Tidsskriftet
DEN NORSKE LEGEFORENING

Relieving the sensation of suffocation in patients dying with COVID-19

DEBATT

YNGVE KISERUD

E-mail: yngvekis@online.no
Yngve Kiserud is a specialist in general practice medicine and acting senior consultant at Sunniva Centre for Palliative Care, Haraldsplass Deaconess Hospital.
The author has completed the ICMJE form and declares no conflicts of interest.

JAN HENRIK ROSLAND

Jan Henrik Rosland is an anaesthetist, senior consultant and head of section at Sunniva Centre for Palliative Care, Haraldsplass Deaconess Hospital, and adjunct professor at the Department of Clinical Medicine, University of Bergen.
The author has completed the ICMJE form and declares no conflicts of interest.

Doctors, nurses and family members are giving heartbreaking accounts of acute respiratory distress, panic and a sensation of suffocation in some COVID-19 patients in the terminal phase. What should healthcare professionals do in such situations?

Infection with SARS-CoV-2 may affect the lungs, and some patients rapidly develop respiratory failure, typically in week two of the disease course (1). These patients show a clinical and radiological picture consistent with acute respiratory distress syndrome (ARDS), with interstitial oedema leading to failure of oxygenation. Hypoxia stimulates chemoreceptors in the brainstem, aorta and carotid sinus, which in turn send signals to the respiratory centre in the brainstem. This generates increased respiratory effort, shortness of breath, sensation of suffocation, and a fear of dying. This fear will have a self-reinforcing effect on the symptoms via cortical stimulation of the respiratory centre (2).

A patient who is fighting for breath can best be helped using medications that reduce the effort required to breathe and alleviate the fear of dying

In a situation where ventilatory support is not appropriate, these symptoms must be managed with palliative care. There is a risk that the healthcare system will be unable to intervene fast enough, as several press releases have described (3, 4). This may be due to the patient not being on a specialist ward when the condition develops, not being monitored frequently enough, not having access to expertise in palliative care, or because the recommendations in current guidelines for relief of end-of-life dyspnoea are not sufficiently effective. In nursing homes and in hospitals, the nursing home doctor or a specialty registrar will often be the first to attend. Many of these individuals will have little previous experience of palliative care, and this may become particularly apparent during the ongoing pandemic. The mobilisation of extra personnel also means that a greater

proportion of the workforce will have little experience. In circumstances such as these, a concise pocket guide can be useful.

Algorithm for relieving the sensation of suffocation

In their article on palliative care for COVID-19 patients, Anne-Tove Brenne et al. highlight the importance of good communication between different levels of care (5). They emphasise too that high symptom intensity and rapid progression make it difficult to follow standard guidelines for the gradual escalation of drug doses until efficacy is achieved. Palliative medicine experts within the Western Norway Regional Health Authority have therefore collaborated to produce a concise algorithm for alleviating the sensation of suffocation, suitable to carry in a pocket or on a mobile phone. The algorithm is available from the Regional Centre of Excellence for Palliative Care and can be adapted and incorporated into local procedures (6). It is important that the first doctor to see the patient can quickly gain control of the symptoms.

A patient who is fighting for breath can best be helped using medications that reduce the effort required to breath by blocking hypoxia-induced stimulation of respiration, and medications that alleviate the fear of dying. The drugs of choice are therefore morphine (which lowers respiratory rate and effort, and reduces shortness of breath by reducing sensitivity to hypoxia and hypercapnia) and midazolam (which is a sedative, anxiolytic and muscle relaxant) (2, 7, 8). The algorithm for alleviating the sensation of suffocation (6) differs from the current guidelines in that it recommends a high starting dose, greater dose escalation at each step, routine co-administration of morphine and midazolam, and an instruction to consider rapid establishment and use of intravenous access, if not already available. This adjusted regimen is necessary to enable the provision of effective relief, even if doing so may somewhat shorten the life of the patient.

In brief, 5 mg morphine and 2.5 mg midazolam should immediately be administered intravenously

In brief, 5 mg morphine and 2.5 mg midazolam should immediately be administered intravenously. For subcutaneous administration, the starting dose is 10 mg morphine and 5 mg midazolam. Intravenous access and transition to an intravenous regimen should then be considered. For both routes of administration, the dose should be adjusted at specific time intervals in line with the recommendations (6). A low threshold is recommended for contacting local experts in palliative care to plan the subsequent course.

In the absence of evidence for a new clinical condition, we have chosen to reach a consensus on best practice based on available reports. The course of the terminal phase varies greatly across patients, but is characterised by a risk of rapid deterioration (10–20 minutes), even when initial symptoms are of low intensity. Death may occur shortly afterwards, or may follow a terminal phase lasting from hours to a few days, in which further rapid deteriorations may occur (M. Nystad, S. Steine, personal communication). It is crucial that experiences are collated and used as a basis on which to quickly adjust the recommendations. This will enable the healthcare system to offer suitable treatment so that patients do not have to end their lives with the sensation of being suffocated.

REFERENCES:

1. Zhou F, Yu T, Du R et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet 2020; 395: 1054–62. [PubMed][CrossRef]

2. Pattinson KT. Opioids and the control of respiration. Br J Anaesth 2008; 100: 747–58. [PubMed][CrossRef]

3. Huuse CF. Nye retningslinjer ved Ahus: Vil hindre at coronapasienter lider. VG 27.3.2020.

https://www.vg.no/nyheter/innenriks/i/onArdA/nye-retningslinjer-ved-ahus-vil-hindre-at-corona-pasienter-lider Accessed 8.4.2020.

4. NRK-journalist om italiensk sykehusbesøk: – Folk kveles i sengene sine. NRK 1.4.2020. https://www.nrk.no/video/91317cee-1642-4fb3-86bb-e4ede02e0d81?fbclid=IwAR21pHYWVcOjq7UWiQrcK6QLaGtuJAA1QnqKDFJS71O8IVdt7Pjxn3CWAMI Accessed 1.4.2020.

5. Brenne A-T, Nordbø A, Steine S et al. Palliativ behandling av pasienter med covid-19. Tidsskr Nor Legeforen 2020; 140. doi: 10.4045/tidsskr.20.0276. [CrossRef]

6. Helse Bergen. Palliasjon – verktøy for helsepersonell. Lindring av truende kvelning ved covid-19 i terminal fase. https://helse-bergen.no/seksjon/KLB/Documents/COVID-19/Lindring%20av%20truende%20kvelning%20i%20terminal%20fase%20av%20COVID19.pdf Accessed 20.4.2020.

7. Coast JR, Rasmussen SA, Krause KM et al. Ventilatory work and oxygen consumption during exercise and hyperventilation. J Appl Physiol (1985) 1993; 74: 793–8. [PubMed][CrossRef]

8. Gonzalez Castro LN, Mehta JH, Brayanov JB et al. Quantification of respiratory depression during pre-operative administration of midazolam using a non-invasive respiratory volume monitor. PLoS One 2017; 12: e0172750. [PubMed][CrossRef]

Published: 6 May 2020. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.20.0317
Received 7.4.2020, first revision submitted 16.4.2020, accepted 21.4.2020.
© The Journal of the Norwegian Medical Association 2020. Downloaded from tidsskriftet.no