

Category : **Respiratory: monitoring**

A18 - Diaphragmatic function and weaning failure from mechanical ventilation(MV): study using ultrasound (US) technique.

F Righetti¹ ; E Colombaroli²

¹*Intensive Care Unit, Emergency Department, Fracastoro Hospital, Emergency Department, San Bonifacio, Verona, Italy,* ²*Intensive Care Unit, Emergency Department, Fracastoro Hospital, San bonifacio, verona, Italy*

Introduction:

The complex of dysfunctional effects induced by MV on the diaphragm is called Ventilator Induced Diaphragm Dysfunction(VIDD)[1]. The aim of this work is the study of the association between the diaphragmatic excursion (DE) measured with US and the weaning from MV

Methods:

105 patients have been enrolled and they started pressure support ventilation(PSV) weaning trial. In all, DE was evaluated by viewing the right hemi-diaphragm using a 10MHz linear probe in the right intercostal area. The US examination was performed at the same time as blood gas sampling and the measurement of ventilatory parameters. After 12h of PSV, the patients started spontaneously breathe. If they were able to maintain spontaneous ventilation for the next 12h, they were assigned to the successful weaning group(SW) otherwise to the failed weaning group(FW). The product between DE and respiratory rate, the DER, was calculated for each patient. Using the Mann-Whitney U test, the DER parameter was compared between SW and FW groups and in the subgroups of overweight/obese patients($p=0.05$).

Results:

57 patients are in SW group and 48 patients in FW group. There are not statistically differences in age, sex and weight class. The mean DER in SW group was 28.5 ± 27.7 cm; in FW group was 15.2 ± 8.6 cm; this difference is statistically significant($p=0.028$). Comparing the subpopulations of overweight and obese patients, the mean DER is 32.47 ± 3.2 cm in the SW, while in the FW is 13.9 ± 7.4 cm, with a statistically significant difference($p=0.012$).

Conclusion:

Patients who were successfully weaned from MV had higher DER values during the weaning trial. These results allow us to hypothesize the use of DER as a predictive index of weaning from MV.

References:

[1]Peñuelas et al. Ventilator-induced diaphragm dysfunction: translational mechanisms lead to therapeutical alternatives in the critically ill. *Intensive Care Med Exp* 2019; 7: 48.