

Nonrenal Outcomes of Pediatric Continuous Kidney Support Therapy (CKST) Patients

Kristin Dolan^{1,2}, Mallory Smith³, Sameer Thadani¹, Anna Lang¹, Jeanine Graf¹, Naile Pekkucusen¹, Ayse Akcan Arikan¹

1. Baylor College of Medicine and Texas Children's Hospital, Houston, TX USA 2. Children's Mercy Hospital, Kansas City, MO 3. Seattle Children's Hospital, Seattle, WA

Introduction

- Post-intensive care syndrome in pediatrics (PICS-p) is associated with significant morbidity
- Pediatric CKST survivors are at high risk of new morbidity at ICU discharge using Functional Status Scale (FSS)
- Retrospective chart review of 45 CKRT survivors showed discharge FSS was worse (median 10 (IQR 8,13)) compared to baseline ($p < 0.0001$)¹
- 69% (31/45) of patients had worse FSS score at ICU discharge compared to baseline¹
- 51% (23/45) of patients developed new morbidity¹
- FSS depends on accurate documentation of six domains
- Pediatric Overall Performance Category (POPC) and Pediatric Cerebral Performance Category (PCPC) might be useful where access to accurate documentation is limited

Methods and Materials

- Retrospective chart review of global functional status in pediatric CKST patients using FSS, POPC, and PCPC at hospital discharge
- A case-control study with age and severity of illness matched controls with similar functional status at baseline to compare functional outcomes

Functional Status Score

- 6-7: Good
- 8-9: Mildly abnormal
- 10-15: Moderately abnormal
- 16-20: Severely abnormal
- 21-30: Very severely abnormal

- New morbidity = increase in FSS by 3 or more
- Non-survivors assigned highest score (30)

FSS Domains

- Mental Status
 - Sensory
 - Communication
 - Motor
 - Feeding
 - Respiratory
- *each category score: 1-6

PCPC

Pediatric Cerebral Performance Category

- Normal:** no disability
- Mild Disability:** minor physical delays or functional impairments
- Moderate Disability:** significant delays with non-cerebral dysfunction alone or with cerebral dysfunction
- Severe Disability:** responsive to environment but dependent on others
- Coma/vegetative:** coma without interaction
- Death**

