ICU Liberation for critically ill children in Hong Kong

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Intensive care unit (ICU) Liberation (https://www.sccm.org/iculiberation) is a campaign to promote patient recovery by being mindful of reducing iatrogenic harms during ICU stay, proposed by the United States Society of Critical Care Medicine.[1,2] The ICU Liberation bundle includes the ABCDEF elements (Box). The ICU Liberation elements have been broadly adopted in adult intensive care units and improved outcomes significantly.[3] Moreover, ICU Liberation could be adapted to the needs of children and their family.[4,5] Herein we present our own experience of adopting and implementing ICU Liberation practices at a paediatric ICU (PICU) in Hong Kong.

In the past decade, more patients have survived paediatric intensive care compared with previous decades.[6] This has brought long-term morbidities among patients discharged from the PICU, collectively known as post–intensive care syndrome (PICS) in children.[7,8] These long-term morbidities include functional deficits of physical, cognitive, emotional, and social health that affect the daily life, school performance, and social performance of these patients and their family.[9-11] The PICS affects one-third of patients discharged from PICU and can persist for years.[12] The well-intended and often aggressive treatment in the PICU is, in part, the origin of PICS in children. The PICU stay is a physically traumatic and emotionally stressful experience for children and their family, and these individuals may develop PICS, such as post-traumatic stress disorder[13] or critical illness myopathy.[14] Acute PICU care prioritise disease control with aggressive treatment over considerations for sleep, recovery, and rehabilitation; however, the patient may develop ventilator dependence,[15] physical impairment,[16] or delirium.[17,18]

BOX. Intensive care unit Liberation bundle

A – Assess, prevent, and manage pain
B – Both spontaneous awakening trials and spontaneous breathing trials
C – Choice of analgesia and sedation
D – Delirium: assess, prevent, and manage
E – Early mobility and exercise
F – Family engagement and empowerment

The PICU at Hong Kong Children's Hospital commenced service on 27 March 2019. In the first 2 years, the capacity of the PICU grew rapidly from four beds to 16 beds, with a total of 650 patients treated. The PICU provides a full range of intensive care support, including mechanical ventilation, continuous renal replacement therapy, and extracorporeal life support. As clinical leaders with a vision to transform PICU culture in our hospital, we advocate ICU Liberation in our daily practice. We have established close collaboration between medical, nursing, and allied health teams. The PICU practice has evolved according to consensus and teamwork.

Our practice is founded on a humanistic approach. Learning, caring, and smiling are the core values of the Hong Kong Children's Hospital. Education is emphasised to consolidate knowledge and changes. Individual patient care goals are regularly discussed by staff during team rounds. Staff also receive formal on-the-job training as well as informal feedback, including on pain assessment, non-pharmacological treatment, and analgesics; spontaneous awakening and breathing trial in children; sedation titration to target adequate effect; environmental modification to promote sleep and reduce delirium; early mobilisation; and family empowerment. A clinical information system is used to document and review individual patient progress in the ABCDEF elements. Patient outcomes are audited and long-term follow-up is arranged for patients with complicated PICU course. For patients with acute medical conditions, after their condition is stabilised, they are considered for each of the ABCDEF elements. We carefully consider how to proceed, taking necessary precautions and correcting deviations, to ensure patient safety at all times. Patient-related factors, such as functional status, development, and nutrition, are considered individually. As a result, interventions in our PICU have progressed towards improving physical, psychological, and social sequelae.

Through implementing ICU Liberation

practices, we have realised several key improvements. We have been able to actively mobilise patients who are still receiving mechanical ventilation, continuous renal replacement therapy, or intracranial pressure monitoring. We have actively engaged families, even during the coronavirus disease 2019 pandemic, by using communication tools such as digital photographs and videoconferencing software. We have facilitated family care even in complex medical conditions by training caregivers. And we have also extended family support to palliative care in the PICU, including home visits. In each case, the ICU Liberation bundle was carefully considered and tailored to according to individual assessment.

Barriers to ICU Liberation have been overcome by leadership and teamwork. Challenges present were owing to system factors and staff factors. In our future development we would address these challenges by developing clinical practice protocols, coordinating the roles of team members, and supporting staff knowledge and procedural competence. We propose focusing in future on further improvements to treating pain, facilitating spontaneous breathing, minimising sedation, preventing delirium, mobilising early, and engaging family members, in order to better support patient recovery. Further studies are warranted to evaluate implementation strategies for ICU Liberation and perceptions of ICU Liberation in our PICU.

Author contributions

All authors contributed to the concept or design of the study, acquisition, analysis, and interpretation of the data, drafting of the manuscript, and critical revision of the manuscript for important intellectual content. All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

As an editor of the journal, KL Hon was not involved in the peer review process. Other authors have disclosed no conflicts of interest.

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