Suturing Skills of Applicants to Residency in Otolaryngology

Merry Sebelik MD, Mitchell Challis MD, Kenneth Lewoczko BS, Rose Mary Stocks, MD, PharmD
University of Tennessee Health Science Center Memphis, TN. VAMC Memphis, TN

ABSTRACT

Objectives: 1. Measure baseline competence in the performance of a basic surgical task by applicants to otolaryngology residency. 2. Determine whether information available in the standardized otolaryngology residency application correlates with objective scored performance of a basic surgical task.

Methods: Applicants to residency in otolaryngology who were invited to interview with the University of Tennessee Health Science Center in 2010 and 2011 constituted the study population.

During the interview, the applicant was asked to close a simulated incision with sutures. A blinded observer recorded a task-specific 15-point checklist of technical skill score. The task-specific score was incorporated into the calculation of a global rating score (Objective Structured Assessment of Technical Skills or OSATS) focusing on surgical skill performance and a professionalism measure.

Results: Calculation of Pearson correlation coefficient (R value) between the objective skills scores and highest USMLE step score revealed no correlation. Gender, level of training (medical student vs. intern or research fellow), team sport participation, music background, and history of international humanitarian experience were also compared to task-specific and global rating OSATS scores.

Conclusion: In contrast to other high skill professions such as the airline industry, surgical educators have not universally developed a practice of testing prospective trainees for aptitudes that can be deemed critical to surgical competence. This study demonstrates that commonly used data points used toward selection of otolaryngology trainees do not correlate with baseline suturing skill, a simple surgical skill to which all applicants to otolaryngology training should have been exposed.

INTRODUCTION

Evaluation of candidates to surgical subspecialty programs traditionally depends upon objective and subjective measures including: United States Medical Licensing Exams (USMLE) Step I and II scores, grades, research productivity, and letters of recommendation. These measures are able to identify subjects with requisite cognitive ability and knowledge base but are less effective at evaluating surgical aptitude [1]. Evaluation of surgical skills has largely been left to inferential measures such as interviews, recommendation letters, and self report. Standardized tests to measure manual dexterity, visual-spatial ability and other measures of surgical ability are not commonly utilized [2].

The objective of this study is to measure baseline competence of applicants to an otolaryngology program in the performance of a basic surgical task and determine if performance of this task correlates with information found in a typical residency application.

RESULTS

A total of 81 individuals participated in this study over a 2 year period. All individuals interviewing for otolaryngology residency at UTHSC in 2010 and 2011 consented to participate. Gender and level of training distribution are illustrated in Figures 4 and 5. The majority of applicants were 4th year medical students and male.

Pearson correlation coefficients (R values) were calculated between the highest USMLE score obtained by each applicant, and their task-specific score, OSATS global rating score, suturing subscore, and knot-tying subscore and revealed R values of 0.04, 0.03, -0.23, and 0.26 respectively (Table 1). R values suggest a positive correlation the closer they are to 1.0 and a negative correlation the closer they are to -1.0. R values close to 0 suggest no correlation.

Other data points gleaned from the application were compared to the OSATS score and all R values were close to 0 with exception of gender (0.47), suggesting being female was correlated with higher OSATS scores, and less so with history of team sports participation (r=0.25).

DISCUSSION

Selection criteria based on standard information available in the application to a surgery residency has not been believed to predict performance as a surgical resident [4]. Moreover, it has been shown, as this study does, that high USMLE scores are not correlated with high scores on manual dexterity or skills tests. Despite this, there has not been uniform adoption of dexterity or skills testing among otolaryngology training programs, and it appears that this area deserves further study.

CONCLUSIONS

Among applicants interviewing for selection to an otolaryngology training program, suturing skills vary and are not correlated with USMLE scores. Among the data points commonly available in an applicant’s file, the only characteristics revealing some positive correlation with suturing skill scores are female gender and history of team sports participation.

REFERENCES


Table 1. Pearson Correlation Coefficient (R Value)

<table>
<thead>
<tr>
<th>Task-Specific Score</th>
<th>USMLE Score</th>
<th>OSATS Global Rating</th>
<th>Suturing Subscore</th>
<th>Knot-Tying Subscore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest USMLE Score</td>
<td>r=0.04</td>
<td>r=0.03</td>
<td>r=-0.23</td>
<td>r=0.26</td>
</tr>
<tr>
<td>Female Gender</td>
<td>r=0.47</td>
<td>r=0.34</td>
<td>r=0.41</td>
<td>r=0.36</td>
</tr>
<tr>
<td>Team Sports</td>
<td>r=0.25</td>
<td>r=0.09</td>
<td>r=0.11</td>
<td>r=0.28</td>
</tr>
</tbody>
</table>