



**CARING IN THE ICU AND BEYOND: THOUGHTFUL CONTRIBUTIONS OF DR.
ARAVIND POTHINENI**

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ABSTRACT

The Covid pandemic has demonstrated overwhelming levels of admissions of patients in the intensive care units. It has been seen that general medical floors have been converted to ICU's for providing care of the sickest patients. Similarly, the sufferings of the patients do not stop after being discharged from the hospital. They continue to have illnesses involving multiple body systems and cognitive issues including delirium and profound sleep disorders. In this era of long-haul Covid syndrome this is being prominently observed. Dr. Aravind Pothineni, an acclaimed pulmonary and critical care physician and Director of Lung Cancer Screening and Sleep Medicine at SouthEast Heart, Lung and Vascular Center, Cape Girardeau, Missouri, USA has used the World Wide Web to bring these issues to our attention. This advocacy prominently addresses the long-term care gap that these complex medical issues lead to challenges in care and stabilization of these patients.

During the Covid pandemic, there has been unprecedented hospital admissions with respiratory illnesses. Significant proportions of these individuals develop acute pneumonia, and inability to maintain oxygen saturation on room air. This required intubating the patients and keeping them under mechanical ventilation. Often, these individuals had prolonged hospital courses in the ICU (Intensive Care Unit); a proportion of these patients were successfully liberated from the ventilator. However, their suffering did not end here. After discharge from the ICU and the hospital, these individuals continue to have significant medical and psychological problems. Dr. Aravind Pothineni, MD has made an awareness on this major aspect of this healthcare crisis. He is an acclaimed critical care specialist, pulmonologist and Director of Sleep Medicine currently associated at Southeast Hospital, Cape Girardeau, Missouri, United States. He attended medical school at Andhra Medical College and accomplished his Fellowship at SUNY Health Sciences Center at Syracuse. Dr. Pothineni mentioned there are a cluster of health issues which have come up in the patients after intensive care unit discharge from hospital. The individuals become functionally impaired after they come out of the hospital. These individuals become easily deconditioned. There are significant issues with focusing and concentration. These individuals have difficulty returning to work. The impact of ICU-admission reaches beyond the patient. Family members of ICU- survivors can also suffer from symptoms, such as anxiety, depression, post-traumatic stress disorder (PTSD) and reduced quality of life. Family members play an increasingly important role in the support of ICU

patients, trust building in the ICU setting is of paramount importance and this is a real challenge to accept the uncertainty at times. Also, at times the family faces huge financial burden due to rise in healthcare cost due to multiple readmissions after post ICU illness. The families face tremendous challenge in helping these individuals recuperate, taking a significant toll on personal and financial aspects on family members. Dr. Pothineni has improved the awareness about these conditions, emphasizing that this should not be discounted as psychological distress. Caring for these individuals paves the pathway to prevent frequent hospital readmissions, which remains a proactive way of major reduction in healthcare costs.

The whole episode of these factors of a patient recovering from the ICU is known as "post ICU illness". Dr. Pothineni mentioned that there are no definitive treatments. He stressed on the importance of vaccination. Till now one third of the population have been vaccinated against Covid in the United States as well as globally, and there is still resistance to get vaccinated in the community. Dr. Pothineni mentioned the importance of vaccination against influenza. Influenza had already caused many pandemics starting from 1918. Dr. Pothineni also warned the community about respiratory syncytial virus which can cause similar infection.

Dr. Pothineni, is extremely concerned about old age, pre-existing physical frailty, psychological symptoms (for example, anxiety and depression) and cognitive impairment (for example, dementia) which are known risk factors and are at risk for long-lasting sequelae.

Optimizing the COVID-19 survivorship experience, based on this knowledge, Dr. Pothineni has been giving careful implementation of evidence-based critical care interventions combined with robust rehabilitation programmes that begin in the ICU and continue after discharge. Critical illness and its treatments have important, sometimes under-recognized, effects on the neuromuscular system. Moreover, prolonged mechanical ventilation may result in diaphragm dysfunction, along with laryngeal injury, dysphagia and dysphonia from prolonged endotracheal tube intubation that may be under-recognized without systematic screening and assessment.

Another observation that physician like Dr. Pothineni has made for patients discharged from ICU is cognitive impairment which is common and persists in survivors of ICU stay. The reduction in human interactions cause reduced cognitive stimulation, reorientation in patients. Patients experience long-lasting mental health impairments. Clinically significant symptoms of anxiety, depression and post-traumatic stress disorder (PTSD) may occur in survivors and persist for up to considerable length of time, with most of survivors reporting prolonged symptoms. The interplay of physical, cognitive and mental health impairments can lead to important functional problems, such as persistent fatigue, chronic pain and sleep dysfunction, and reduced health-related quality of life. Dr. Pothineni helped to optimize both survival and survivorship of critically ill patients with COVID-19 with his meticulous attention to delivering evidence-based critical care interventions as required, as well as early and sustained comprehensive rehabilitation that targets physical and neuropsychological recovery path and also guidance with adequate social support by discussing with family members. The unifying aim of assessing each of the aspects of post ICU care is to adequately treat patients to reduce morbidity and mortality, improve quality of life and help enable patients to return to their previous baseline of physical and mental functionality. The success of critical care medicine in reducing mortality will result in a large number of survivors of COVID-19 as long as physicians like Dr. Pothineni monitors with his experienced clinical eyes. Dr. Pothineni mentions that the main factors contributing to this increased risk in post ICU illness are reported to be the increasing number of cases requiring treatment. Other significant factors which is essential in post ICU recovery path is the social engagement and increase mental stability. So summarizing the path is improving mental and both physical stability can definitely improve the curve of illness.

With greater than 5 million people admitted to ICU yearly, the increase in percentage of patients requiring post ICU follow up and treatment has also increased. The deconditioned patients suffer from nutritional deficit. Physicians like Dr. Pothineni advocates screening of these patients by simple enquiry about weakness, fatigue, neuropathy and evaluate a targeted physical and

laboratory examination which can reveal the actual cause and its related treatment. With no universally accepted guidelines, the timing and frequency of post-ICU follow-up should be individualized and based on the patient's comorbidities and severity of illness. Dr. Pothineni has mentioned about establishing post-ICU recovery clinics that can enhance the transition of these patients using telemedicine which can benefit the individuals with proper post ICU healthcare intervention. Post-ICU recovery clinics, can focus on telehealth and mobile technologies to provide extended healthcare delivery, reducing costs, improve the quality of care, and the patient experience in the post discharge period. With advanced methods of health information technology, telemedicine, digital health, and remote patient monitoring, there has been increasing exploration on the use of these technologies to facilitate patient-clinician communication, track disease, intervene earlier for symptom management, and provide educational support to patients beyond the walls of the hospital and clinic. Dr. Pothineni urges to facilitate the system where the intervention and reduction of hospital cost can be an important aspect. The future of telehealth can improve the stature of quality healthcare system which visionary physicians like Dr. Pothineni can deliver. He has also led major emphasis on established of e-ICU so that nodal centres can provide critical care without being physically present and truly emphasizing the benefits of a team-based approach to community healthcare.

Insights of critical care physicians like Dr. Pothineni is a gamechanger for healthcare in India as well as globally with its complex challenges and needs.

