Associations of Awake Prone Positioning-Induced Changes in Physiology with Intubation: An International Prospective Observational Study in Patients with Acute Hypoxemic Respiratory Failure Related to COVID-19

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Associations of Awake Prone Positioning–induced Changes in Physiology with Intubation — an international prospective observational study in patients with acute hypoxemic respiratory failure related to COVID–19

ONLINE SUPPLEMENT

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Table 1 Suppl. Univariate logistic regression analyses for variables associated with intubation and independent predictors of intubation determined by multivariable logistic regression analyses including variables before prone position and including variables at change from supine to prone position after 1 hour

	Univariate			Multivariable[a]		
Variable	**OR**	**95%CI**	**P-value**	**OR**	**95%CI**	**P-value**
Model using patients and baseline characteristics						
Male sex	1.55	0.60 to 4.00	0.364	-	-	-
Age (+1 years old)[c]	0.98	0.95 to 1.01	0.155	-	-	-
BMI (+1 kg/m^2)[c]	1.01	0.93 to 1.10	0.732	-	-	-
Respiratory rate > 26 breaths/min[d]	10.19	3.75 to 27.71	<0.001	6.82	1.96 to 23.72	0.003
PaO_2/FiO_2 <120[de]	20.34	6.79 to 60.98	<0.001	-	-	-
SpO_2/FiO_2 <147[d]	16.81	5.70 to 49.58	<0.001	18.28	5.08 to 65.80	<0.001
PaO_2 <100 mmHg[d]	5.03	1.09 to 23.22	0.039	10.79	1.59 to 73.36	0.015
ROX Index ≥5.10[de]	17.92	6.08 to 52.06	<0.001	-	-	-
Model using respionses to awake prone positioning						
Male sex	1.55	0.60 to 4.00	0.364	-	-	-
Age (+1 years old)[c]	0.98	0.95 to 1.01	0.155	-	-	-
BMI (+1 kg/m^2)[c]	1.01	0.93 to 1.10	0.732	-	-	-
Respiratory rate > 2 breaths/min[d]	3.03	1.22 to 7.48	0.016	3.57	1.34 to 9.50	0.011
PaO_2/FiO_2 <116[d]	2.50	0.77 to 8.10	0.127	5.11	1.41 to 18.51	0.013
SpO_2/FiO_2 <10 [d]	1.97	0.77 to 5.05	0.159	-	-	-

Table 1 Suppl. Univariate logistic regression analyses for variables associated with intubation and independent predictors of intubation determined by multivariable logistic regression analyses including variables before prone position and including variables at change from supine to prone position after 1 hour

		Univariate			Multivariable[a]	
Variable	**OR**	**95%CI**	**P-value**	**OR**	**95%CI**	**P-value**
PaO_2 ≤ 10 mmHg[d]	2.71	0.98 to 7.49	0.054	3.60	1.20 to 10.78	0.022
ROX Index <1.84[d]	1.67	0.67 to 4.17	0.276	-	-	-

OR indicates odds ratio; CI, confidence interval; BMI, body mass index.

Data are shown as estimated ORs (95%CIs) of the explanatory variables in the intubation group. The OR represents the odds that intubation will occur given exposure of the explanatory variable, compared to the odds of the outcome occurring in the presence of that exposure. The P-values are based on the null hypothesis that all ORs relating to an explanatory variable equal unity (no effect). a Model including variables before prone position: Hosmer–Lemeshow goodness-of-fit test, P = 0.392; Area under the ROC curve, AUC = 0.89 (95%CI 0.81-0.97). Model including variables at change from supine to prone position after 1 hour: Hosmer–Lemeshow goodness-of-fit test, P = 0.515; Area under the ROC curve, AUC = 0.73 (95%CI 0.62-0.84). c +1 means a one-unit increase on the scale in the predictor variable (i.e., going from 1 to 2, 2 to 3, etc.). d Cut-off value obtained from ROC curve. e Excluded from the multivariable model due highly correlation with another variable. Data are n [%] or median [IQR]. P-values obtained from the Mann-Whitney test: no intubation vs. intubation

LEGEND FIGURE 1 SUPPLEMENT

Cumulative frequency distribution of the study variables mean blood pressure, heart rate, pH, HCO3, lactate, and flow rate of the device used. The plots show the study parameters at baseline and 1 h after awake prone position of intubated and nonintubated patients. Line in red are intubated patients at 1 hour of awake proning; dotted line in red are intubated patients before awake proning; line in green are nonintubated patients at 1 hour of awake proning; dotted line in green are nonintubated patients before awake proning.

FIGURE 1 SUPPL.

- - - not intubated, before prone positioning
— not intubated, at 1 hour of prone positioning
- - - intubated, before prone positioning
— intubated, at 1 hour of prone positioning