A study of orotracheal intubation in emergency departments of five district hospitals in Hong Kong

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Objective: To study the success rates and complications of orotracheal intubation in emergency departments of five district hospitals in Hong Kong in order to identify ways for improvement.

Method: This was a prospective observational study. The emergency department doctors performing the intubation were asked to complete an intubation study form immediately after the procedure over a period of four months. Data collected included vital signs, experiences of intubators, method of intubation and complications. Results: A total of 347 cases were collected and 93% of them were non-trauma cases. Fifty-two percent (52%) of the cases were in cardiac arrest before intubation. Rapid sequence intubation (RSI) was applied in 36% of the cases. Junior doctors first intubated about 72% of the patients. Successful intubation was achieved in 1 and 2 attempts in 70% and 89% of the cases respectively. In 10 cases (3%), secondary methods such as laryngeal mask airway, Combitube, Trachlight or cricothyroidotomy were needed. The overall complication rate was 7.8% and the complication rate in the RSI group was 15.3%. The complication rate was even higher (20%) if intubation without medication was used in non-cardiac arrest patients. Significant drop in blood pressure was the most common complication and it could be attributed to the use of midazolam as induction medication. The success rate was found to correlate with the experience of the first intubator (p<0.05) and the laryngeal view (p<0.001). The complication rate increased with repeated attempts (p<0.001) and was higher among junior doctors (p<0.05). Early use of elastic gum bougie was associated with lower complication and higher success rates. Conclusion: Orotracheal intubation in the emergency department was associated with high complication rate. Many complications came from junior intubators. Hypotension was the most common complication. Potentially avoidable complications may be a result of failure to use RSI in non-cardiac arrest patients and failure to use bougie in cases of poor laryngeal view. (Hong Kong j.emerg.med. 2003;10:138-145)

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