

Damian Palus¹, Rafał Suchodolski¹ , Aleksandra Cegła¹, Alan Majeranowski², Krzysztof Kuziemski³

¹Faculty of Medicine, Medical University of Gdańsk, Poland

²Department of Haematology and Transplantology, Faculty of Medicine, Medical University of Gdańsk, Poland

³Department of Pulmonology and Allergology, Faculty of Medicine, Medical University of Gdańsk, Poland

Sedation as a palliative treatment of dyspnea in a COVID-19 patient

Abstract

We present a case of a 62-year-old female patient with advanced sigmoid colon cancer and co-occurring respiratory failure due to COVID-19. The patient required CPAP therapy, however, due to bad tolerance of this treatment method sedation was required. As the respiratory failure progressed the patient was disqualified from invasive mechanical ventilation and treatment in ICU on account of her underlying condition and inauspicious prognosis. Therefore, it was decided to continue sedation as palliative means of dyspnea management.

Palliat Med Pract 2021; 15, 4: 303–305

Key words: COVID-19, CPAP, palliative sedation, dyspnea

Introduction

As of May 2021, more than 3 million deaths globally due to COVID-19 have been reported. In Poland, the death toll has reached almost 70 thousand. This data is most probably underestimated because of flaws in the death reporting system [1]. Out of all the hospitalized patients, approximately 14% developed a severe case of the disease (according to the National Institute of Health definition) [2, 3]. In this group of patients, dyspnea is one of the main symptoms and contributes greatly to aggravating the severity of illness and long-term prognosis [4]. Oxygen therapy is necessary to treat respiratory failure in patients with severe COVID-19 and to reduce the intensity of dyspnea. Various types of oxygen therapy are used in COVID-19 patients including High Flow Nasal Oxy-

gen (HFNO) and Continuous Positive Airway Pressure (CPAP) [5]. Sedating patients with COVID-19 decreases anxiety and dyspnea which cause distress and facilitates supplemental oxygen therapy in agitated and uncooperative patients. While the SARS-CoV-2 infection is a potentially reversible cause of respiratory failure, the prognosis in elderly patients with multiple comorbidities including neoplasms is unfavourable and the treatment often takes on a palliative character [6]. This occurs particularly in patients with acute respiratory distress syndrome (ARDS) who are disqualified from invasive mechanical ventilation in the intensive care unit (ICU). In these cases, sedation can become a means of palliative therapy.

In the present case, the patient was on CPAP, which continuously applies a constant positive airway pressure to the upper respiratory tract preventing

Address for correspondence:

Rafał Suchodolski

Faculty of Medicine, Medical University of Gdańsk, Poland

e-mail: suchodolski.raf@gmail.com



Palliative Medicine in Practice 2021; 15, 4, 303–305

Copyright © Via Medica, ISSN 2545–0425, e-ISSN: 2545–1359

DOI: 10.5603/PMPI.2021.0024

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upper airway and alveoli collapse, ameliorating gas diffusion and potentially staving off intubation [7]. CPAP requires good and constant cooperation with the patient, however, it can be a source of discomfort and anxiety because of the tight-fitting facemask (which is crucial in reducing air leaks), the desiccation of respiratory mucosa and the noise produced by the CPAP machine [8,9]. Psychological symptoms caused directly by COVID-19 such as anxiety, agitation, disorientation and insomnia can also be factors that impede the use of non-invasive ventilation [10].

Case report

A 62-year-old female patient was transported to the University Clinical Emergency Department with increasing fatigue and cognitive impairment. The patient had undergone 17 cycles of the FOLFOX6 chemotherapy regimen for advanced tubulovillous colorectal adenocarcinoma (G1) with metastasis in the lungs and the liver. In addition, she had a medical history of arterial hypertension and cachexia due to the underlying disease. A positive PCR test for SARS-CoV-2 on day "0" of hospitalization confirmed the infection and the patient was admitted to the isolation ward for COVID-19 patients in the University Clinical Centre. Upon admission the patient's condition was serious, she was conscious, allopsychically and autopsychically oriented, haemodynamically stable, respiratorily unstable. High-resolution computed tomography (HR-CT) of the chest revealed inflammatory lesions characteristic of COVID-19 involving 65% of the pulmonary parenchyma, CORADS 5 (COVID-19 Reporting and Data System). Oxygen therapy through a non-rebreather mask with an oxygen flow of 15 L/min was started as well as 6 mg intravenous dexamethasone, standard antithrombotic prophylaxis, empiric antibiotic therapy with amoxicillin and clavulanic acid, which was replaced with levofloxacin on day 10 of hospitalization due to increased inflammatory parameters.

