

## Sangeetha Kolpattil: Covid-19—do not give up

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I am a consultant radiologist working in the UK and contracted a severe case of covid-19 during the first wave in 2020. However, I was lucky enough to survive after a protracted stay—107 days—in the intensive care unit of my own hospital (including 11 weeks on a ventilator). I gather that I was one of the longest surviving patients on a ventilator in the UK at that time. I take this opportunity to share my own experience as a patient and make a plea to everyone involved not to give up on covid-19 patients, however serious they seem to be. I cannot remember any events from the time of my hospital admission to when I came out of ventilatory support and regained consciousness, but I have retrospectively pieced together the events after discussions with my family and the treating clinicians, and reading the ICU diary.

My husband developed covid-19 symptoms and tested positive in the last week of March 2020. Despite taking adequate precautions and self isolating, as per the national advice, I developed symptoms a week later. These worsened over time, with a persistent cough and unremitting high fever. Within a week, I had developed delirium and my family informed me that I had traces of blood in my sputum, which prompted them to call an ambulance. My oxygen saturation was low and so the paramedics blue-lighted me to the hospital. After A&E assessment, I was admitted to the ward in April 2020. Towards the evening, my oxygen saturation dropped further. My family received a call from an ICU consultant to inform them of the decision to intubate me as an elective measure. At this stage, the doctors estimated that I might require only minimal support for a couple of weeks, but the ordeal that followed was beyond anyone's imagination.

The following day, my family received a distressing call from the on-call consultant indicating that although I was stable, to date the team had not successfully weaned a covid-19 patient off intensive care. My family received daily updates from the ICU team, but my condition continued to deteriorate to the extent that at one stage I was referred to the regional centre for extracorporeal membrane oxygenation (ECMO). This was one of at least three occasions when my family were called in to say goodbye.

On the advice of the ECMO centre, I was given one week of hydrocortisone therapy in addition to continued proning, and that seemed to improve my condition marginally (although I was still requiring 80% oxygen). Over the following weeks, my condition continued to fluctuate, and my family were called in again. One of the on-call consultants informed them that my lung compliance was so poor that the tidal volumes were too low despite high ventilatory pressures. During the conversation, mention was made of withdrawing treatment because of the feared irreversibility of lung changes.

A few weeks later, while in the prone position, I developed a tension pneumothorax—a life threatening emergency for anyone, let alone someone on a ventilator. The team who

diagnosed this while I was prone on a ventilator deserves special credit. As a result of this episode, my family were called in again at around 4 am because my vital parameters suddenly collapsed. My husband and two children were allowed to see me as I was not expected to survive for long. They later told me that they had to kiss me goodbye at this point. However, after the proactive efforts of the ICU team, a chest drain was inserted, which decompressed the tension pneumothorax, and the lung re-expanded almost fully. My condition stabilised after a few days, but I soon developed the dreaded complication of a bronchopleural fistula, and the chest tube could not be taken out while I was on the ventilator. I contracted a fungal infection in my pleural fluid and had to be given strong antifungal drugs. On top of this, I developed sepsis, for which I was given antibiotics. I was told later that I had an unremitting temperature during this whole period. Initially, the team thought that I was too unstable to be transported for a CT scan but as my condition was not improving, they took the risk. The CT scan findings were shocking, and I learnt later that the colleague who reported the scan thought that I would not survive. The CT showed extensive bullae and encysted pneumothorax formation, and hardly any functioning lung tissue bilaterally, especially on the left side (the side of the tension pneumothorax and bronchopleural fistula).

Some people in the treating team believed that even if I survived, they could not be sure of the quality of life, and my family was informed of this. Opinions were obtained from regional and tertiary centres, and all of them advised non-surgical management of the fistula and weaning me off ventilatory support should be the priority. A tracheostomy was performed, and sedation was switched off. I was still unconscious, and all my limbs were paralysed, for unexplained reasons. The inpatient physiotherapy team struggled to elicit any response to muscle stimulation and became worried. Despite this, they did passive joint movements and splinting, which prevented me from developing contractures.

After further discussions with the treating team, my family were now allowed to come in regularly, in an attempt to stimulate my brain, although I was unconscious. The ICU doctors and staff were keen on this as it was observed that I reacted the most in the presence of my family. The staff would alert my family whenever I briefly regained consciousness, but by the time they arrived, I would have drifted back into a semiconscious state. Even then, the nurses always played my favourite music that my family brought in on an MP3 player, and my family would play recorded messages from my sisters and nieces, to whom I am close. They told me later that I was responding to these, although I have no recollection. I strongly believe that the clinical team's decision to let my family interact with me as a therapeutic intervention worked well.

