BIO_9

Title of the doctoral program

Bioengineering and Medical-Surgical sciences

Title of the research activity

Evaluation of pulmonary function after prolonged ischemic period of reconditioned grafts with ex-vivo lung perfusion (EVLP)

Short description of the research activity

Despite the most recent pharmacological innovations the only therapeutic strategy in case of end-stage lung disease remains lung transplantation. The discrepancy between the number of recipients and donors still represents the most important limit of this treatment. Nowadays one of the most and widely used technique to try to overcome the shortage of donor organs is the ex-vivo lung perfusion (EVLP). EVLP consists in a controlled perfusion with an hyperoncotic perfusate (Steeen solution) of lungs retrieved from patients in cerebral death. Ex vivo lung perfusion, assessment and evaluation of poorly functioning donor lungs permits a more rational utilization of potentially acceptable organs which are currently often discarded despite the relatively reversible nature of their imperfections. The ultimate objective of the EVLP procedure is to expand the donor organ pool and thus reduce or possibly eliminate mortality and morbidity on transplant waiting list.

The present study represents the experimental basis of the possibility to subject EVLP treated grafts to a second period of cold ischemia allowing a deferred use, possibly at greater distance or even their shipment at transplant centers that do not have a reconditioning program. The maximum tolerated pulmonary cold ischemia time is a debated topic: it is generally considered to be safe around 6-8 hours, even though in literature there are reports of ischemia time much longer without organ damage. The cold ischemia time is also correlated with the occurrence of acute rejection (Primary Graft Dysfunction, PGD) in the early stages after lung transplantation. No study to date has been carried out to determine the maximum time of cold ischemia tolerated by the lung.

Scientific responsible (name, surname, role, email)

Mauro Rinaldi, Principal investigator, mauro.rinaldi@unito.it

Number of vacancies for XXXI cycle (3 years program)

1.

Specific requirements (experiences, skills)

Not required

Website of the research group (if any)

http://www.cittadellasalute.to.it/?option=com_content&view=article&id=176%253Acardiochirurgia-u&catid=57%253Asanitarie&Itemid=1