Predicting Difficult Mask Ventilation

In previous studies, patient attributes that predict difficult tracheal intubation were identified, but no research has addressed difficult mask ventilation (DMV). These authors in France assessed 1502 patients for 10 potential markers of DMV and correlated the findings with actual mask ventilation difficulty during elective anesthesia.

Actual ventilation difficulty was defined as inability to maintain oxygen saturation above 92%, significant mask-face leak, need for oxygen flow greater than 15 L/min, absence of chest movement, need for 2-handed mask seal, or need to change operator. By univariate and multivariate analyses, 5 attributes independently predicted DMV: presence of a beard, body-mass index greater than 26 kg/m$^2$, history of regular snoring, edentulousness, and age older than 55. Presence of any 2 of these attributes was 72% sensitive and 73% specific for DMV. Seventy-five of the 1502 patients (5%) experienced DMV; simple subjective evaluation by the anesthesiologist identified only 13 (17%) of these patients but was 96% specific. Difficult intubation and impossible intubation were 4 and 12 times more common in the DMV patients, respectively. Difficult intubation and DMV coexisted in 1.5% of cases; impossible intubation occurred in 11 patients (0.7%), of whom 4 also had DMV (0.3% of total).

Comment: This important study is a must read; the researchers clearly identify 5 markers that predict difficult mask ventilation. The "gestalt" of experienced anesthesiologists was surprisingly unreliable. The fact that there was only a single case (0.06%) of impossible mask ventilation reinforces the importance of bag mask ventilation as a rescue technique in cases of failed intubation, in which it will virtually always be successful, even if it is difficult.

— RM Walls

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