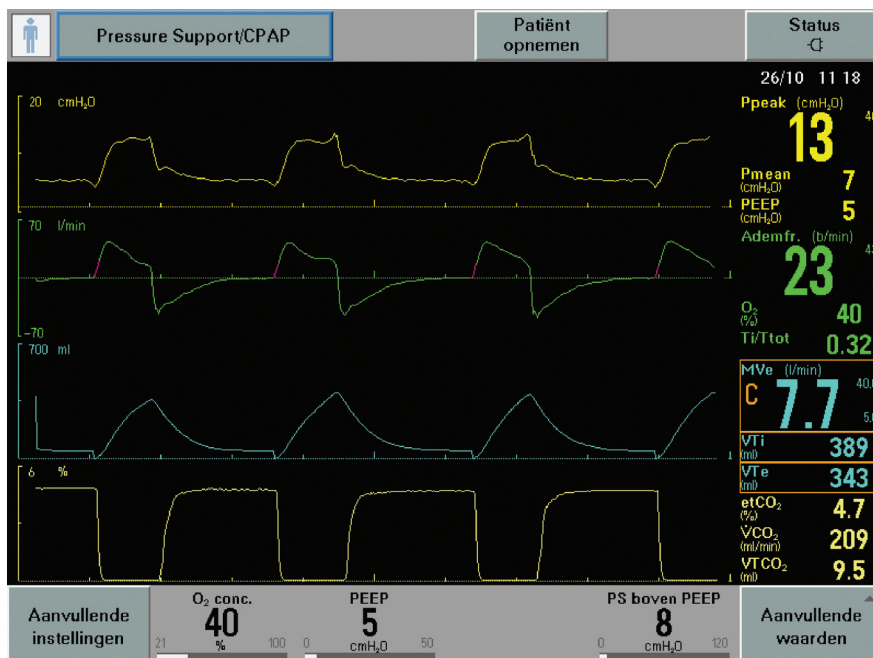
### Clinical Background and Situation:

A 59 year old woman was admitted to ICU post-operatively after an emergency laparotomy. She suffered from a leakage in her colon, five days after an elective nephrectomy because of a Grawitz tumour with metastatectomy. Her history mentioned morbid obesity (125 kg/1.67m/45 BMI), a well treated hypertension, a sub-clinical hypothyroid, and depression with anxiety disorder. On admission she was sedated and ventilated (PRVC 50% O<sub>2</sub>, PEEP 8cmH<sub>2</sub>O) because of a scheduled re-exploration of her belly after a few days.

### Intervention and course of ventilation therapy:

During the first 17 days after admission she suffered from being septic because of her gut leakage. She was reoperated twice by means of a laparotomy,

which resulted in an open belly treatment. This was complicated by a renal insufficiency due to sepsis and because of a rhabdomyolysis after administration of Crestor. Ventilation was difficult because of her morbid obesity, open belly treatment, pleural effusion due to decompensation cordis and renal insufficiency. Ventilation was given with PRVC (Pressure Regulated Volume Control), PEEP between 8 and 15cmH<sub>2</sub>O, and FiO<sub>2</sub> between 40 and 70%. On day 11 she was stable, sedation was stopped and she was able to be ventilated by Pressure Support - PS (40%O<sub>2</sub> PS16/PEEP 12cmH<sub>2</sub>O) with a breathing of 24 frequency x tidal volume 500 ml. During the next 6 days PS was decreased to 14 PS/PEEP 8cmH<sub>2</sub>O with pO<sub>2</sub> of 12-15 and 20 frequency x tidal volume 530ml ventilation. She was ready for starting a weaning process.



