Research Days

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**Association of Patient Demographics, Code Characteristics, and Survival to Discharge After In-Hospital Cardiac Arrests in the Pediatric Intensive Care Unit**

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Association of Patient Demographics, Code Characteristics, and Survival to Discharge After In-Hospital Cardiac Arrests in the PICU

**INTRODUCTION**

- Descriptive and retrospective study
- Data obtained from VPS ©
- Included patients 24h old to 18y old experiencing an IHCA in the PICU from 2010 to 2021
- Excluded cardiac arrests outside the PICU
- Patient demographics included race/ethnicity, age, and gender
- Code characteristics included defibrillator shocks delivered, use of CRRT, and use of ECMO
- Outcome was survival to discharge vs death
- Fisher’s exact tests and Wilcoxon rank-sum test used for comparing mortality rates by categorical demographics and age, respectively

**METHOD**

- Lower socioeconomic status and minority background have both been linked to worse outcomes after out-of-hospital and in-hospital cardiac arrests (IHCA)
- Estimated US incidence of pediatric IHCA is 2% with mortality of 35-45%
- Outcomes after IHCA specifically in a Pediatric Intensive Care Unit (PICU) based on patient demographics have not been well defined

**RESULTS**

- Outcomes after CPR
  - Age in months - median (IQR)
    - Survived (N=255): 9 [2, 50]
    - Died (N=265): 14 [2, 105]
  - Sex
    - Female -- n (%): 106 (43.4%)
    - Male: 149 (54.0%)
  - Race
    - Black: 43 (51.2%)
    - Hispanic: 17 (39.5%)
    - Asian: 2 (5.0%)
    - White: 158 (51.1%)
    - Other/Mixed: 32 (57.1%)
    - Unknown: 3 (15.0%)
  - P-value: 0.039

- Outcomes after CPR and ECMO
  - Age in months - median (IQR)
    - Survived (N=50): 6.5 [1, 84]
    - Died (N=46): 5 [1, 58]
  - Sex
    - Female -- n (%): 33 (43.8%)
    - Male: 24 (56.2%)
  - Race
    - Black: 5 (33.3%)
    - Hispanic: 0 (0.0%)
    - Asian: 0 (0.0%)
    - White: 31 (51.7%)
    - Other/Mixed: 3 (4.1%)
    - Unknown: 3 (15.0%)
  - P-value: 0.039

- Outcomes after CPR and CRRT
  - Age in months - median (IQR)
    - Survived (N=13): 9 [7.7, 144]
    - Died (N=30): 10 [1.1, 152]
  - Sex
    - Female -- n (%): 23 (17.8%)
    - Male: 28 (21.3%)
  - Race
    - Black: 1 (33.3%)
    - Hispanic: 1 (33.3%)
    - Asian: 0 (0.0%)
    - White: 12 (38.7%)
    - Other/Mixed: 1 (33.3%)
    - Unknown: 1 (33.3%)
  - P-value: 0.577

- Outcomes after CPR and Shocks
  - Age in months - median (IQR)
    - Survived (N=13): 10 [9, 154]
    - Died (N=20): 19 [3.5, 93.5]
  - Sex
    - Female -- n (%): 2 (16.7%)
    - Male: 5 (40.0%)
  - Race
    - Black: 2 (50.0%)
    - Hispanic: 1 (25.0%)
    - Asian: 0 (0.0%)
    - White: 2 (50.0%)
    - Other/Mixed: 2 (50.0%)
    - Unknown: 1 (25.0%)
  - P-value: 0.939

**DISCUSSION**

- Provides framework for future studies
- Care after IHCA is multifactorial and multidisciplinary
- Did not assess CPR performance or post arrest care, work is in progress
- Race/ethnicity not differentiated, self reported
- Planning to control for severity of illness/comorbidities
- Further analysis to determine potential risk factors for mortality amongst these patients and improve our cardiac arrest outcomes remains ongoing

**REFERENCES**


