Against the odds: unlikely COVID-19 recovery

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ABSTRACT

Background We present a 67-year-old male, with palliative hypopharyngeal squamous cell carcinoma, who contracted COVID-19 infection while in hospital. Cancer diagnosis, among other clinical features, increases the risk of poor outcome of COVID-19 infection. A recently validated risk calculator (COVID-GRAM) can help to guide prognosis.

Events COVID-19 infection caused significant clinical deterioration in this patient. A Treatment Escalation Plan of ward-based care was put in place and the palliative care team involved. The goal of care was comfort.

Results The patient improved clinically and retested negative for COVID-19. He was discharged to a nursing home for ongoing supportive care of his malignancy.

Discussion The validated COVID-GRAM calculator predicted a greater than 99% risk that this patient would require intensive therapy unit admission or die. This patient overcame significant physiological challenges to survive COVID-19, highlighting the challenges of prognostication and suggesting that palliation of COVID-19 is not detrimental to survival.

BACKGROUND

During the early COVID-19 pandemic, there were no tools to determine the risk of death from COVID-19 infection in hospitalised patients.

A recent study identified features that predict serious illness from COVID-19.[1] A risk calculator (COVID-GRAM) was created. This can guide clinical decision-making and inform conversations about prognosis with patients and family.

We present a case of COVID-19 that survived hospital admission despite the goal of treatment being fully focused on palliation. Using the COVID-GRAM tool, his predicted risk of critical events (intensive therapy unit (ITU) admission, intubation or death) was 99.3%[1] (figure 1). Current evidence suggests a case fatality rate of 1%–6% in the general population.[2] We present his deterioration, palliation and recovery.

CASE PRESENTATION

A 67-year-old male was admitted to the acute hospital from the ENT outpatient clinic on 1 March 2020 with stridor. He had hypopharyngeal squamous cell carcinoma treated in 2015 with radiotherapy. An emergency tracheostomy was inserted due to progressive airway obstruction. CT imaging and biopsy at tracheostomy with panendoscopy confirmed cancer recurrence. His Australian Modified Karnofsky score was 70% on admission but dropped to 40% during admission. He awaited discharge to a nursing home for ongoing best supportive care.

On 8 April 2020, he became febrile (tympanic temperature 38.5°C). The following day, he tested positive for COVID-19 via RT-PCR. Humidified oxygen was started due to hypoxia (peripheral capillary oxygen saturation (SpO2) 89%).

A Treatment Escalation Plan for ward-based care was agreed with patient and family.

On 16 April 2020, he became tachypnoeic. A chest X-ray demonstrated 'typical features of COVID-19, with extensive, bilateral ground glass opacification' (figure 2). He was given a fentanyl patch (25 mcg/h) with anticipatory medications for breathlessnesss. Despite humidified oxygen 15 L/min via tracheostomy mask, he further desaturated to 79% SpO2 with a respiratory rate of 32 per minute. He had a Glasgow Coma Scale score of 3. Using the COVID-GRAM tool, his probablility for critical illness (ITU admission/intubation/death) was 99.3% at this time (figure 1).

On 19 April 2020, he was referred to the palliative care team. He received a continuous subcutaneous (SC) infusion of

