

Project Title

Comparing admission rates of congestive heart failure between African Americans and Non-African Americans at Unity Point Methodist Hospital in Peoria.

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Abstract

Objective: Comparing admission rates of African American patients with primary CHF versus Non African American patients at Unity Point Methodist Hospital in Peoria from 2014 to 2015.

Hypothesis: African Americans will have higher admission rate for congestive heart failure compared to Non-African American at Unity Point Methodist Hospital.

Method: Cross sectional observation study using data collected through Unity Point's QI project that focuses on congestive heart failure admissions using Epic from year 1/2014 to 12/2015.

Results: No statistical significant difference between African American and Non African Americans for admission with CHF at Unity Point Methodist with P value of 0.8834. Zip code 61605 has higher rate of admission for CHF for African Americans compared to rest of the zip code with prevalence of 7 per 1,000 people compared to 2 per 1,000 for rest of the zip codes ($P < 0.0001$). Mean and median age for African Americans 60 and 61 respectively compared to 75 and 78 for White ($P < 0.001$).

Conclusion: Limitations of this study includes lack of data. Admission rates for African Americans maybe skewed due to data from other hospitals in Peoria County not being included. African Americans residing in zip code 61605 had an increased likelihood of being admitted with CHF. It also had lowest median income of all zip codes and closest proximity to the hospital. African Americans admitted with CHF on average were younger than Whites admitted for CHF.

Introduction

Congestive heart failure is one of the most common causes of hospital admission in the United States. Per American Heart Association, there are more than 1 million patients hospitalized with CHF every year, and cost expenditure that exceeds over \$20 billion.¹ Even with progress and understanding of CHF and its treatment and management, morbidity and prevalence continues to rise, with prevalence expected to increase by 25% in 2030. There are about 6 million adults in USA with diagnosis of CHF. This number is expected to grow in the future, especially in African American adults.¹

According to National Healthcare Disparities Report of 2011, overall admission rate of patients of different race and ethnicities with congestive heart failure from 2004

to 2008 decreased.² However, admission rate for congestive heart failure per 100,000 is high overall for African American population. Data collected from 2001 to 2008 showed admission rates of African American population with CHF ranging from 800 to 1100 per 100,000. In comparison, admission rate for CHF in white during similar timeline ranges from 300 to 400 per 100,000.² This data is similar to incidence rates of CHF from 2013 Heart and Stroke Statistics report from American Heart Associations, which are 6 per 1000 person in white versus 9.1 per 1000 person for African American.¹ Along with race and ethnicity, data also compared admission rate of CHF patients based on income quartile. To no surprise, residents of highest income quartile had lower rates of admission for CHF versus residents of lowest income quartile. African Americans are also 20 times more likely to be diagnosed with CHF before age of 50 compared to whites.³

There are several major differences in the incidence rate of congestive heart failure based on race and ethnicity. Per Multi-Ethnic Study Of Atherosclerosis (MESA), AA were at higher risk of developing CHF compared to Non-AA that was not associated with early MI.⁴ It also showed AA are more likely to have higher rates of CHF due to modifiable risk factors and higher re-hospitalization rate relative to white population.

Care coordination in outpatient setting and in the hospital play a significant role in preventing new CHF admission and/or readmissions. Re-admissions also have a very big cost implication. In 2009, US Center for Medicare and Medicaid Services mandated reporting of readmission within 30 days of various medical conditions, including heart failure and established financial penalties for hospitals with high readmission rates. Due to these cost implications, hospitals have established systems to provide appropriate treatment, patient education and proper early follow up to prevent readmissions. For patients being admitted for congestive heart failure, heart failure core measures have been established to carry this task of providing appropriate care of the patient and decrease their readmission rates. Heart Failure Core measures include assessment of left ventricular systolic function (ejection fraction), medical treatment with ACE inhibitor or ARB/Beta blockers, smoking cessation and discharge instruction that includes daily weight monitor, salt intake, and early follow up appointment.

Method

Center for Analytics and Performance Excellence department at Unity Point Methodist collects quality improvement data focusing on congestive heart failure admissions using Epic medical record system. This data was analyzed in a cross sectional observation study. Data analyzed was from January 2014 to December 2015. No personal identifying information was used. QI data included several different variables including race, age, zip codes, comorbid medical conditions, smoking history, etc. Our study focused on three of the above variables – race, age and zip code among African Americans and Non African Americans admitted with CHF.

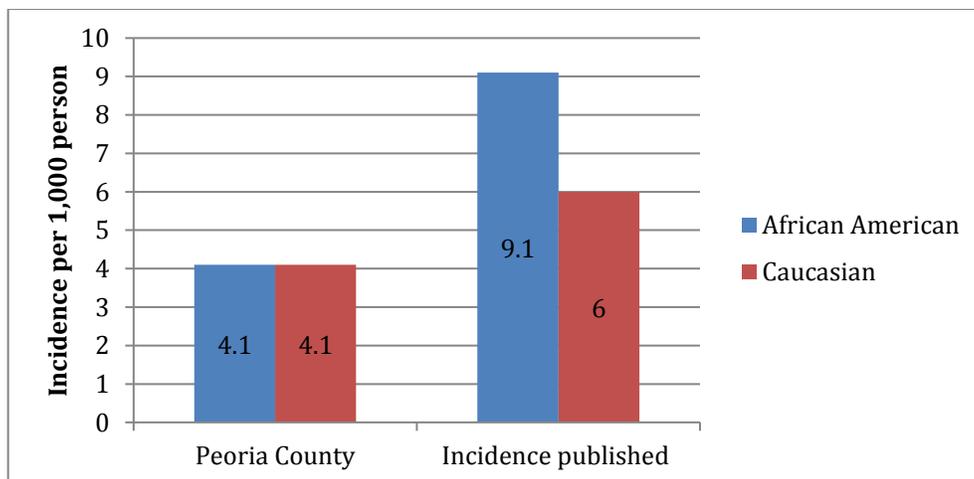
US Census Bureau data provided median salary for specific zip code along with total Peoria County population.⁵