One morning, after about 11 weeks on the ventilator, I woke up fully oblivious of what had happened during the preceding months. The nurses informed me that I was in intensive care and it was June 2020. They kindly explained to me that I had a tracheostomy, and I had a urinary catheter in place, in addition to a chest drain for the persistent fistula. The nursing staff did a fantastic job, repositioning me regularly to

prevent any bed sores, all while keeping the chest drain in situ. I could not bridge the time gap from March to June. I could not understand the reason for my family's excitement at my responses to their conversation as I was still under the impression that I had been admitted to the hospital a few days before. Soon, I realised that I could not produce any sound because of the tracheostomy and I could not move even a finger. I had quadriparesis and realised that I was dependent on the staff for my basic needs. From that point onwards I started a fierce battle to get better, with the help of regular physiotherapy. In my mind, I started to prepare myself to be wheelchair bound for the rest of my life.

The fatigue was dreadful, and I often dozed off into sleep during conversations while I was trying to mouth words and others had to lip read me. After the first week, I started to write down my messages as I was not able to speak. With expert guidance from the physio team, I was able to stand with support within three weeks of regaining consciousness and started walking with support another week on.

The bronchopleural fistula took a long time to heal because of the positive pressure from ventilation. Although input was sought from the respiratory team in Preston, in view of the existing lung changes, pneumothorax, bacterial and fungal infection, thoracic surgical input was sought from Birmingham and Wythenshawe. The experienced thoracic surgeons from both Birmingham and Manchester advocated a non-surgical approach. While these discussions were ongoing, to everyone's surprise, the chest drain fell off by itself without any complications. By this time, I had been weaned off the ventilator and put on high flow oxygen.

The tracheostomy was later removed, and I was able to mouth some words. Although I was disappointed that my voice had not returned immediately, the feeling of day-by-day improvement kept me going. The thought of going home was a huge incentive. The ICU staff were worried that my mental health would have deteriorated after such a long time, but with the help of my family I was able to keep up a positive attitude, which helped immensely in my recovery.

As soon as I started walking a short distance, plans were put in motion for my discharge, and I was excited to go home. On the day, I was wheeled out of ICU and was pleasantly surprised to see a big crowd of hospital staff clapping to see me off (while maintaining social distancing). It was an emotional atmosphere and a lot of staff could not hold back the tears as I waved them through my tear filled eyes. Later I learnt that most of them had thought that I would not survive, and they were happy to see me leave in a better state. I was on oxygen for 24 hours a day and my voice was feeble. Luckily, I was able to come off the oxygen after three months with the guidance of pulse oximetry done at home. I was also provided with a wheelchair for indoor and outdoor use as my mobility was limited. I am glad to report that I am now walking without any support and pushing myself every day—3 miles and counting!

On reflection, I realised how we often take things for granted—for example, small things, such as being able to have shower independently and walk without any aids.

My family and I are deeply grateful to the doctors, nurses, and other supporting healthcare staff who cared for me during the prolonged ordeal. Furthermore, during my stay as a patient in intensive care for 107 days, I made certain observations. ICU consultants' on-call rotas are geared for short term care, with regular rotations of doctors at the expense of continuity of care (as far as I am aware this is the same in most ICUs across the country). This could particularly affect the care of the small minority of patients such as myself, who need to stay in ICU for a prolonged period of time. In my opinion, organising care under a named consultant (as a single point of contact) for longer stay patients would improve the quality of such patients' care and improve communications both with tertiary centres and with patients' families.

I understand that the decision to continue and support my ventilatory care was crucial, although some physicians thought that the covid changes to the lungs were irreversible, with no hope for recovery. After seeing my own initial CT scans, I could understand why they might have thought so. This was a new disease, at that time only minimal information was available to the medical community to make appropriate judgments. My family never gave up hope, and they were fortunate to have support from a close network of friends some of whom were working in various hospitals across the country.

Five months after my discharge from ICU, I had a follow up CT scan, which showed that most of the changes had reversed, and the left lung was formed with mostly normal lung tissue with some fibrosis. Spirometry was normal too. Seven months after discharge, with the support from my occupational health consultant, I have started an extended phased return to work.

There is a chance that lung changes in covid-19 are reversible, and there may be hope for patients even in the darkest of situations. Therefore, my message to the medical community is this—please do not give up.

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