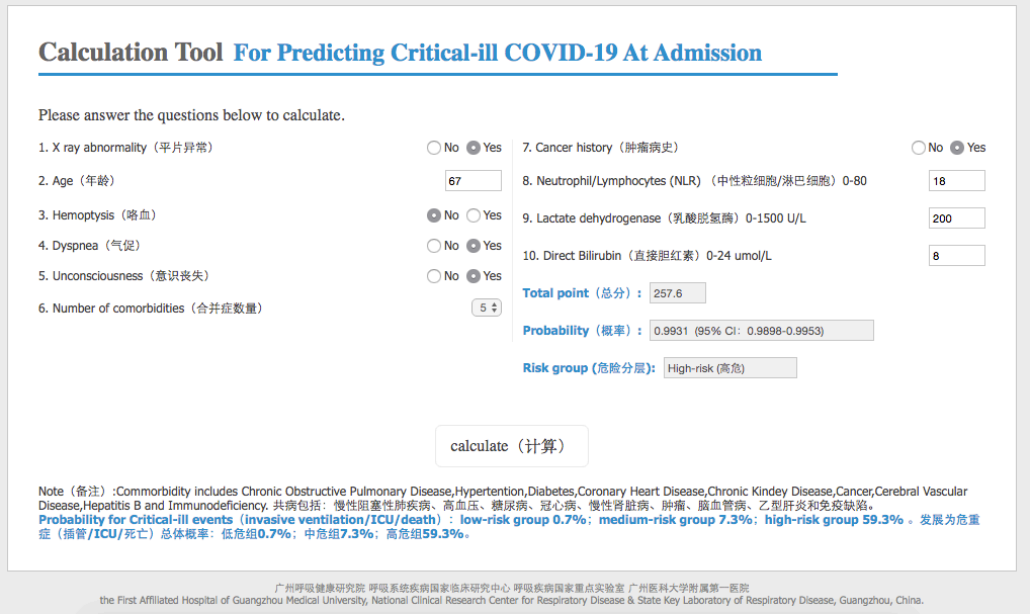

Figure 1 Patient clinical details input into COVID-GRAM calculation tool predicting critical-Ill COVID-19 at admission. Outcome demonstrates 'high-risk' group with probability for critical-ill events>99.3%. Online risk calculator freely available to the public: http://118.126.104.170//.

midazolam (10 mg), morphine (15 mg) and hyoscine (60 mg), over 24 hours. The clinical impression was that he was dying.

His family was contacted and invited to visit him in hospital. His treatment was guided by the 'Priorities For Care' individualised care plan. The goal of care was comfort.

On 23 April 2020, he became more alert. However, his breathing remained laboured so morphine was increased to 35 mg/24 hours. On 29 April 2020, the RT-PCR test remained positive for COVID-19. Following gradual clinical improvement, the morphine was reduced to 20 mg/24 hours. On 4 May 2020, the continuous SC infusion was stopped. Clinically assisted hydration and nutrition were not administered when the patients was thought to be dying. Bloods were rechecked on 4 May 20 revealing hypernatraemia (154 mmol/L) and an acute kidney injury (estimated glomerular filtration rate dropped from >90 mL/min to 42 mL/min) . Clinically assisted nutrition and hydration were recommenced.

On 6 May 2020, a final COVID-19 test was negative. His respiratory function returned to his baseline and he was later discharged to a nursing home.

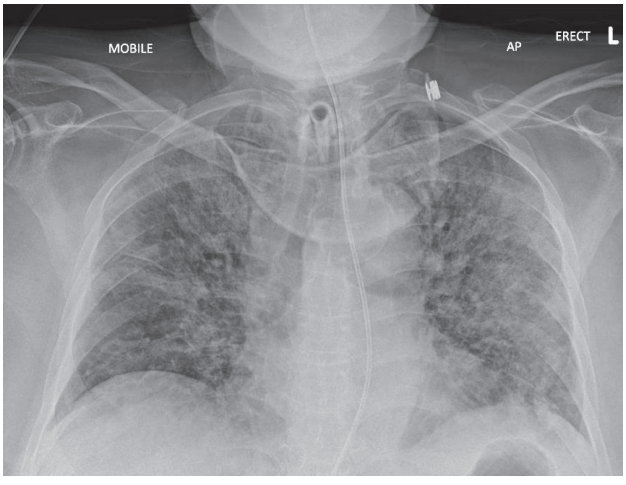

Figure 2 Patient's anteroposterior radiograph demonstrating typical features of COVID-19 disease, with extensive, bilateral ground glass opacification and consolidation extending to the periphery of the lungs. As is typical, there is no overt pleural fluid or lymph node enlargement. A nasogastric tube and a tracheostomy with a Buchanan Protector are also present.

DISCUSSION

Predicting a patient's prognosis aids clinical reasoning. Discussing the prognosis with patients enables shared decision-making. Therefore, at the start of the pandemic, there was significant uncertainty about the prognosis of hospitalised patients. The COVID-GRAM tool is a validated guide to do this.[1] However, this patient survived COVID-19 despite a 0.7% chance of doing so.

We know that palliative care involvement during a terminal illness is often associated with longer survival with less aggressive treatment towards the end of life.[3] We do not know if this extrapolates to COVID-19 infection. The goal of care was palliation because further attempts at life prolonging interventions were not felt to be of overall benefit. This suggests that a focus on palliation may not diminish the chance of recovery from COVID-19.

This case reminds us that prognosis is always uncertain. It highlights the need for ongoing clinical review to spot the early signs that a person may be recovering

from COVID-19. It demonstrates that the symptoms of COVID-19 can improve quickly so medications to palliate the symptoms can also be withdrawn quickly.

We have not identified any factors that increased his chance of survival. We do not think the tracheostomy altered his overall prognosis. He overcame significant physiological challenges to survive COVID-19. This highlights the challenges of prognostication and suggests palliation of symptoms from COVID-19 is not detrimental to survival.

Patient perspective

Following recovery, he had little recall of how unwell he had become. He was admitted to hospital before government lockdown and therefore had less media and societal exposure to the international impact of the disease. During the pandemic, visiting restrictions in hospitals are required. In this case, visiting was permitted while he was thought to be dying. His family highlighted the difficulty of not being allowed to continue to visit him when his prognosis improved as he was increasingly aware of their presence.

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