

Publication

Assessment of three placement techniques for individualized positioning of the tip of the tracheal tube in children under the age of 4 years

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Accurate positioning of the tip of the tracheal tube (tube tip) is challenging in young children. Prevalent clinical methods include placement of intubation depth marks, palpation of the tube cuff in the suprasternal notch, or deliberate mainstem intubation with subsequent withdrawal. To compare the predictability of tube tip positions, variability of the resulting positions in relation to the carina was determined applying the three techniques in each patient.; In 68 healthy children aged ≤ 4 years, intubation was performed with an age-adapted, high-volume low-pressure cuffed tube adjusting the imprinted depth mark to the level of the vocal cords. The tube tip-to-carina distance was measured endoscopically. Thereafter, placements using (I) cuff palpation in the suprasternal notch and (II) auscultation to determine change in breath sounds during withdrawal after bronchial mainstem intubation were completed in random order.; Tube tip position above the carina was higher when using depth marks (mean \pm sd = 36.8 ± 11.2 mm) compared with cuff palpation in the suprasternal notch (mean \pm sd = 19.0 ± 5.2 mm). Variability, expressed as sd, was lowest with the mainstem intubation technique (5.2 mm) followed by the cuff palpation (7.4 mm) and the depth mark technique (11.2 mm) ($P < 0.005$).; Auscultation after deliberate mainstem intubation and cuff palpation resulted in a tube tip position above the carina that was shorter and more predictable than placement of the tube using depth markings.

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