Upper cervical spine movement during intubation with different airway devices.

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BACKGROUND: Prevention of secondary neurologic injury is critical during the airway management of a trauma patient. Trauma patients are assumed to have an unstable cervical spine (C-spine) until proven otherwise: orotracheal intubation during airway management may result in a certain amount of C-spine movement. This study, therefore, aimed to compare C-spine movement within different advanced airway devices (Macintosh blade, McCoy Blade, LMA, I-LMA, and Combitube) during airway management.

MATERIALS AND METHODS: A total of 3 fresh frozen cadavers were used. The cadavers were consecutively intubated by 4 different postgraduate year residents with LMA4, I-LMA5, Combitube (37F), Macintosh 3, and McCoy blades. The cinefluoroscopic view of the entire intubation process was recorded, and vertebral body angles were calculated.

RESULTS: At the C0C1 level, compared with the McCoy laryngoscope (median, 7°), the LMA (median, 2.5°) and the Combitube (median, 1.5°) caused less extension of the cervical vertebra. In addition, the Combitube (median, -1°) and the I-LMA (median, -2°) caused less extension of the C2C3 region when compared with the Macintosh laryngoscope (median, 3°). There was no significant difference between groups at the C1C2, C3C4, and C4C5 segments.

CONCLUSION: Supraglottic devices used during airway management cause C-spine movement less or equal to conventional laryngoscopes. Furthermore, because of ease of training and blind insertion, supraglottic devices can be safely used with trauma patients when C-spine integrity is a concern.