

Introduction

Liver transplantation (LT) is a life-saving treatment. Ex-situ hypothermic oxygenated perfusion (HOPE) is an established treatment for liver graft preservation and recovery for transplantation. Although we have proven experience in normothermic ex-situ perfusion (NMP), we decided to explore the potentials of HOPE in extended criteria donor (ECD) liver perfusion, as it is considered a safe and efficient technique with excellent long-term outcomes. Here we report 2 cases of HOPE performed in our center.

Methods

2 liver grafts were recovered from extended criteria donors, one 76-year-old female donor with intracranial hemorrhage and one 60-year-old male donor with hypoxic brain injury after resuscitation and diabetes as well as hypertension and coronary heart disease in his medical history. After a backtable preparation and portal cannulation, each graft was connected to PerLife perfusion system (Aferetica, Bologna, Italy) to perform HOPE with the following target parameters: temperature (T) = 4°C; portal pressure (PP) = 10 mmHg; pure oxygen flow = 1 L/min. Portal flow (PF) and resistances (PR) were recorded every 5 minutes, from the treatment start (tstart) until the treatment end (tend)

Results

The average treatment duration was 132,5 minutes (Case 1: 105 minutes; Case 2: 160 minutes). Between tstart and tend, PF increased (Figure 1). The average T was 4,8±1,1°C). Both grafts were transplanted with uneventful post-operative course. Both patients were in intensive care unit for 1 and 2 days respectively and could be discharged after 7 and 12 days. To date both recipients show a normal graft function and are in a very good general condition (Follow up 9 and 6 months).

Case #	Case 1		Case 2	
Timepoints	t _{start}	t _{end}	t _{start}	t _{end}
PF (ml/min)	384	511	191	436
PR (mmHg/ml/min)	0,007	0,001	0,038	0,018

Figure 1: Perfusion Dynamics

Conclusion

HOPE perfusion was safe and feasible. The results of our preliminary experience are consistent with already available evidence on this technique application in LT. This preliminary experience provides the groundwork for a routine clinical application of HOPE in our center.