Respiratory failure progressed over the following days and therefore CPAP therapy was initiated on 10 cm water pressure and FiO₂ 100% resulting in a gradual improvement of the ventilation parameters. On day 4 of hospitalization the patient's tolerance of the CPAP machine declined, she became anxious, agitated and continuously removed the mask, lowering the transcutaneous oxygen saturation to 80%. 2,5 mg of morphine was administered subcutaneously every 6 hours together with 5 mg of diazepam orally every 6 hours to reduce distress and dyspnea but this treatment did not achieve the desired effect. The patient did not qualify for invasive mechanical ventilation in the ICU on account of the advanced colorectal

adenocarcinoma and poor prognosis. A palliative therapy protocol was implemented which included the continuation of CPAP since other ventilation methods were ineffective and did not ensure sufficient oxygen saturation. It was necessary to implement palliative sedation via continuous intravenous infusion of midazolam (1–5 mg/h, average 4 mg/h) and morphine (1–4 mg/h, average 2 mg/h) since day 5 of hospitalization to facilitate the continuation of CPAP. The patient's family was unable to visit her and provide emotional support because of the restrictions. In the following days attempts to modify the oxygen therapy as well as reduce sedation were made, but they were all unsuccessful for the patient kept on removing her mask and alternative methods of supplemental oxygen were ineffective. Even with continuous dexamethasone administration, antithrombotic prophylaxis and antibiotic therapy the patient died on day 22 of hospitalization.

Discussion

The COVID-19 pandemic poses many new therapeutic challenges, in palliative care as well. The short time span and limited organizational capacity of the healthcare system did not facilitate large, multicentre, randomized clinical trials on palliative care in COVID-19 patients. The European Respiratory Society guidelines underline the crucial role of low-dose opioids, particularly morphine, and supplemental oxygen as standard treatment in COVID-19 patients with dyspnea [4]. Benzodiazepines are recommended in patients when opioids do not provide relief from breathlessness, and in agitated and anxious patients [4]. Palliative sedation therapy should be considered in patients who have refractory symptoms despite employing all possible treatment options, as a way to reduce anxiety and feeling of breathlessness.

Palliative sedation therapy aims to alleviate the patient's suffering when alternative, effective treatment methods are unavailable — through continuous maintenance of a reduced level of consciousness — in their last days of life [12]. The definition of suffering that warrants palliative sedation remains controversial and it is recommended to closely evaluate its benefits in terminally ill patients [13]. Palliative sedation is mainly used in treating pain, dyspnea, seizures, nausea and delirium. According to The Waterloo Wellington Palliative Sedation Therapy Protocol use of midazolam, methotrimeprazine (in Poland available as levomepromazine) and phenobarbital can be used [12]. The authors stress that opioids and antipsychotic drugs should not be used to induce palliative sedation but rather to manage pain, dyspnea and delirium. In the

present case-patient sedation was primarily used to achieve CPAP tolerance and to continue mechanical ventilation because other passive oxygen therapy options were ineffective and due to poor prognosis the therapeutic team wanted to avoid intubation and invasive mechanical ventilation. Kofod et al. demonstrated the benefits of CPAP therapy in patients with respiratory failure during COVID-19 — sedation was necessary for patients with poor tolerance of CPAP; midazolam and morphine were used amongst other drugs, but without full loss of consciousness [7].

As the respiratory failure progressed the therapeutic team considered intubation, but the anaesthesiologist disqualified the patient from invasive mechanical ventilation in the ICU based on the underlying disease and poor prognosis. It was decided to continue with palliative sedation therapy on account of aggravated dyspnea, anxiety and lack of cooperation with the CPAP machine.

Declaration of conflict of interests

The authors declare that there is no conflict of interest.

Funding

None declared.

No identifiable information about the patient is included in the manuscript.

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