Tracheostomies managed in critical care have a higher rate of complications

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Background: Tracheostomy insertion may be performed electively as part of another procedure, in the emergency situation for airway obstruction or to facilitate respiratory weaning in the critical care setting. Complications may occur peri-operatively or during routine ward management. If unrecognised these complications are rapidly life-threatening.

Objectives: To directly compare the rate of major complications observed in patients with tracheostomies managed in the critical care (level 2-3) setting and on a ‘tracheostomy-safe’ level 0-1 ward.

Methods: We retrospectively analysed data from 500 consecutive patients admitted to a tertiary level teaching hospital over a 3-year period. A two-sample T-test was utilised for statistical analysis.

Figure 1. T-test results

	Ventilated Patients	Non-ventilated Patients
Mean	0.400621118	0.224719101
Variance	0.465170953	0.220402463
Observations	322	178
Hypothesized Mean Difference	0	
df	475	
t Stat	3.396040939	
P(T<=t) one-tail	0.000370528	
t Critical one-tail	1.648067866	
P(T<=t) two-tail	0.000741057	
t Critical two-tail	1.964970773	

Results: 322 patients were mechanically ventilated and thus in a level 2-3 bed, 178 were not ventilated. The total number of complications in mechanically ventilated patients was significantly higher compared to non-ventilated (129 vs 40, p < 0.05).

Sources:

McGrath BA et al. Evaluating the quality improvement impact of the Global Tracheostomy Collaborative in four diverse NHS hospitals. BMJ Qual Improv Reports [Internet]. 2017 May 23 [cited 2017 Jul 2];6(1):bmjqr.u220636.w7996.

Figure 1. Rate of complications in ventilated and non-ventilated patients

Conclusion: This study demonstrated a higher number of post-tracheostomy complications among ventilated patients in critical care compared to non-ventilated patients. We comment on the reasons for these findings and our suggestions for a global improvement in the safety and quality of tracheostomy care. Possible reasons for these findings include discrepancies in the knowledge and familiarity with important aspects of tracheostomy care in the critical care setting compared to cohort wards where staff receive specialist training. Potential improvements may include ensuring all staff receive appropriate education and reinforcing the benefit of an early referral to SLT.