The association between neonatal adverse events with length of stay in the NICU: a race matter?

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Introduction

Racial disparity in health has been demonstrated in several previous studies.

However, there is no data available regarding the association of adverse events (AE) with length of stay (LOS) by race among neonates admitted to the neonatal intensive care unit (NICU).

Whether the association between LOS and AEs in the NICU differ for African American neonates and White neonates is unclear.

Objective

The objective of this study is to examine racial differences between LOS and AEs in the NICU.

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References

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Methods

Study Design:

A prospective cohort study was carried out in an urban NICU during 2017-2019.

Data Collection:

Neonates were enrolled during their NICU hospitalization, prior to discharge home. Data were collected through four approaches by a trained nurse and four physicians:

(1) At the bedside prior to discharge, a neonate's guardian was interviewed for a survey regarding exposure variables difficult to obtain from health records, including a guardian's demographics.

(2) After discharge within a month, a telephone interview was conducted.

(3) Information from inpatient and outpatient health records were abstracted for outcome measurement.

(4) The nurse combined information obtained from the telephone interview and/or the outpatient health records to identify new or worsening symptoms, unplanned health services utilization, or abnormal laboratory test results. If the nurse identified any of the above information, she referred the case to study neonatologists for adjudication. Two neonatologists independently adjudicated the case and created case summaries for neonates if they identified post-discharge AEs.

Statistical Analysis

Independent Sample T-test was performed using SPSS (v26).

Results

Data from a total of 170 neonates admitted to the NICU during the study period were analyzed. Of the 170 neonates, 55.9% were boys and 44.7% were African-American.

The association between LOS and AEs showed a statistically significant difference in African American neonates ($p < 0.05$), but not in White counterparts.

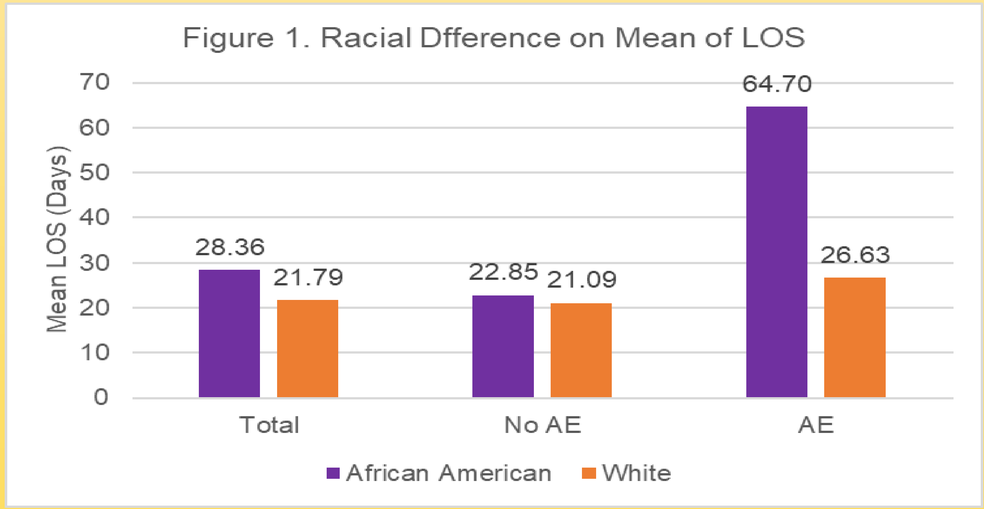
Results

The mean LOS in the NICU was 22.9 (SD=29.10) days in African American neonates without an AE and 64.7 (SD=57.48) days in African American neonates with an AE.

The mean LOS in the NICU was 21.8 (SD=26.29) days in White neonates without an AE and 26.6 (SD=15.68) days in White neonates with an AE.

Table 1. Description of LOS with AE

	African American		
	Total	No AE	AE
N (%)	n=76	n=66 (86.8%)	n=10 (13.2%)
LOS, mean (SD)	28.36 (36.52)	22.85 (29.10)	64.70 (57.48)
p-value			0.048
	White		
	Total	No AE	AE
N (%)	n=63	n=55 (87.3%)	n=8 (12.7%)
LOS, mean (SD)	21.79 (25.16)	21.09 (26.29)	26.63 (15.68)
p-value			0.565



Conclusion

Our results indicate that there was a significant association between LOS and post-discharge AEs in African American neonates, but not in White neonates.

The results indicated that African American neonates stayed longer in the NICU and were more likely to have an AE.

The limitation of this study is the small sample size.

Future Direction

Further research is needed to examine the association between LOS and AEs in the NICU with a larger sample from several institutions.

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