ABSTRACTS FROM CURRENT LITERATURE

Post-Intensive Care Sequelae in Pediatrics - Results of an Early Rehabilitation Implementation Study

Choong Karen, Fraser Douglas, Cameron Saoirse, Cuello Carlos, Debigaré Sylvie, Ewusie, Joycelyne, Kho Michelle, Krasevich Kimberley, Martin Claudio, Thabane Lehana, Todt, Ashley, Cupido Cynthia.

Pediatric Critical Care Medicine 2024;25(6):563-68.

Objectives: To compare post-PICU discharge functioning, health-related quality of life (HRQL), and parental stress before and after the implementation of an early rehabilitation bundle.

Design and settings: Prospective cohort substudy within an early rehabilitation implementation program, conducted at the PICUs at McMaster Children's Hospital and London Health Sciences, London, Ontario, Canada.

Interventions: A bundle consisting of: 1) analgesia-first sedation; 2) delirium monitoring and prevention; and 3) early mobilization. Patients with an anticipated 48-hour PICU length of stay were approached for consent to participate.

Patients: Critically ill children with an anticipated 48-hour PICU length of stay were approached for consent to participate.

Results: Patient-/proxy-reported outcome measures were assessed at baseline, PICU discharge, and 1 and 3 months post-PICU discharge using: 1) Pediatric Evaluation of Disability Inventory Computer Adaptive Test to assess physical, social, cognitive, and responsibility/caregiver domains of functioning; 2) KIDSCREEN to assess HRQL; and 3) the Pediatric Inventory for Parents to assess caregiver stress. A total of 117 participants were enrolled. Patient demographic characteristics were similar in the pre- and post-intervention groups. Following bundle implementation, 30 of 47 respondents (63.8%) experienced functional decline and 18 of 45 (40%) experienced low HRQL at PICU discharge. Eighteen of 36 (50%) at 1 month and 14 of 38 (36.8%) at 3 months experienced either persistent functional decline and/or low HRQL; 2.8% and 2.6% at 1- and 3-month follow-up, respectively, experienced both persistent functional decline and low HRQL. There were no significant differences in the rates of persistent functional decline, low HRQL, or caregiver stress scores post-bundle compared with pre-rehabilitation bundle implementation.

Conclusions: We were unable to adequately determine the efficacy of a rehabilitation bundle on patient-centered outcomes as this substudy was not powered for these outcomes. Our results did reveal that persistent low functioning is common in PICU survivors, more common than low HRQL, while experiencing both functional decline and low HRQL was uncommon.

Pediatric Profound Dengue Shock Syndrome and Use of Point-of-Care Ultrasound During Mechanical Ventilation to Guide Treatment: Single-Center Retrospective Study, 2013–2021

Vo Luan Thanh, Nguyen Dat Tat Pharm, Tran Thinh Ngoc, Tran Hang Hoang-Thanh, Đoan Trang Thi-Hoai, Pham Tram Ngoc, Mai Thanh Thi-Hoai, Nguyen Quynh Xuan-Thuy, Nguyen, Thuan Khac, Nguyen Thuong Thi-Kim, Burza Sakib, Nguyen Thanh Tat

Pediatric Critical Care Medicine 2024;25(4):e177-e185, April 2024.

Objectives: Profound dengue shock syndrome (DSS) complicated by severe respiratory failure necessitating mechanical ventilation (MV) accounts for high case fatality rates among PICU-admitted patients. A major challenge to management is the assessment of intravascular volume, which can be hampered by severe plasma leakage and the use of MV.

Design: Retrospective cohort, from 2013 to 2021.

Patients: Sixty-seven children with profound DSS supported by MV, some of whom underwent bedside point-of-care ultrasound (POCUS) for assessment and monitoring of hemodynamics and fluid administration.

Setting: PICU of the tertiary Children's Hospital No. 2 in Vietnam.

Results: We analyzed data clinical and laboratory data during PICU stay. In particular, during use of MV (i.e., at times 0-, 6-, and 24-hr after commencement) and fluid resuscitation. The primary study outcome was 28-day in-hospital mortality, and the secondary outcomes were associations with changes in hemodynamics, blood lactate, and vasoactive-inotrope score (VIS). Patients had a median age of 7 years (interquartile range, 4–9). Use of POCUS during fluid management (39/67), as opposed to not using (28/67), was associated with lower mortality (6/39 [15%] vs. 18/28 [64%]; difference 49 % [95% CI, 28–70%], $p < 0.001$). Use of POCUS was associated with lower odds of death (adjusted odds ratio 0.17 [95% CI, 0.04–0.76], $p = 0.02$). The utilization of POCUS, versus not, was associated with greater use of resuscitation fluid, and reductions in VIS and pediatric logistic organ dysfunction (PELOD-2) score at 24 hours after MV and PICU discharge.

Conclusions: In our experience of pediatric patients with profound DSS and undergoing MV (2013–2021), POCUS use was associated with lower odds of death, a higher volume of resuscitation fluid, and improvements in the blood lactate levels, VIS, and PELOD-2 score.