THE IMPACT OF AN INSTRUCTION COURSE ON COMFORT WITH TRACHEOSTOMY CARE AMONG NURSES AT A COMMUNITY HOSPITAL

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ABSTRACT

Background: Tracheotomy is a commonly performed procedure in the United States, with 113,653 adult tracheotomies in 2006. One third were performed in non-teaching hospitals, however the bulk of literature has focused on major academic centers. In light of the recently published Clinical Consensus Statement and other quality initiatives, we set out to assess and improve the care at a local community hospital. This was done in conjunction with institutional involvement of residents in quality improvement programs.

Methods: We reviewed charts of all tracheotomies performed at a community hospital from 2010-2012. Data collected included operative details, indication, disposition, complications, and documentation of education. Additionally, standardized education classes for nurses are a part of a quality improvement initiative. We have assessed comfort and knowledge of the nurses with tracheotomies before and after the class with a questionnaire.

Results: Forty-six tracheotomies were performed in this time period. The most common indication was ventilator dependence (85%), with the remainder done for airway obstruction. The average age was 68.5 years. There were no intraoperative complications. Postoperative complication rate was 21.7%. Mucus plug was the most common complication. Results from the questionnaire showed significant improvement in 9/13 questions.

Conclusion: Tracheotomy demographics, indications, and management may vary among hospitals, and particularly between community and academic settings. By instituting quality improvement initiatives, we hope to improve comfort and knowledge with tracheotomy management, and ultimately to improve outcomes. Additionally, we demonstrate the impact the involvement of graduate medical education programs can have on quality at community hospitals.

INTRODUCTION

Tracheotomy is among the most common procedures performed by otolaryngologists, although a significant number is also performed by other specialists. Despite a frequency of over 110,000 in 2006, there is a lack of standardization of practices among institutions and even within individual hospitals. There has been a recent push to improve standardization with the publication of a Clinical Consensus Statement in 2013. Most publications focusing on analyzing and improving tracheotomy practices, including this one, have focused primarily on academic centers, likely because of who is doing most of the writing of papers. According to the Nationwide Inpatient Survey, however, one-third of tracheotomies are being performed in non-teaching hospitals and likely even more are done in community hospitals that have some residents, but are not major academic centers. In light of this, we aimed to extend such improvement initiatives to a local community hospital. Our initial focus was twofold: first to review the existing practices and outcomes over the preceding three years and second to institute an education program designed to improve care.

METHODS

Chart review: A query of the inpatient billing database for all CPT codes involving tracheotomy procedures or tracheotomy care (41145, 411440, 41145, 31502, 31600, 31610, 31615, 31603, 31605, 61576) from 2010-2012 produced a list for review. Data collection instrument adapted from Halum, et al. included: admission date, discharge date, procedure date, age, sex, indication, comorbidities, technique, operative details, surgeon specialty, tube type and size, intraoperative complications, days to weaning, days to cuff deflation, days to tube change, days to decannulation, days to transfer out of ICU, days to discharge, discharge location, documentation of teaching, early complications (up to one week post-op), late complications, long term follow-up, and involvement of home care. Descriptive statistics were used to analyze the results.

Instruction course: An instruction course was designed for medical-surgical floor nurses. It was designed with the goals shown in Table 1. It consisted of an online module followed by a hands-on in-service workshop and question and answer session. A questionnaire (Figure 1) was used to assess both comfort and knowledge associated with tracheotomies before and after the course. Descriptive statistics and a two-tailed T-test were used to analyze results.

Table 1: Goals of Instruction Course

- Understand the importance of proper tracheotomy management.
- Describe the basic anatomy related to tracheotomies.
- Describe the key differences between a tracheotomy and laryngectomy.
- Describe the indications for tracheotomy.
- Understand the physiological changes that occur when a patient has a tracheotomy.
- Understand the different types of tubes and devices that can be used with tracheotomies and laryngectomies.
- Describe the principles of routine care for ‘neck breathing’ patients.
- Describe the emergency management of a ‘neck breathing’ patient who develops respiratory distress.

RESULTS

Chart review: Forty-six tracheotomies (45 patients) were performed between 2010-2012. Twenty-six (57%) were male. The primary indication was ventilator dependence in 39 (85%) patients and the remainder was obstruction. The most common disease process was pneumonia, occurring in 20 (43%) patients. Ten (21%) complications were identified, none resulting in mortality or prolonged morbidity. Five resulted in additional procedures and four resulted in emergency department visits.

Instruction course: Thirteen nurses answered the questionnaire before and after the course. A significant improvement in their answers was seen in nine of the 13 questions, indicated in bold on Table 2.

DISCUSSION AND CONCLUSION

Because of the tracheotomy’s use as an artificial airway, it has significant potential for complications. Despite its frequency, there have been a number of reported complications across multiple series. This may be due in part to a lack of standardization, which is evident in surveys that report variation in practices. Recent initiatives such as the AAO-HNS Clinical Consensus Statement and the United Kingdom’s National Tracheostomy Safety Initiative have helped to delineate standards of care, however it is ultimately up to each institution to implement change. Our presentation demonstrates how these standards can be adapted to a community hospital.

While our results indicate that this implementation strategy is promising, it is only one of a multi-pronged approach that is necessary to effectively change practices. Our study was limited by its small size and single institution for data acquisition. Additionally, long-term follow-up data was limited by the lack of a unified electronic health record that would make more information available. Our next steps include bringing this strategy to another larger community hospital and we hope to expand to even more in the future. On the individual institutional level, the next phases of quality improvement will include bedside signs indicating the nature of the airway and what to do in an emergency, a checklist for teaching requirements prior to discharge, and an order set to standardize in-hospital care.

In conclusion, we have shown that it is possible to implement national standards in a small community hospital, but only with the buy-in and support from nursing, respiratory care, and administration. To effectively institute a quality improvement program, small stepwise improvements with a small enough scope must be made. We also demonstrate the positive impact involvement of a graduate medical education program may have on a community hospital.

REFERENCES