UPDATE IN INTENSIVE CARE: TRANSPLANTS

The impact of lung transplantation on ICU personnel

El impacto del trasplante pulmonar sobre el personal de la UCI

N. Masnou a,*, J. Rello b

a Transplant Coordination Department, Vall d’Hebron University Hospital, Barcelona, Spain
b Critical Care Department, Vall d’Hebron University Hospital, CIBERES and VHIR, Universitat Autonoma de Barcelona, Barcelona, Spain

During recent months, a series of up-dating articles about lung transplant published by members of PLUTO Network (Postoperative Lung Transplant Network) and Grupo de Traspantes de SEMICYUC, have appeared in Medicina Intensiva.

Even though lung transplant (LT) results have been improving over the last thirty years, and it is accepted as a real therapeutic option for patients in end-stage disease, some issues are still open. Dr. Rello’s article lays down a challenge in terms of developing strategies to increase lung retrieval rates.1

Generally speaking, efficiency in lung retrieval is very poor, due to the physiological changes deriving from brain death (BD) and difficulties in the management of potential donors. Efficiency in lung harvesting is usually under 16% of all potential donors.2 This is due to the fact that lung dysfunction is frequent in patients with severe brain damage; between 15 and 20% develop ALI/SDRA.3 This, together with changes related to BD such as neurogenic oedema or related to base pathologies including pneumonia or bronchoaspiration, explain the deterioration in oxygen exchange.

Different authors agree that having a specialized team for managing potential donors will result in more organs for transplant.4-6 Although there is no unique treatment model when talking about donor management, there are different strategies called “protective strategies” related to the mechanical ventilation parameters which are widely accepted.7 Some authors propose “aggressive” procurement such as the use of systematic bronchoscopy or recruitment manoeuvres with high or very high PEEP.6,8

Scarcity of grafts for transplant is partially due to poor efficiency and the fact that there is no evidence supporting the ultra-strict accepted criteria. Present expanded criteria includes: age > 55, smoking antecedents, abnormal chest X-ray (unilateral: for aspiration or trauma), or even known positive sputum culture and the use of organs with PaO2 < 300 mmHg through recruitment manoeuvres or ex vivo perfusion.9 Perhaps the moment has arrived to extend current criteria even further.10

Another proposed strategy to increase the organ pool is the use of lungs from NHBD (non heart-beating donors): Maastricht type II (uncontrolled donors) and type III (controlled), although these represent a small percentage of transplanted lungs. Results with organs proceeding from NHBD type II are acceptable related to mortality and survival rates.9

Yet some other strategies are far removed from our desired intention, for example, the risky procedure of living lung donation.

Dr. Mascians et al., state in their special article11 that whilst training for resident doctors in terms of organ donation is of good quality, as courses are performed all over the country, there is little or no emphasis at the level of immediate transplant post-operatory care, management of immunosuppressant treatment and complications, specifically linked to rejection and infection. Bearing in mind that the current training plan dates back to 1996, some degree of modernization should be considered.
by the introduction of antifungals and any cytomegalovirus (CMV) prophylaxis. So far the length of treatment after LT has not been agreed upon.

Dr. Jacouny states, as a result of a survey fulfilled for the seven active LT programs in Spain, that the most frequent prophylactic antifungal used is inhaled amphotericin B, which changes with the appearance of bronchospasms to a second line antifungal. In that sense, anidulafungin is used as a preferred second line treatment, even though micafungin has provided greater efficiency against Aspergillus sp. and Candida sp.

Finally, a different approach is offered by Dr. R. Vicente et al., who considered the use of mechanical devices like extracorporeal membrane oxygenation (ECMO) which have created some expectation. ECMO could be used (and the results are acceptable) as a bridge to transplant (BTT) in extremely ill patients who would otherwise die while awaiting a graft, or even in conscious patients who are on waiting list. It is also used for management of primary graft dysfunction within the postoperative period, allowing physicians to sustain treatment and offer the possibility of survival to some patients while the graft is recovering.

It is important not to forget that LT is a relatively new field of transplant and consequently all technological and other advances are currently at the experimental stage. Much work and effort is still required by all the professionals involved.

Conflict of interest

The authors have no conflict of interest to declare.

References


