Effect of head position on orotracheal intubation using fibre-optic bronchoscopy, a randomised cross over study

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Background: Prompt fibreoptic orotracheal intubation relies on an optimal view of the vocal cords. This study hypothesised that the neutral position would provide a better fibreoptic view and examined the effects of head position on fibreoptic orotracheal intubation, assessed using the percentage of glottic opening (POGO) score.

Method: Fifty-four consenting patients scheduled to receive general anaesthesia by orotracheal intubation, were eligible for the study. After proper head positioning was confirmed depending on the group, the FOB was inserted until the best view of the vocal cord was acquired. Changing the head position from the first to the second position according to the patient group, second vocal cord image was acquired and an endotracheal tube was advanced into the trachea. Another anaesthesiologists reviewed the image data later.

Results: 106 images of the vocal cord view from 53 patients were obtained. The mean POGO score was 26.65 ($\pm$ 30.18) for the sniffing position (position S) and 37.29 ($\pm$ 32.56) for the neutral position (position N) ($P = 0.002$). There was no significant difference between both head position about the intubation time, the degree of convenience and the lowest SpO₂ value at the time of endotracheal intubation

Conclusions: The POGO score of the neutral position was significantly higher than that of the sniffing position during fibre-optic orotracheal intubation. The difference could be attributed to the epiglottis which is closer to the posterior pharyngeal wall especially under general anaesthesia and anterior movement of laryngeal inlet. The authors recommend the neutral head position during the fibre-optic orotracheal intubation.

Fig 1. Bronchoscopic views of vocal cord during (A) sniffing position and (B) neutral position.

Fig 2. POGO score stratified by position S and N

Table 1. Time, degree of convenience and the lowest oxygen saturation were measured from obtaining photographs until the successful intubation was confirmed according to secondary head position.			
Parameters	Position S	Position N	P value
Time to intubation [sec: mean (SD)]	23.32 (6.56)	23.41 (11.51)	0.974
Lowest SpO ₂ [%: mean (SD)]	99.19 (1.39)	99.56 (1.09)	0.292
Ease of intubation [grade: mean (SD)]	0.19 (0.49)	0.11 (0.42)	0.522