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Clinical commentary

Hispanic and African American adult brain tumor patients treated at Harbor-UCLA Medical Center compared to Los Angeles County and Torrance, California

Carlito Lagman [a], Daniel T. Nagasawa [a], Debraj Mukherjee [g], Chirag G. Patil [g], Duc H. Duong [a,e,f], Duncan Q. McBride [a,e,f], Isaac Yang [a,b,c,d,e,f,*]

[a] Department of Neurosurgery, Ronald Reagan UCLA Medical Center, Los Angeles, CA, United States
[b] Department of Head and Neck Surgery, Ronald Reagan UCLA Medical Center, Los Angeles, CA, United States
[c] Department of Radiation Oncology, Ronald Reagan UCLA Medical Center, Los Angeles, CA, United States
[d] Jonsson Comprehensive Cancer Center, Ronald Reagan UCLA Medical Center, Los Angeles, CA, United States
[e] Department of Neurosurgery, Harbor-UCLA Medical Center, Torrance, CA, United States
[f] Los Angeles Biomedical (LA BioMed) Research Institute, Harbor-UCLA Medical Center, Torrance, CA, United States
[g] Department of Neurosurgery, Cedars-Sinai Medical Center, Los Angeles, CA, United States

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ABSTRACT

The objective of this study is to shed light on racial disparities among Hispanic and African American adult brain tumor patients treated at Harbor-UCLA Medical Center compared to the general populations of Los Angeles County (LAC) and Torrance, California (CA). A retrospective review of patients admitted to the neurosurgery service at Harbor-UCLA Medical Center during years 2006 through 2010 was performed. Government census data was queried and pertinent national statistics were retrieved. Brain tumor patients at Harbor-UCLA were compared to the general populations of LAC and Torrance. A total of 271 patients were included in the study. The mean age was 46.9 years. Hispanics comprised the majority of neurosurgical patients (n = 151, 55.7%), followed by African Americans (n = 35, 12.9%). A greater percentage of Hispanic patients were treated at Harbor-UCLA relative to the general Hispanic populations of LAC and Torrance ($p < .001$). A greater percentage of African American patients were treated at Harbor-UCLA relative to the general African American populations of LAC and Torrance ($p = .035$ and $p < .001$, respectively). Our data revealed significant racial disparities amid the Harbor-UCLA Hispanic and African American patient populations compared to the general Angeleno populations of LAC and Torrance.

1. Introduction

Los Angeles, California (CA) is home to approximately 4 million individuals of diverse racial and ethnic origins. According to the United States (U.S.) Census Bureau, 48.4% of Angelenos identify as Hispanic or Latino, while 9.1% identify as Black or African American. Moreover, persons without health insurance, under the age of 65 years, account for 17.4% of the population. In 2001, the Institute of Medicine released *Crossing the Quality Chasm: A New Health System for the 21st Century*, that shed light on the shortcomings of national health care delivery systems, particularly as they relate to racial/ethnic minorities and in those lacking health insurance.

The authors of the current study focus on Hispanic and African American adult brain tumor patients treated at Harbor-UCLA Medical Center and compare demographics to the general populations of Los Angeles County (LAC) and Torrance, CA. In addition, the authors trend neurosurgical care (by race) at Harbor-UCLA Medical Center over the past decade. The objective of the present study is to demonstrate racial disparities at the institutional level.

2. Methods

A retrospective single-institution review of adult brain tumor patients that had brain tumor resections at Harbor-UCLA Medical Center during years 2006 through 2010 was performed. The Los Angeles Biomedical (LA BioMed) Research Institute approved this study.

* Corresponding author at: 300 Stein Plaza, Suite 562, 5th Floor Wasserman Building, Los Angeles, CA 90095-6901, United States.
E-mail address: iyang@mednet.ucla.edu (I. Yang).

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2.1. Patient population

The Harbor-UCLA Medical Center is a 553-bed academic hospital owned by LAC and is located in the South Bay. The medical center is affiliated with the UCLA Health System and serves as one of several teaching sites for David Geffen School of Medicine and Charles R. Drew University of Medicine and Science. Primary care and specialty care are provided to the surrounding populace, especially the underserved and uninsured.

2.2. Data collection

The Harbor-UCLA medical database was queried using International Classification of Diseases, Ninth Revision (ICD-9) codes 191.0–191.9, 192.1, 198.4, 225.0, 225.2, and 237.6 and Current Procedural Terminology, 4th Edition (CPT-4) codes 61333, 61510, 61512, 61516, 61518–61521, 61524, 61526, 61530, 61545, 61546, 61548, 62164, and 62165 to identify adult patients that had undergone brain tumor resections. Government census data was surveyed to retrieve demographic information (age, sex, and race) on residents of LAC and Torrance. Races/ethnicities were self-identified and categorized as Hispanic, African American, Asian, or Caucasian.

2.3. Statistical analysis

Descriptive statistics were ascertained using SAS Studio, version 9.4 (SAS Institute, Cary, North Carolina). Age (continuous variable) was described using means and standard deviation. Sex and race (categorical variables) were described using counts and percentages. Univariate analyses were performed for the comparisons of populations (stratified by race) across Harbor-UCLA versus LAC, and Harbor-UCLA versus Torrance, CA. Statistical significance was set *a priori* at a level of less than .05.