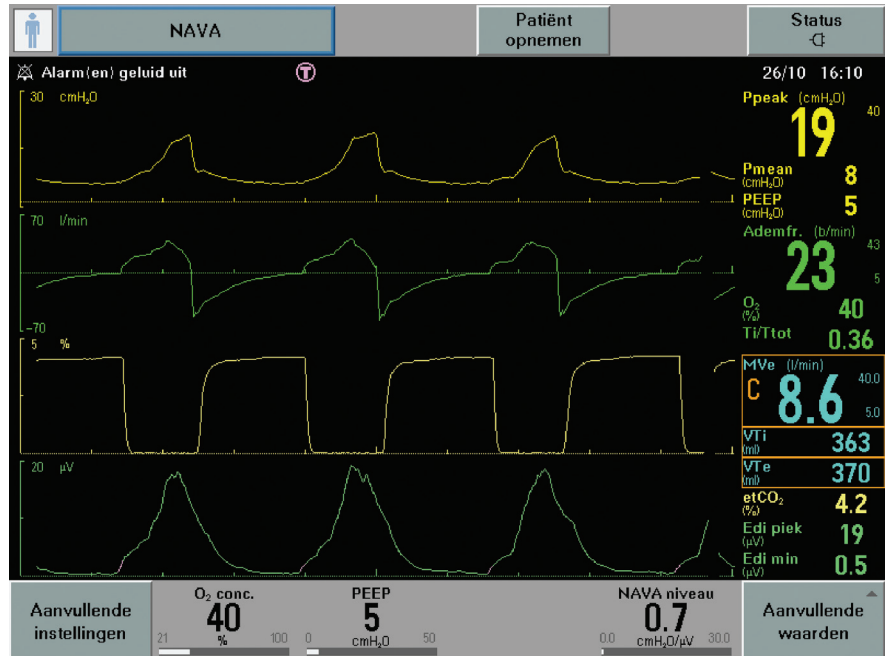
The patient is clearly uncomfortable in breathing effort in Pressure Support.

Case contributed by Dr Mat van Iterson, Anesthesiologist-Intensivist, and Ursula Veld, ICU nurse and ventilation practitioner, Intensive Care Department of the St Antonius Ziekenhuis, Nieuwegein, The Netherlands.

### Weaning process and results:

Weaning was started 17 days after admission and it took 5 days to decrease PS to extubation values (Pressure Support 10, PEEP 5, FiO<sub>2</sub> 40%) with adequate arterial pO<sub>2</sub>'s. Mobilisation was limited because our patient was passive with no intention or even anxiety of going outside the bed without the ventilator. Weaning with Pressure Support was attempted many times without success and without any progression. We decided to perform a tracheotomy (Rusch 8.0). However she suffered too much from her anxiety to be without the ventilator. Although her anxiety was treated with Prozac (20mg dd), Lorazepam (3mg dd) and Oxazepam (10mg dd), her bloodgas values showed adequate oxygenation with quiet ventilation. We were sure that ventilation could be stopped; however 5 minutes after discontinuing ventilation, she was so anxious that we could not make any progression. After eleven days of weaning trial, we decided to start NAVA. Even right from the beginning she looked more in balance, and did not refer to dyspnoea. A NAVA level of 0.7cmH<sub>2</sub>O/μV was started, with peak Edi from 11-24μV, resulting in ventilation of frequency of 16-20 x tidal volume 470 ml.

From day two after starting NAVA, we could begin a spontaneous breathing trial for 30 minutes, four times per day. During ventilation stops we were informed by means of Edi diaphragmatic monitoring about her progress which was normal, indicating that it was not a muscle weakness which restricted the weaning. She felt very well and got even



