

Post-Intensive Care Syndrome

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Intensive care also known as critical care is a multidisciplinary and inter-professional specialty, dedicated to patients who need intense support for failing organ systems, constant monitoring and round the clock nursing care. The primary goal of an ICU is to save the life of critically ill patients by detecting and treating their functional derangements, thereby decreasing their in-hospital mortality rate.

Improved survival after critical illnesses have led the clinicians to discover significant functional disabilities that many of these surviving patients suffer. This has led to further research which is focused on improving the long-term outcomes for the critical illness survivors and their functional recovery^{1,2}.

Post-intensive care syndrome (PICS) is defined as new or worsening impairment in physical (ICU-acquired neuromuscular weakness), cognitive (thinking and judgment), or mental health status arising after critical illness and persisting beyond discharge from the acute care setting. PICS is now being recognized as a public health burden due to the associated neuropsychological and functional disability, however its exact prevalence remains unknown.

Post-intensive care syndrome Family (PICS-F)³ refers to the acute and the chronic psychological effects of critical illness on the family of the patient and includes the symptoms experienced by family members during the critical illness as well as those that occur following death or discharge of a loved one from the ICU.

The major risk factors associated with cognitive impairment after discharge from ICU are the duration of delirium in ICU, acute brain dysfunction

(stroke, alcoholism), hypoxia (ARDS, cardiac arrest), hypotension (severe sepsis, trauma), glucose dysregulation, respiratory failure requiring prolonged mechanical ventilation, severe sepsis, use of renal replacement therapy and prior cognitive impairment (older age, preexisting cognitive deficits, premorbid health conditions)¹.

The risk of developing psychological disability after discharge from intensive care, ranges from one to sixty-two percent in the form of depression, anxiety, and post-traumatic stress disorder (PTSD)¹. The risk factors are same as for cognitive impairment and also include the female gender, lower education level, preexisting disability, and the use of sedation and analgesia in ICU.

ICU-acquired neuromuscular weakness is the most common form of physical impairment occurring in more than 25% of ICU survivors (poor mobility, recurrent falls, quadriparesis). Conditions strongly associated with the development of ICU-acquired weakness include prolonged mechanical ventilation (> 7 days), sepsis, multisystem organ failure, as well as prolonged use of the neuromuscular blocking drugs (NMBD) and deep sedation.

Management principle of “Prevention is better than Cure” implies to PICS as well. The most important preventive strategies shown to have a positive impact in preventing the long-term functional disabilities associated with PICS include limiting the use of NMBD and deep sedation; encouraging early mobility in the ICU patients, along with aggressive physiotherapy. This requires a multidisciplinary approach for the best outcome and successful management.

The ABCDE bundle has been used with good preventive rates for PICS. This comprises of :

- Awakening** (using light or minimal sedation);
- Breathing** (spontaneous breathing trials);
- Coordination of care and communication** amongst various disciplines;

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Delirium monitoring, assessment, and management;

Early ambulation in ICU.

Additional interventions to prevent PICS include :

- 1) Avoiding hypoglycaemia and hypoxemia.
- 2) ICU diaries : Maintenance of ICU diary prospectively by the family members, health care providers, or both during the patient's ICU stay⁴.
- 3) Creating post-ICU clinics to provide follow-up counselling and support to the patients and family. Clinicians should also provide proper education about resources that assist in promoting rehabilitation.
- 4) Maintaining good nutritional status and adequate sleep of the patient.

Physicians need to be aware of PICS in the patients surviving a critical illness and be responsible towards the patient, beyond saving their lives. All critical care survivors should be evaluated for PICS

and those having signs and symptoms of it should be managed by a multidisciplinary team that includes critical care physician, neuro-psychiatrist, physiotherapist and respiratory therapist. Use of pharmacological and non-pharmacological interventions like exercise, physiotherapy, occupational therapy, and symptom management including rehabilitation are warranted. This multidisciplinary management plan can improve the long-term functioning capacity and quality of life of the ICU survivors and also their families.

References :

1. GautamRawal, Sankalp Yadav, Raj Kumar Post-intensive Care Syndrome: an Overview. *JTranslInt Med.* 2017 Jun; 5(2): 90-92.
2. Pandharipande PP, Girard TD, Jackson JC, Morandi A, Thompson JL, Pun BT. et al. Long-term cognitive impairment after critical illness. *N Engl J Med.* 2013;369:1306-16.
3. Davidson JE1, Jones C, Bienvenu OJ. Family response to critical illness: postintensive care syndrome-family. *Crit Care Med.* 2012 Feb;40(2):618-24.
4. Jones C, Bäckman C, Capuzzo M, Egerod I, Flaatten H, Granja C. et al. Intensive care diaries reduce new onset posttraumatic stress disorder following critical illness: a randomised, controlled trial. *Crit Care.* 2010;14:R168.