



Effects of Regional Practice on the Outcome of Anterior Cervical Spinal Surgery

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INTRODUCTION

- The country of Guinea, sitting in West Africa, has a population of nearly 12 million people as of 2015. The country has only 2 hospitals which has a neurosurgery department. Additionally, there are only 3 neurosurgeons to serve this massive population. There is no electronic burr hole drill or self-sustaining cervical dissection retractor. The operating room temperature cannot be preset, and they have one operating room light.
- In 2010, there were only 2 neurosurgeons working in Ethiopia. Both worked in Addis Ababa, the capital city of Ethiopia, which has over 6 million people. Disease progression is more advanced among patients in Ethiopia and resources are limited.

OBJECTIVE

- Given the substantial differences in advancement among neurosurgery departments in Africa and North America, we hypothesize that the outcomes of anterior cervical decompression and fusion (ACDF) surgeries in Africa will differ from that of their counterparts practicing in North America in terms of length of stay (LOS), blood loss, average post-operative follow-up time, and readmission rate.
- We hypothesize that the reasons for a difference will be multifactorial, including limitation of resources, education, and patient load.

METHODS

- Our survey was designed and administered via the organization Survey Monkey. It consisted of seven questions. The questions and answer choices are listed in the results section.
- Email addresses were obtained by selection of medical center across North America, including the West and East Coasts of the United States and the Midwest, as well as Canadian surgeons. By obtaining the faculty names of each academic center, we then utilized the American Academy of Neurological Surgery directory to obtain email addresses. Those email addresses for surgeons practicing in Africa, both East and West Africa, were obtained via a large correspondence list by the second author.
- The survey was sent out weekly from June 10 until July 29.

RESULTS

Figure 1: Respondents by Continent

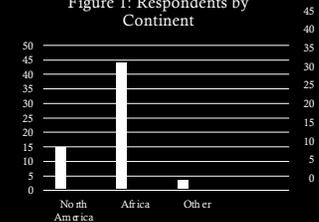


Figure 2: Do you perform ACDF Surgery?

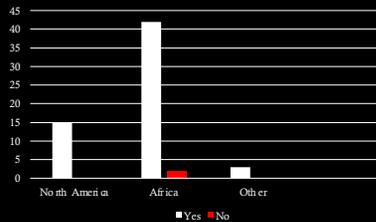


Figure 3: What are the most common levels of surgery?

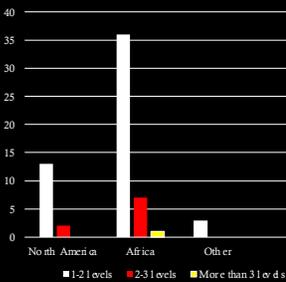


Figure 4: What is your average intraoperative blood loss?

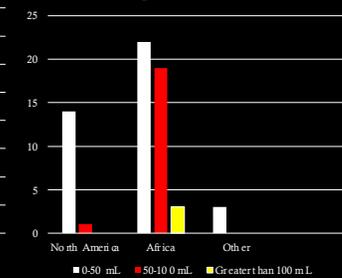


Figure 5: What is your average hospital stay?

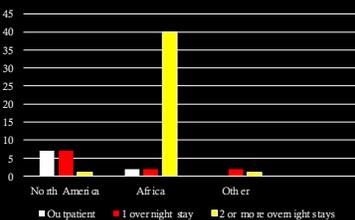


Figure 6: When is the usual first post-operative follow up?

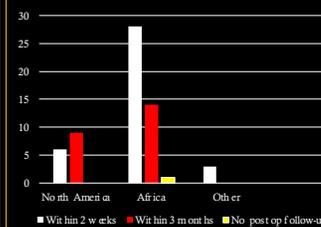
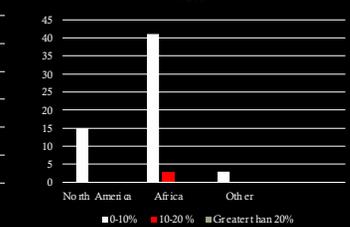


Figure 7: What is your readmission rate?



DISCUSSION

- The results of our survey showed greater similarities in outcomes among regions than we expected.
- The greatest significant difference among surgeons in Africa and North America/Other was the LOS postoperatively and intraoperative blood loss.
- While it has been established that greater blood loss intraoperatively leads to more post-operative complications, blood loss of 100 mL is not significant when compared to such studies.
- Over 90% of respondents (41 in all) from Africa reported average stays of 2 days or more, compared with 6.6% (1 total) of respondents from North America.
- At the University of Missouri in Columbia, where both authors currently reside, the majority of ACDF procedures occur on an outpatient basis, with few requiring overnight stay.

CONCLUSION

- The results of our study have found encouraging results among surgeons practicing in Africa and North America. Given the unfortunate lack of resources common in African countries, we expected to find sharper differences in our results than we actually did, and we are very encouraged at the similarities in outcomes among surgeons responding from Africa and North America.
- Further study ought to be done to determine the causes of such differences that have the propensity to be detrimental to the patient.

ACKNOWLEDGEMENTS

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