

USE OF TWO OXYGENATORS DURING EXTRACORPOREAL MEMBRANE OXYGENATION FOR A PATIENT WITH ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS) AND OBESITY

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Objective

Reports describing experiences of support with ECMO for ARDS and obesity are scarce because this procedure may limit oxygen delivery and carbon dioxide removal. Therefore, the treatment of obese patients with respiratory distress constitutes a challenge. A clinical case is presented with ECMO VV and double oxygenation membrane was used as a strategy to optimize the gas exchange surface.

Methods

55 year old female with body surface area: 1.97 m²; body mass index: 35.8 kg/m²). ECMO V-V was performed as rescue treatment. A second oxygenator was used due to the patient’s obesity and as a measure to extend the gas exchange surface area. Two oxygenators were inserted separately by using one-meter long pipes, which were put before and after the oxygenators, as well as before and after the star connections (or “Y” connections), (Figure 1). Additionally, a lower flow in the system was programmed obtaining turbulence decrease. Once the support started, the patient presented immediate improvement in the ventilation and oxygenation parameters (Table 1), which allowed initiating lung protective ventilation . ECMO support was given for 7 days with a progressive lung improvement, achieving weaning without complications.

Conclusions

The gas exchange surface area with two oxygenators improves ventilation and oxigenation parameters which allows achieving lung recovery. The patient presents no complications during therapy.

Referencias

[1] Leloup G, Rozé H, Calderon J, Ouattara A. Use of two oxygenators during extracorporeal membrane oxygenator for a patient with acute respiratory distress syndrome, high-pressure ventilation, hypercapnia, and traumatic brain injury. Br J Anaesth. 2011 Dec;107(6):1014-5.
[2] Gattinoni L, Carlesso E, Langer T. Clinical review: extracorporeal membrane oxygenation. Crit Care 2011; 15:243.



Photo 1: Conection Model

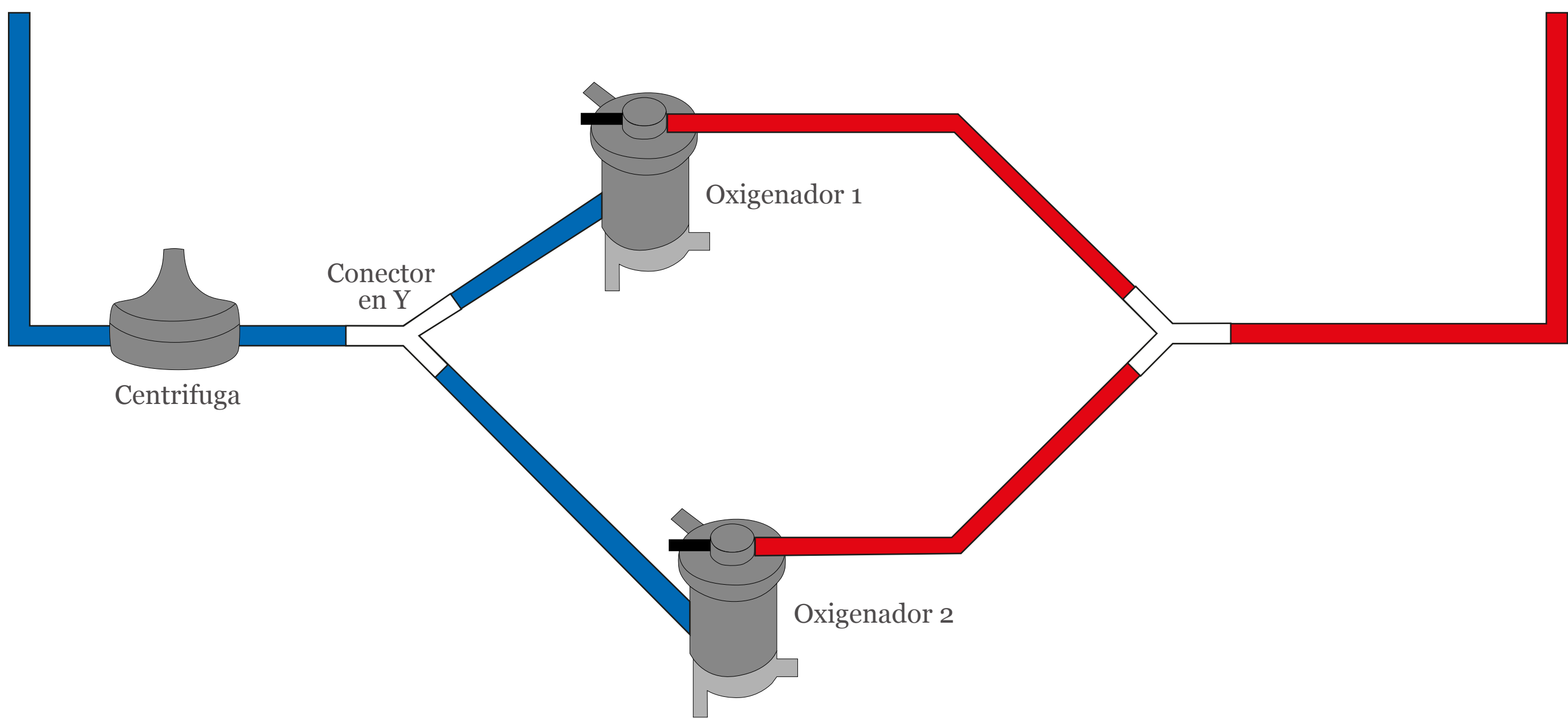


Figure 1: Conection Model

ECMO DOUBLE OXIGENATOR	PRE ECMO	POST INICIO ECMO	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	POST WEA-NING
Flow (Lt min-1)		3.86	3.89	3.8	3.8	3.9	3.85	3.02	
PAM mmhg		91	73	98	97	78	70	71	103
FiO2%		100	100	100	100	100	100	100	
pH	7.33	7.36	7.49	7.49	7.54	7.51	7.54	7.43	7.48
PaCO2 mmhg	45.2	40	33	37	31.4	36.6	31.4	42.7	32
PaO2 mmhg	53.1	58	54	50.5	53.3	56.5	58.1	63.1	76.8
FiO2%	90	100	50	40	40	40	40	40	40
SatO2%	87.2	90	90	89.2	92	91	92	93	96
PaO2/FiO2	59	117.4	135	125.2	190	141.2	145	157	192
SvO2%	74.9	71.4	73	76.2	70	73	69.2	74.2	75.5

Table 1: Parameters