

Health Care Disparities in Traumatic Brain Injury: The Effect of Insurance on Severity of Presentation

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Introduction

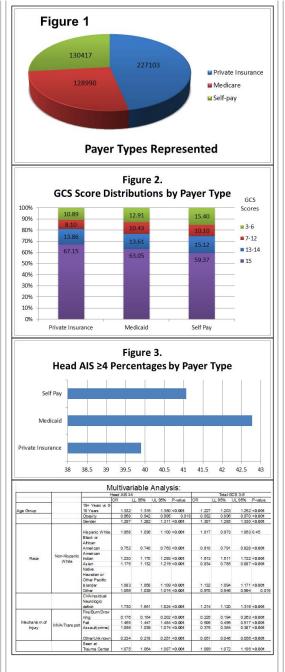
The 2014 National Healthcare disparities report illustrates disparities in healthcare affecting and traumatic brain injury (TBI), among other pathologies (3). Previous literature has demonstrated the influence of insurance status and race on TBI outcomes, with non-private payers and minorities having worse short and long term outcomes.(1,2) The objective of our study is to evaluate a relationship between SES, as measured through insurance coverage, and functional outcome, disposition, and mortality.

Methods

This retrospective cohort analysis examines the National Trauma Data Bank (NTDB) from 2010-2014 for diagnoses codes inclusive of TBI pathology. Patients 65 years and older, with undeterminable or missing data, or DNR status were excluded. Primary payer was a surrogate for SES. Insurance categories included private, Medicaid, or self-pay. Unadjusted and adjusted analyses were performed with respect to insurance type to evaluate significant differences in specific patient demographics, functional outcomes, disposition, and mortality.

Results

A total of 486,510 cases were included for analysis. The most likely mechanism of TBI in all three payment systems was a fall, followed by occupancy in a motor vehicle. Median age was 31 with 75% of patients >=19 years and 67% Caucasian. GCS was lowest in self-pay patients (12.42 \pm 4.19). Self-pay patients also had a higher percentage of individuals with a GCS between 3 and 6 (15.40%). Head AIS = 4 wasstatistically significant between the payment systems on both unadjusted and adjusted odds ratios. Medicaid patients had an increased likelihood compared to privately insured patients to have a head AIS > or = 4 (OR 1.133, 95% CI 1.117-1.150, p<0.001). Medicaid patients and selfpay patients had an increased likelihood, compared to other payer statuses, of having a total GCS between 3 and 6 (OR 1.287, 95% CI 1.259-1.316, p<0.001, and OR 1.250, 95% CI 1.223-1.277, p<0.001 respectively). Black or African American patients were found to have a decreased likelihood of having a head AIS>=4 and a total GCS 3-6 compared to non-Hispanic whites (OR 0.752, 95% CI 0.740-0.763, p<0.001 and OR 0.810, 95% CI 0.791-0.828, p<0.001 respectively). On adjusted analysis Medicaid was independently associated with head AIS >=4(OR)1.13, 95% CI 1.12-1.15) and GCS 3-6(OR 1.29, 95% CI 1.26-1.32) compared to private insurance.



Conclusion

With its pervasive effects on the US population, traumatic brain injury and its risk factors merit study as any opportunity to mitigate contributing factors that have the potential to make a prominent impact on public health. The importance of early intervention in relation to outcomes in TBI brings added urgency to determine possible non-medical influences that could affect care. We propose that the previously established effect of insurance status on outcomes may be a reflection of its association with more severe presentations rather than a direct effect on outcomes. In this analysis racial minorities suffering TBI compose a greater proportion of nonprivate insurance than Caucasians, and those insured by Medicaid or self-pay are more likely to present with serious TBIs.

References

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