5-2021

Health Disparities in Black, Latinx, and Native Populations Compared to Caucasians: A Retrospective Descriptive-Analysis of Care Focused on Hypertensive Emergency, Non-ST Segment Elevation Myocardial Infarction (NSTEMI), and Cerebrovascular Accident (CVA).

Jonathan Aguilar Roa

Evon Anukam

Health Disparities in Black, Latinx, and Native Populations Compared to Caucasians: A Retrospective Descriptive-Analysis of Care Focused on Hypertensive Emergency, Non-ST Segment Elevation Myocardial Infarction (NSTEMI), and Cerebrovascular Accident (CVA).

Jonathan Aguilar Roa, PharmD; Evon Anukam, PharmD, MPH, MS, BCPS

PROVIDENCE Health & Services

Background

- Health disparity is a sum of differences in healthcare seen in underserved populations of the United States. [1]
  - Differences include incidence, prevalence, mortality, burden of disease, and other adverse health conditions
- According to ASHP, health disparities continue to be a major public health problem confronting the U.S. health care systems. [2]
- Evidence suggests that health disparities can be in part due to differences in the quality of care for different racial and ethnic groups. [2]
- All the different disparity factors have been shown to lead to different health outcomes that do not favor Black, Latinx, and Native American populations.
- ASHP believes health-system pharmacists have both a professional and moral obligation to take part in initiatives that work towards erasing any racial and ethnic disparities in healthcare. [2]
- Examples of ways pharmacists can make an impact are:
  - Increase awareness among fellow caregivers
  - Ensure effective communication by volunteering for leadership roles
  - Enforce consistency of using evidence-based therapy for all patients
  - Analyze data for outcomes sorted by racial minorities
- Per ASHP there are three general principles that serve as guides for pharmacist to help erase healthcare disparities: [2]
  1. All patients have the right to high-quality care, by taking leadership roles pharmacists can partake in initiatives to increase access to care.
  2. Medication-use practices should reflect knowledge of, sensitivity to, and respect for the race and culture of the patient.
  3. Health-system pharmacists have a vital role to play in eliminating racial and ethnic disparities in health care.

Purpose

- Evaluate and compare how two large tertiary hospitals have provided prompt evidence based medical therapy to Blacks, Latinx, and Natives, in comparison to Caucasians pertaining to hypertensive emergency, non-ST segment elevation myocardial infarction (NSTEMI), and cerebrovascular accident (CVA)

Objective

- Determine what differences there may be in providing various non-medication/medication interventions and time-to-intervention order placement after arrival to the emergency department (ED)

Methodology

- Institutional Review Board (IRB) – approved
- Double center, observational, descriptive-analysis, retrospective review, spanning 51 months (January 1st, 2017, to March 31st, 2021), of adults presenting to ED at either of the two large tertiary hospitals.
- Inclusion criteria
  - Black, Latinx, Native American, and Caucasian adults (> 18 years old) presenting to the ED with primary diagnosis of NSTEMI, hypertensive emergency, or CVA.
- Exclusion criteria
  - ≤ 18 years old; patients not meeting the pre-specified race/ethnicity criteria; primary diagnosis outside of hypertensive emergency, NSTEMI, or CVA

Results

Table 1. Patient Demographics

Overall n=4308	Race			Ethnicity	
	Black or African American	American Indian or Alaska Native	White or Caucasian	Hispanic or Latino	Not Hispanic or Latino
NSTEMI (ICD-10 I21.4)	n=1695			n=2036	
	n=72	n=11	n=1612	n=107	n=1929
Gender					
Male, No. (%)	35 (48.6%)	4 (36.4%)	911 (56.5%)	61 (57.0%)	1100 (57.0%)
Female, No. (%)	37 (51.4%)	7 (63.6%)	701 (43.5%)	46 (43.0%)	829 (43.0%)
Age (years)					
Mean	63.93 (SD:15.42)	59.09 (SD:14.42)	70 (SD:14.24)	60 (SD:16.68)	69.39 (SD:14.58)
Hypertensive Emergency (ICD-10 I16.9)	n=8			n=9	
	n=0	n=0	n=8	n=1	n=8
Gender					
Male, No. (%)	N/A	N/A	6 (75%)	1 (100%)	6 (75%)
Female, No. (%)	N/A	N/A	2 (25%)	0 (0%)	2 (25%)
Age (years)					
Mean	N/A	N/A	47.88	constant - 58	46.25
CVA (ICD-10 I63.9)	n=1858			n=2263	
	n=102	n=17	n=1739	n=99	n=2164
Gender					
Male, No. (%)	50 (49.0%)	6 (35.3%)	819 (47.1%)	40 (40.4%)	1033 (47.7%)
Female, No. (%)	52 (51.0%)	11 (64.7%)	920 (52.9%)	59 (59.6%)	1131 (52.3%)
Age (years)					
Mean	63.08 (SD: 13.05)	63.06 (SD:13.03)	72.04 (SD:14.05)	62.73 (SD:14.92)	71.08 (SD:14.21)