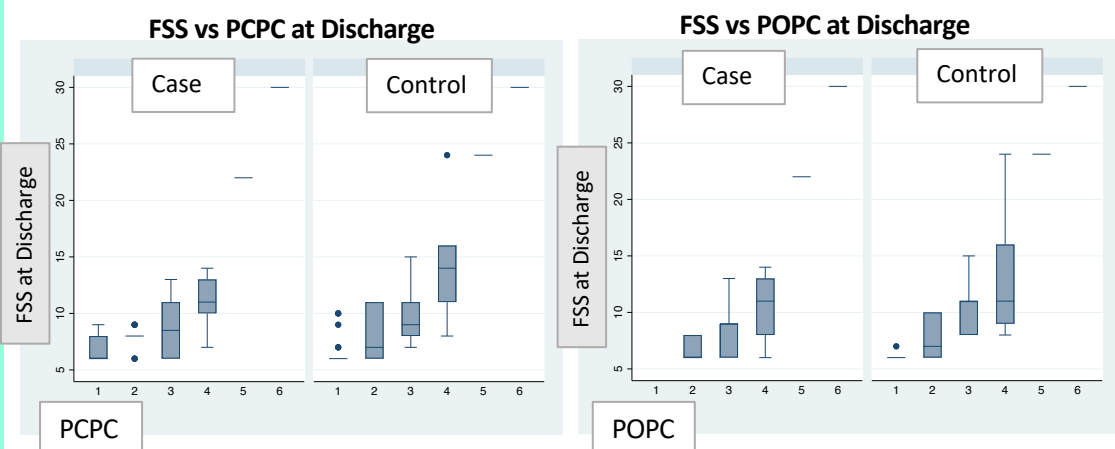
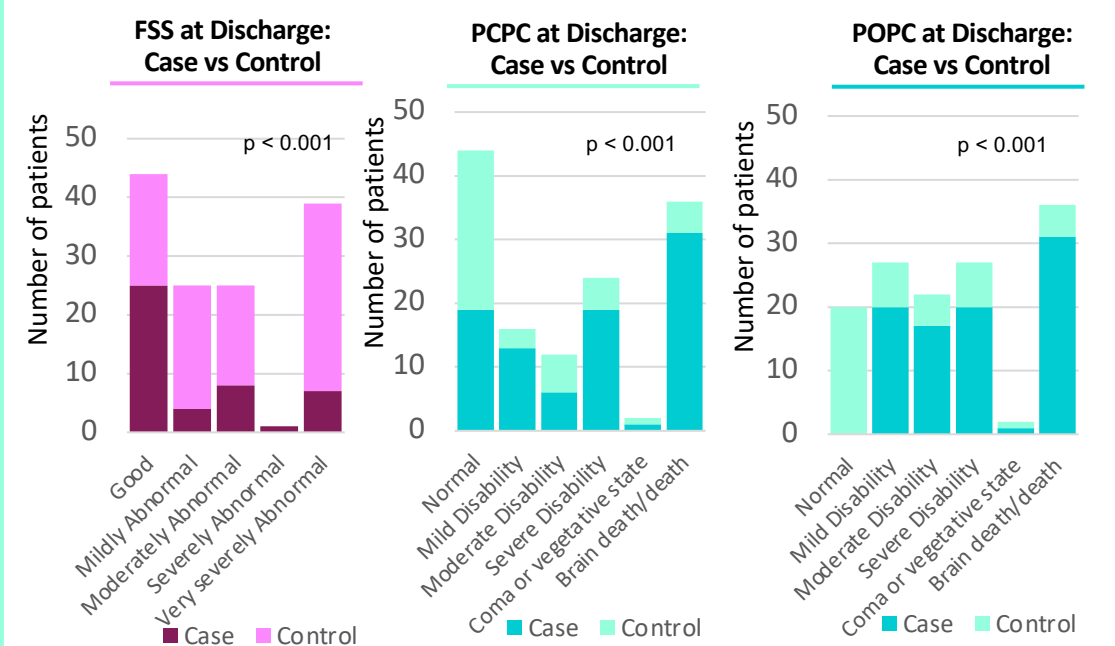
POPC

Pediatric Overall Performance Category

- Normal:** no disability
- Mild Disability:** minor developmental delays or neurologic deficit
- Moderate Disability:** significant neurologic disease that limits activities
- Severe Disability:** delayed for most activities of daily living
- Coma/vegetative:** coma or vegetative state
- Death**

Results

	Case (n = 89)	Control (n = 45)	
Male (n%)	51 (58%)	27 (60%)	
CKST Duration (median, IQR)	12 days (5,23)	n/a	
Mechanical ventilation (MV) (n%)	81 (91%)	37 (82%)	
Admission PELOD (mean, SD)	19.10 (14.54)	15.29 (11.02)	$p = 0.124$
Baseline FSS (median, IQR)	6 (6,6)	6 (6,9)	$p = 0.157$



- **Baseline FSS and admission PELOD were predictors of FSS, POPC, and PCPC but only for controls ($p < 0.001$)**

Discussion

- Majority of CRRT patients have poor outcomes with a high degree of morbidity
- FSS provides more granular data focusing on activities of daily living in six domains, however, accurate documentation is important
- When compared to PCPC and POPC, FSS showed higher dispersion, especially in higher categories.
- PCPC and POPC are tightly correlated with FSS but are likely oversimplified

Conclusions

- Simpler classification provided by POPC and PCPC tools could be used to adjudicate functional outcomes in pediatric CKST patients
- External validation is needed to assure generalizability in different healthcare settings