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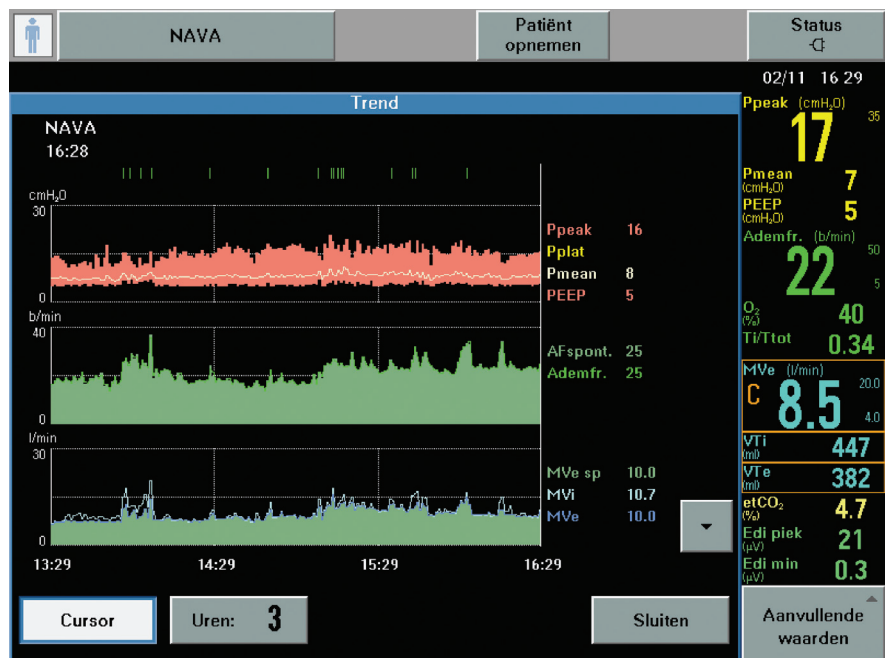
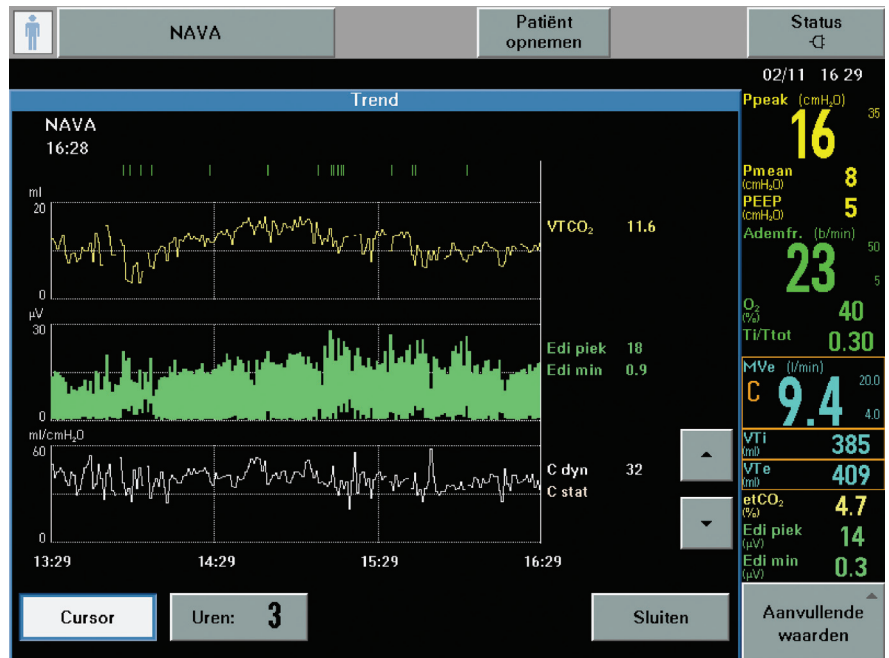
The NAVA level was reduced to 0.5cmH<sub>2</sub>O/μV.

more confident with herself. Seven days after treatment with NAVA, Ruschcanule with talk possibilities was performed and she was discharged 5 days later. She had to be dialysed because of her renal insufficiency, but was doing well for almost a month. Unfortunately after that point she suffered from a heart attack with dec cordis, and died due to a DNR (do not resuscitate order).

**Case summary:**

A 59 year old woman was treated for 45 days in our ICU after an emergency laparotomy. After becoming stable, weaning from ventilation was difficult, not only because of her weight (BMI = 45), open belly treatment and intention to decompensate, but mainly because of an anxiety disorder which mentally restricted her in any progression to be weaned from the ventilator.

The benefits we observed after initiation of NAVA resulted primarily in greater patient comfort. Secondly it was possible for her from day two to be without the ventilator for short periods. Thirdly we could observe her diaphragmatic performance during discontinued ventilation, which was adequate, so any muscle weakness for example could be excluded. Unsuccessful weaning during more than 10 days was followed by completely discontinuation of ventilation within 7 days after initiation of NAVA.



Trend window showing peak and frequency variation.

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