

Racial and Socioeconomic Disparities in Access to Surgical Care for Spasticity in Children

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Introduction

Racial and socioeconomic disparities within the US health care system lead to inequality in accessibility of needed health services and are a growing concern. The effect of disparities has only been sparsely studied for accessibility to pediatric neurosurgery care. We analyzed its potential impact on care for spasticity in children.

Methods

We abstracted patient data from the Goodman Campbell Brain and Spine database from 2010 to 2016. We evaluated the effects of race, household income, hospital accessibility and payer status on outcomes. Fisher's exact tests and the two-tailed t-test were used in the analysis.

Results

Nineteen non-white patients were evaluated compared with 97 Caucasian patients. Analogously, there were 19 patients from households with <\$25,000, and 97 patients from households = \$25,000. However, the type of referring physician did not differ between racial groups ($p = 0.3807$), payer status ($p = 0.2999$), or household income ($p = 1.0000$). Distance to hospital did not differ between racial groups ($p = 0.1366$), payer status ($p = 0.0635$), or household income (0.0794). The mean time between initial evaluation and surgery was 1163.03 days (range, 25 to 4437 days); the mean distance traveled for care was 76.59 minutes (range, 11 to 166 minutes). Both these surrogates to measure accessibility were unacceptably long.

Conclusions

Our findings suggest the lack of racial and socioeconomic disparities in the care for spasticity once the child has been referred to pediatric neurosurgery. However, accessibility to neurosurgical care for spasticity remains a significant barrier across race and socioeconomic status.

Learning Objectives

In this study, we investigated racial and socioeconomic disparities in access for care of children with spasticity given its enormous clinical and economic implications. These same disparities have been studied in a limited fashion in other aspects of pediatric neurosurgery, such as craniosynostosis, neurooncology, and CSF shunting. However, to the best of our knowledge, they have not been analyzed for surgical treatment of spasticity. We identified a correlation with race and socioeconomic status in referral pattern. There were disproportionately lower numbers of non-White patients and patients from households below the poverty line, who were referred to neurosurgery for evaluation. At the same time, we demonstrated that all patients, regardless of race or socioeconomic status, had greater hardship in reaching tertiary care (longer travel times and lead times to surgery).

Demographics of racial and socioeconomic subgroups, as well as mean age at initial consultation and mean travel time to medical center time, in pediatric patients presenting for surgical treatment of spasticity.

Variable	Over-all	Non-White	White	P value	Public Payer	Private Payer	P value	Income < \$25,000	Income ≥ \$25,000	P value
No. of patients	116	19	97	NA	55	61	NA	19	97	NA
Surgery type										
SDR	5	1	4	1.0000	3	2	1.0000	0	5	0.5895
Baclofen pump (initial)	111	18	93		52	59		19	92	
Mean age in yrs (range)	12.14	9.46	12.74	0.0003	11.77	12.59	0.8195	12.65	12.12	0.5306
Gender (%)										
Male	73	12	61	1.0000	40	33	0.0539	10	63	0.3136
Female	43	7	36		15	28		9	34	
Referring physician										
Primary care	55	6	49	0.3807	27	28	0.2999	10	45	1.0000
Specialist	40	7	33		15	25		7	33	
Unknown	21	6	15		13	8		2	19	
Hospital type										
Free standing children's	67	11	56	1.0000	29	38	0.3485	10	57	0.6225
Within an adult hospital	49	8	41		26	23		9	40	
Age at consultation (years)	12.14	9.46	12.74	0.0003	11.77	12.59	0.8195	12.65	12.12	0.5306
Time to surgery (days)	1163	714	1251	0.0433	1096	1223	0.5207	711.32	1251.52	0.0418
Travel time (minutes)	77	61	80	0.1366	68	85	0.0635	95.00	72.99	0.0794

References

- # Attenello, *et al.* Racial and social disparities in outcomes following pediatric cerebrospinal fluid shunt procedures. *J. Neurosurg Pediatr.* **15**: 560-566. 2015
- # Austin, *et al.* Health disparities and impact on outcomes in children with primary central nervous system solid tumors. *J Neurosurg Pediatr.* **18**: 585-593. 2016.