

Association of Initial Arterial Blood Gas at the ER level on Hospital Outcomes of Patients with Pediatric Community Acquired Pneumonia -D

INTRODUCTION

- Most mortalities related to pneumonia among inpatients are attributed to disease severity, comorbidities and failure of the pediatrician to prognosticate outcomes.
- An arterial blood gas (ABG) at the ER is readily available and may aid the physician in intervening and preventing mortality. Currently, there are limited data on the utilization of ABG parameters in predicting mortality among Pediatric Community Acquired Pneumonia-D (PCAP-D) patients.

RESULTS

- A total of 78 patients were included in the study.

Table 1. Baseline Characteristics of Study Population

Baseline Characteristics	n (%)
Total number	78 (100%)
Discharged Improved	71 (91%)
Expired	7 (9%)
Age in months	
3-6month	31 (39.7%)
6-12months	28 (35.9%)
12-18months	14 (17.9%)
18-24months	5 (6.4%)
24months and above	0 (0%)
Sex	
Male	42 (53.8%)
Female	36 (46.2%)
Previous hospitalization	16 (20.5%)
Malnutrition	12 (15.4%)

- In the study, for every month increase in age, the odds of dying decreased by about 24% holding all other variables constant thereby positing that an increase in age in months decreases the probability of mortality from PCAP-D.
- On the other hand, there was no significant difference in the odds of dying according to sex, nutritional status and history of previous hospitalization. After multivariate logistic regression analysis, pO₂ of <80mmHg was found to be associated with increased mortality [adjusted OR 20.33 (1.7-243.23)].

CONCLUSION

- Hypoxemia at the emergency room is associated with increased mortality in PCAP-D patients. This suggests that hypoxemia after intubation could be a poor prognostic factor in patients with PCAP-D.
- Further studies on the correlation of ABG parameters with days on ventilator, ICU-free days and other outcomes, clinicians should be reminded of continuous re-evaluation or monitoring and addressing other cause of hypoxemia upon intubation of patients with PCAP-D.

METHODOLOGY

- This was a retrospective cohort study conducted among patients with PCAP-D admitted at National Children's Hospital with ABG taken at the emergency room from January 2009 to December 2019.

ABG parameter and confounding variables of PCAP-D patients

Variable	Odds Ratio (95% CI)	p-value
pH <7.4mmHg:>7.4mmHg	9.19 (0.24-359.95)	0.236
pO ₂		0.057
<80mmHg:>100mmHg*	20.33 (1.7-243.23)	0.017
80-100mmHg:>100mmHg	12.5 (0.27-587.63)	0.199
pCO ₂		0.238
<35mmhg:>45mmHg	10.94 (0.36-328.44)	0.168
35-45mmHg:>45mmHg	32.67 (0.58-1848.37)	0.090
Age (in months)*	0.68 (0.47-0.98)	0.039
Sex male:female	0.41 (0.05-3.41)	0.409
Previous Hospitalization	1.87 (0.19-18.47)	0.593
Malnutrition	8.27 (0.73-94.05)	0.089

REFERENCES

- Page, D. et al. Emergency department hyperoxia is associated with increased mortality in mechanically ventilated patients: a cohort study. Critical Care 22, 10.1186/s13054-017-1926-4 (2018).
- Philippine Academy of Pediatric Pulmonologists, Inc. 2016 3rd PAPP Update in the Evaluation and Management of Pediatric Community- Acquired Pneumonia. Quezon City: Philippine Academy of Pediatric Pulmonologists, Inc.
- Rennis, D. & Krishnakumar, E. (2017). Role of initial arterial blood gas variations in predicting the outcome of pneumonia patients with type I/II respiratory failure. International Journal of Advances in Medicine, 3(2), 313-318