Result

Total number of cases admitted at Unity Point Methodist Hospital with primary diagnosis of congestive heart failure was 711 from January 2014 to December 2015. Of these 711 cases, 133 were African Americans, 574 Whites and 3 others (excluded from study). No significant difference was noted between African Americans and Non-African Americans admitted for CHF. Denominator used to calculate prevalence was total population of each respective race in Peoria County. While, numerator was number of admissions under diagnosis of CHF for each race at Unity Point Methodist Hospital only. Crude rate calculated using this data showed admission rate of 4.1 for every 1,000 persons for both races with P value was 0.8834.

		admitted	
		yes	No
White	n	574	139157
	%	0.41	99.59
Black or African American	n	133	32703
	%	0.41	99.59

Comparing incidence per 1,000 person of AA versus White in Peoria County and National Published Incidence per AHA



Zip code 61605 had the highest number of African Americans admitted compared to rest of the zip code. With P value < 0.0001, zip code 61605 had higher rate with 7 per 1,000 people admitted as compared to 2 per 1,000 from all other zip codes from which African Americans were admitted. Calculated odds ratio is 3.6 with 95% CI (2.6-5.1). Median income for 61605 was lowest of all zip codes.

		admitted	
		yes	No
61605	n	66	9505
	%	0.69	99.31
Others	n	67	34684
	%	0.19	99.81

Mean and median age for African Americans admitted for CHF was 60 and 61 respectively; while, White mean and median age was 75 and 78 respectively.

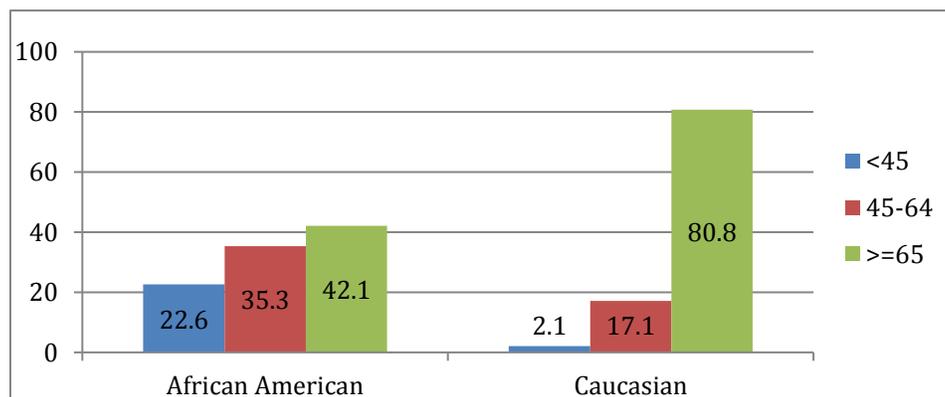
Race=White

Analysis Variable: Age					
N	Minimum	Maximum	Mean	Std Dev	Median
573	28.0000000	109.0000000	75.8289703	13.1887348	78.0000000

Race=Black

Analysis Variable: Age					
N	Minimum	Maximum	Mean	Std Dev	Median
133	24.0000000	92.0000000	60.1879699	15.3594065	61.0000000

Comparing 3 age groups between AA and White



Conclusion

Admission rates among African American and Non African American patients showed no significant difference. However, these results are possibly skewed due to lack of data. Statistical analysis required the number of African Americans and Non African Americans admitted in all Peoria County hospitals for CHF and compare that number to total Peoria County population for each respective race. Furthermore, some of the zip codes associated with the patients used in our study were not in Peoria County. Final result is underestimation of number of African Americans admitted for CHF at Unity Point compared to incidence rate from American Heart Association described above in introduction. Conducting a study that involves data for African Americans admitted with CHF in all Peoria County hospitals would likely to give closer estimate of incidence rate to national rate.

There are significant conclusions to be drawn. African Americans admitted at Methodist are 3.6 times more likely to be from the zip code 61605 than from any other zip code. This zip code also has the lowest mean income among all zip codes included in the study. Also, the mean and median age of African Americans admitted is significantly lower than Caucasians admitted at Methodist. Nationally, lower income quartiles have higher rates of CHF, and African Americans have a higher prevalence of CHF at an earlier age. This trend seems to exist in the African American population in our study as well.

Given these findings, future direction should focus on paying closer attention to acute managements, discharge processes and close follow up for patients who are admitted from these certain geographic locations with reminders in Epic medical record system. Clinicians need to focus more on younger African American patient population seen in outpatient clinics who are at high risk of heart failure based on their comorbid medical conditions such as hypertension, diabetes, smoking history, family history (and possibly high risk zip codes – as in this study). Early heart healthy lifestyle, preventing symptoms, education and proper medical management will become key to ensuring less African Americans will develop heart failure earlier and have lower morbidity and mortality associated with it.

National health care disparity data discussed above clearly indicates that despite overall improvement in healthcare, racial disparities certainly exist and African Americans suffer the most burden of this. Improvement in socioeconomic and educational factors is a must in order to reduce this burden. Campaign focusing on increased access to healthcare providers, increased access to health insurance, early interventions and education is very crucial. African Americans are markedly underrepresented in clinical trials that focus on heart failure and clinical trials need to enroll more African Americans. For example, 2013 American College of Cardiology and AHA guidelines for management and treatment of hospitalized patients were based on studies, which represented less than 1/4th of African American population.⁶

References

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