

# **Racial Disparities in Surgical Treatment Choice for Displaced Femoral Neck Fractures**

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## **INTRODUCTION:**

Displaced femoral neck fractures (AO-OTA 31B) are common among the elderly, and choice of hemiarthroplasty (HA) or total hip arthroplasty (THA) remains a topic of considerable debate. Due to existing treatment disparities in femoral neck fractures, we sought to investigate disparities in the use of THA for displaced femoral neck fractures among the elderly population.

## **METHODS:**

We used the National Inpatient Sample (NIS) database, a representative sample of inpatient care admissions, for patients  $\geq 65$  who underwent HA or THA for displaced femoral neck fractures from 2000 to 2020, excluding 2012. Patient records were extracted using Common Procedural Terminology (CPT) procedure codes for THA and HA, and ICD-10-CM codes for fractures. The primary outcome was treatment with either HA or THA. Covariates included hospital-related characteristics, demographics, and medical comorbidities. Logistic regression analysis was employed to evaluate the relationship between race and the likelihood of receiving THA or HA.

## **RESULTS:**

Bivariate analyses identified racial disparities in choice of treatment were present during the study period with Hispanic (90.5%), Asian (90.5%) and Black (89.9%) individuals having a higher rate of HA than White (89.4%) individuals ( $p=.004$ ). Bivariately we also found differences in choice of treatment for all patient-related factors (age, gender, insurance status, zip code income quartile and severity of illness (all  $p<.01$ ). Hospital-related factors (location, region and bedside) were all significantly related to choice of treatment in the bivariate analyses as well (all  $p<.001$ ). Comorbidities were also examined and we found alcohol, abuse, metastatic cancer, solid tumor without metastasis, depression, diabetes without chronic complications, drug abuse, hypertension, chronic pulmonary disease, obesity, peripheral vascular disease, and hyperthyroidism all to be related to choice of treatment (all  $p<.001$ ).

When controlling for these patient and hospital related variables as well as the statistically significant comorbidities in our multivariable logistic regression model we found that Black (1.34, 1.21-1.48,  $p<.001$ ), Hispanic (1.35, 1.21-1.50,  $p<.001$ ) and Asian (1.24, 1.06-1.44,  $p=.006$ ) patients had significantly greater odds of receiving HA for femoral neck fracture than White patients.

## **DISCUSSION AND CONCLUSION:**

We identified variations in patient demographics such as patient age, income level, insurance status, hospital-related variables, as well as in the severity of illness between those treated with HA versus THA for displaced femoral neck fractures. Factors such as age, dementia, and diabetes were associated with an increased likelihood of receiving HA. Even when these patient and hospital-level factors were controlled for, there continued to be racial differences in the selection of THA for femoral neck fractures. These findings highlight the need for further exploration of disparities in the treatment of femoral neck fracture to ensure equitable access to high-quality care.