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SUCCESSFUL LUNG TRANSPLANTATION AFTER PROCUREMENT FROM CONTROLLED DCD DURING NORMOTHERMIC ABDOMINAL PERFUSION. EARLY EXPERIENCE

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Objectives:

Donation after cardiac death (DCD) provides a novel source of lungs for transplantation, but death determination, requiring 20 minutes of no-touch, are challenging in Italy. A peculiar DCD program for isolated lungs procurement and a well-tested program for abdominal organs have been merged in a multiorgan procedure. We report early clinical experience of non-rapid normothermic lung retrieval from controlled DCD (cDCD) during normothermic regional perfusion (NRP).

Methods:

After treatment withdrawal and asystole, death is confirmed according to circulatory criteria (20-minute flat electrocardiogram). The NRP is instituted percutaneously; recruitment maneuvers are performed and ventilation starts with protective setting (FiO₂=100%). Performed the sternotomy, the inferior vena cava is clamped at the atrial junction. Lungs are meticulously inspected and palpated. Superior vena cava is ligated, divided and the ascending aorta clamped. If no detrimental change in venous return, pump flow rate, and good lactate trend occurs (first NRP check), the main pulmonary artery is cannulated for cold flush. Once the cold pulmonary flush is completed, a second NRP check is performed; if positive, cardiectomy and in situ retrograde flushing are made. After retrieval of lung block, complete hemostasis is ensured. NRP is continued after the removal of the lungs, until the established time for abdominal organs. In this preliminary phase, lung function is evaluated by ex-vivo lung perfusion (EVLP).

Results:

From 30 October 2017 to 31 December 2017 we managed five cDCD by the current procedure. In three cases the lungs were transplanted with good results; in two cases the lungs were judged inadequate, one at the in-situ evaluation and the second after EVLP (Table). The abdominal organs were always transplanted with good results.

Procedures data								
Donor	Date	Sex	Age (yrs)	Oto score	Lung Transplantation	Recipient LAS	Grade 3 PGD	30-day mortality
1	30/10/2017	M	45	9	Yes	68.60	No	No
2	10/11/2017	M	59	12	No	-	-	-
3	27/11/2017	M	51	1	Yes	52.65	No	No
4	30/11/2017	M	63	8	Yes	33.25	No	No
5	20/12/2017	F	34	11	No	-	-	-

Conclusion:

Our experience in non-rapid normothermic lung retrieval from cDCD during NRP demonstrated adequate lung preservation resulting in successful transplantation, without detrimental effects on abdominal organs procurement.

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Keywords: lung transplantation, DCD, lung procurement.



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