Pentax Airway Scope Video Laryngoscope for Orotracheal Intubation in Children: A Randomized Controlled Trial

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Abstract : Background: Pentax airway scope (AWS) is a recently developed video laryngoscope for use in both normal and difficult airways, providing a good laryngeal view. The purpose of this randomized noninferior study was to evaluate the efficacy of the Pentax-AWS regarding intubation time, laryngeal view and ease of intubation in pediatric patients with normal airway, compared to Macintosh laryngoscope. Method: A total of 136 pediatric patients aged 1 to 10 with American Society of Anesthesiologists physical status I or II undergoing general anesthesia required orotracheal intubation were randomly allocated into two groups: Macintosh laryngoscope (n =68) and Pentax AWS (n=68). Anesthesia was induced with propofol, rocuronium, and sevoflurane. The primary outcome was intubation time. Cormack-Lehane laryngeal view grade, application of optimal laryngeal external manipulation (OELM), intubation difficulty scale (IDS), intubation failure rate and adverse events were also measured. Result: No significant difference was observed between the two groups regarding intubation time (Macintosh; 23[22-26] sec vs. Pentax; 23.5[22-27.75] sec, p=0.713). As for the laryngeal view grade, the Pentax group showed less number of grade 2a or higher grade cases compared to the Macintosh group (1/2a/2b/3; 52.9%/41.2%/4.4%/1.5% vs. 98.5%/1.5%/0%/0%, p=0.000). No optimal laryngeal external manipulation application was required in the Pentax group (38.2% vs. 0%, p=0.000). Intubation difficulty scale resulted in lower values for Pentax group (0 [0-2] vs. 0 [0-0.55], p=0.001). Failure rate was not different between the two groups (1.5% vs. 4.4%, p=0.619). Adverse event-wise, slightly higher incidence of bleeding (1.5% vs. 5.9%, p=0.172) and teeth injury (0% vs. 5.9%, p=0.042) occurred in the Pentax group. Conclusion: In conclusion, Pentax-AWS provided better laryngeal view, similar intubation time and similar success rate compared with Macintosh laryngoscope in children with normal airway. However, the risk of teeth injury might increase and warrant special attention.

Keywords : Pentax-AWS, pediatric, video laryngoscope, intubation