3. Results

A total of 271 adult brain tumor patients had brain tumor resections at Harbor-UCLA Medical Center over a 4.5-year interval. The mean age for these patients was 46.9 years. There was an approximately equal female-to-male distribution, with slightly more females treated (143 females versus 128 males). Hispanics comprised the majority of patients (n = 151, 55.7%), followed by African Americans (n = 35, 12.9%), Asians (n = 33, 12.2%), and Caucasian (n = 33, 12.2%). A rise in Hispanic patients treated at Harbor-UCLA was observed during years 2007–2008, from 27 to 47 patients. During the same time period, the number of African American, Asian, and Caucasian patients treated at Harbor-UCLA remained stable (Fig. 1).

A higher percentage of Hispanic patients were treated at Harbor-UCLA relative to the general Hispanic populations of LAC and Torrance ($p < .001$). A higher percentage of African American patients were treated at Harbor-UCLA relative to the general African American populations of LAC and Torrance ($p = .035$ and $p < .001$, respectively). A lower percentage of Asian patients were treated at Harbor-UCLA relative to the general Asian population of Torrance ($p < .001$). A lower percentage of Caucasian patients were treated at Harbor-UCLA relative to the general Caucasian populations of LAC and Torrance ($p < .001$) (Fig. 2).

4. Discussion

In recent years, the delivery of specialized care in disparate populations of the U.S. have been emphasized in the literature [1–7]. Those studies described clinical trends in inpatient care through the use of publicly-available national databases. The Nationwide Inpatient Sample (NIS), National Surgical Quality Improvement Program (NSQIP), and Surveillance, Epidemiology, and End Results (SEER) registry are a few databases that have advantages, in terms of providing large sample sizes that can be readily generalized to the American population, but the potential for coding errors, lack of clinical granularity, and inability to focus on a specific state/-county/city are well-recognized limitations [6–9].

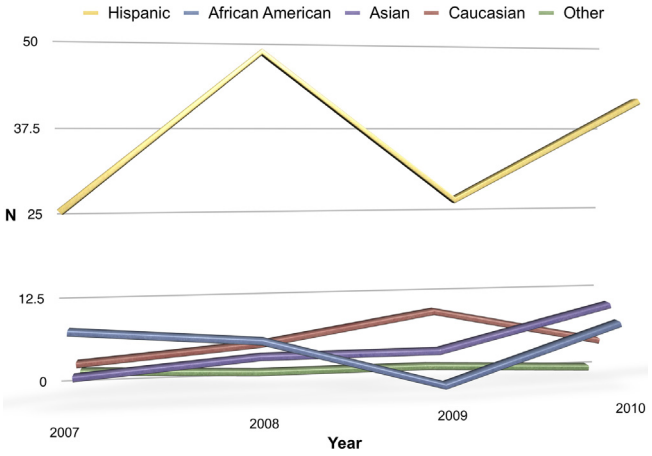

Fig. 1. Trends in Harbor-UCLA adult brain tumor patients stratified by race (2007–2010).

To address some of these issues, the authors of the current study performed a single-institution retrospective review of adult brain tumor patients treated at a county academic hospital. Two hundred and seventy-one patients had undergone a neurosurgical procedure for an intracranial tumor during years 2006–2010. The study period was prespecified and chosen for several reasons: 1) the start data included the earliest available electronic medical records, 2) according to U.S. census data, the populations of Hispanic or Latino origin, Black or African American, and Asian persons significantly increased by 43.0, 12.3, and 43.3 percentage points, respectively, from years 2000–2010 [10], and 3) the stop date was the year in which the Affordable Care Act was signed into law by President Barack Obama.

Overall, the mean age of patients was 46.9 years, which is slightly younger than that reported by Mukherjee et al. [1]. The authors of that study utilized the NIS and Area Resource File, which collates data from more than 50 sources including the U.S. Census

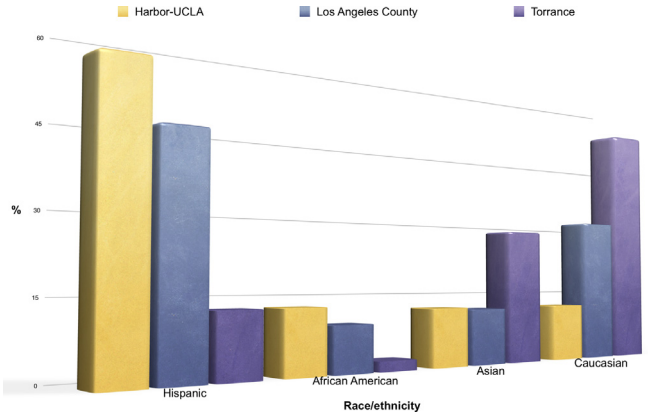

Fig. 2. Percentage of patients treated at Harbor-UCLA stratified by race and compared to the general populations of Los Angeles County and Torrance, California.

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