Figures 1 – 3 Results of Primary Outcomes

Figure 1. Key Primary Outcomes for NSTEMI

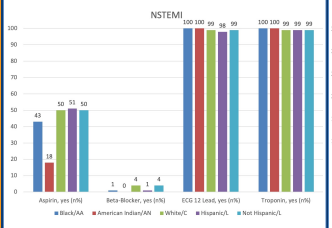


Figure 2. Key Primary Outcomes for Hypertensive Emergency

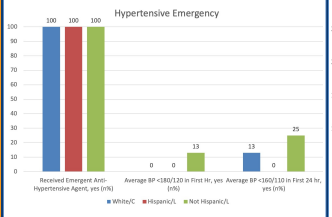
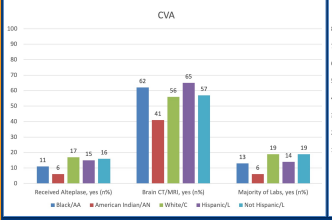


Figure 3. Key Primary Outcomes for CVA



Figures 4 – 6 Results of Secondary Outcomes

Figure 4. Key Secondary Outcomes for NSTEMI

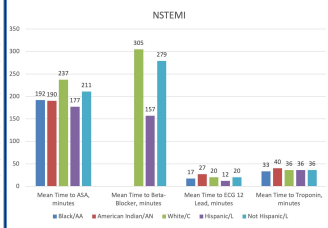


Figure 5. Key Secondary Outcomes for Hypertensive Emergency

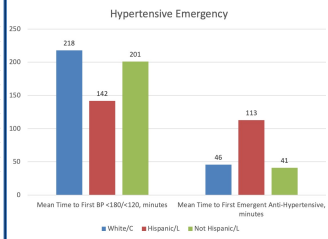
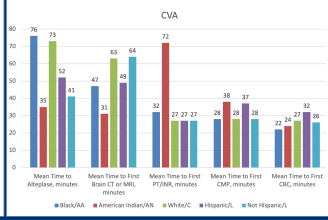


Figure 6. Key Secondary Outcomes for CVA



Discussion

Patient Population

- The total number of patients in the study was 4,308.
- Breakdown of primary clinical diagnosis categories by order of most prevalent: CVA (n=1,858), NSTEMI (1,695), hypertensive emergency (n=8)
- Total population heavily consisted of White or Caucasian (n=3,359) which was 94% of the racial groups.
- Total Hispanic or Latino population (n=207) was 4.8% of ethnicity groups.

Primary and Secondary Outcomes:

NSTEMI:

- Similar ordering rates of ECG 12 lead and troponin, (98-100%). American Indian/Alaska Native group had longest time elapse before ordering either.
- Aspirin ordering rates were 18% for American Indian/Alaska Native, 43% for Black/African American, 50-51% for the remaining three groups .

Hypertensive Emergency:

- No data for either Black/African American or American Indian/Alaska Native groups.
- Emergent anti-hypertensive agent ordering rates were 100% for all groups, with White/Caucasian and Not Hispanic/Latino groups having shortest time-to anti-hypertensive agent being ordered.
- Achieving average BP <160/110 mmHg in the first 24 hours favored the Not Hispanic/Latino group with the highest rate of 25%, followed by 13% for White/Caucasian and 0% for Hispanic/Latino.

CVA:

- Alteplase ordering rates were lowest in the American Indian/Alaska Native group (6%) followed by the Black/African American group (11%) which also had the longest time elapse before ordering (76 minutes).
- American Indian/Alaska Native population had lowest ordering rates for brain non-contrast CT or MRI at 41% and the lowest ordering rates of key labs/diagnostics outside of brain imaging at 6%.

Limitations:

- Descriptive study – no statistical analysis performed
- Racial and ethnic identification inaccuracy cannot be ruled out as data was pulled from Epic.
- Unidentified variables may have altered the choice of therapy from providers (e.g., formulary changes)

Conclusions

- Differences in care were present, with more unfavorable trends seen in the American Indian/Alaska Native group.
- Data inconsistencies made reliability of results uncertain. This also made statical analysis challenging.

Next Steps

- Establish statistical analysis to determine statistically significant differences among the variables
- Data collection on race and ethnicity needs to improve to make certain that data capturing is accurate and consistent.

Acknowledgements

- Susan Vaughan, PharmD, BCPS, Clinical Informatics Pharmacist
- Jarod Jacobs, PhD, ED Clinical Data Analyst
- Alyx Lesko, Program and Research Manager

References

1. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Population Health and Public Health Practice; Baciu A, Negussie Y, Geller A, et al., eds. Communities in Action: Pathways to Health Equity. Washington (DC): National Academies Press (US); January 11, 2017.
2. American Society of Health-System Pharmacists. ASHP statement on racial and ethnic disparities in health care. Am J Health-Syst Pharm. 2008; 65:728–31.
3. Centers for Disease Control and Prevention. Underlying Cause of Death, 1999–2018. CDC WONDER Online Database. Atlanta, GA: Centers for Disease Control and Prevention; 2018. Accessed March 12, 2020.
4. 2016 AHA/ACC Guideline for the Management of Patients With Non–ST-Elevation Acute Coronary Syndromes
5. Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke
6. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines