ARTYKUŁ ORYGINALNY / ORIGINAL PAPER
Otrzymano/Submitted: 01.12.2017 • Zaakceptowano/Accepted: 15.03.2018

Comparison of Macintosh and Intubrite laryngoscopes for endotracheal intubation during cardiopulmonary resuscitation. A prospective, randomized, crossover simulation study

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Abstract

Background. Intubation of endotracheal tract is considered to be the golden standard protecting the airway patency during cardiopulmonary resuscitation. When performed properly, the endotracheal intubation allows the asynchronous resuscitation which minimizes the pauses during chest compressions. The aim of the study was to compare the effectiveness of endotracheal intubation with the use of two different types of laryngoscopes performed by last year medical students during simulated cardiopulmonary resuscitation. ***Material and methods.*** The study was designed as a prospective, randomized, cross-over simulation study. Last year medical students were included in the study. The study participants performed endotracheal intubation using the Macintosh laryngoscope and Intubrite videolaryngoscope during two research scenarios: Scenario A - without chest compression; Scenario B - with uninterrupted chest compression. In order to standardize the difficulties resulting from compressing the chest, the Lucas2 chest compression system was used. ***Results.*** A total of 43 last year medical students participated in this study. In scenario A (without chest compression), the INT obtained both a better success rate at first intubation attempt (62.8% *vs.* 46.5%; P =.014) and time required to intubate (21 [interquartile range, 16-25.5) seconds *vs.* 23 [interquartile range, 19-28.5] seconds; P=.031) when compared with MAC. In scenario B (with uninterrupted chest compression), the results with INT were significantly better than those with MAC (P < .05) for all analyzed variables. ***Conclusion.*** Our simulation study showed that last year medical students performed endotracheal intubation with higher efficacy and in a shorter time when using the Intubrite video laryngoscope compared to the Macintosh laryngoscope during the scenario of uninterrupted compressions of the chest. In addition during this scenario the reduction in the effectiveness of endotracheal intubation and prolongation of the procedure were observed when using MAC compared to INT. *Anestezjologia i Ratownictwo 2018; 12: 117-124.*

Keywords: endotracheal intubation, laryngoscope, simulation, cardiopulmonary resuscitation, efficacy