

ORIGINAL ARTICLE

Adverse Effects of Intratracheal Intubation by Emergency Medicine Residents; a Cross-Sectional Study

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Abstract

Introduction: Airway management of patients is among the responsibilities of an emergency medicine specialist. To decrease the adverse effects of intubation, sufficient knowledge of the drugs used and proper skill in intratracheal intubation is needed. Therefore, the present study was carried out aiming to evaluate the success rate and adverse effects of intratracheal intubation by emergency medicine residents. **Methods:** This cross-sectional study was done during 18 months in the emergency department (ED) of Imam Hossein Hospital, Tehran, Iran. All the residents who had spent at least 6 months of their education program in ED and had passed the 2-month specialized course in anesthesiology rotation were included in the study using census method. The researcher, who was a senior emergency medicine resident, would be present at the time of intubation and would gather the required data using a pre-designed checklist. Hypoxia, hypotension, aspiration, esophageal intubation, right main bronchus intubation, fracture of teeth, and tracheal rupture were considered as the studied adverse effects. In addition, more than 3 attempts for intratracheal intubation was considered unsuccessful intubation. **Results:** Finally, the findings of 100 patients with the mean age of 63.4 ± 16.8 years were analyzed (57% female). Attempts for intratracheal intubation were successful in all cases and 81 patients were intubated on first attempt, 15 on second attempt and 4 on third attempt. There was no unsuccessful intubation that needed more than 3 attempts among the residents. Success rate of intubation was 31 (83%) cases among first year residents, 52 (94%) cases in second year residents and 17 (100%) cases for third year residents. This difference among residents in various levels was statistically significant ($p = 0.0014$). Hypoxia, esophageal intubation, aspiration, hypotension, and right main bronchus intubation, were the most common adverse effects observed, respectively. No fracture of teeth or tracheal rupture case was observed. Rates of esophageal intubation ($p = 0.002$) and right main bronchus intubation ($p = 0.023$) were significantly different among residents of different levels. Number of attempts and adverse effects of intratracheal intubation were significantly related in this study as 75 (88%) cases of the observed adverse effects were seen in those who were intubated on the first attempt. Meanwhile, adverse effects were seen in only 6 (7%) cases that were intubated on the second or third attempt ($p < 0.001$). **Conclusion:** Attempts for intratracheal intubation was successful in all the patients but the difference in number of attempts was statistically significant between the residents of various levels. Hypoxia, esophageal intubation, aspiration, hypotension, and right main bronchus intubation, were the most common adverse effects observed, respectively. No fracture of teeth or tracheal rupture case was observed.

Key words: Emergency Medicine; Airway Management; Intubation, Intratracheal; Internship and Residency; Adverse Effects
