

Dear editors:

Thank you for giving us the opportunity to submit a revised version of our manuscript. We would also like to thank the reviewers for their helpful comments. We have considered each of these in depth and have incorporated the appropriate changes in the revised version of the manuscript. We are confident that this revised manuscript has addressed the reviewers' concerns.

### **1. Reviewer 00053958:**

1.1 The recipients of those airport transported livers generally had higher MELD scores and more ALF as well as longer CIT. Although statistically airplane travel and CIT (which one would expect to be the reason for most of these graft losses) appear to be independent of each other, I suspect that their result may be somehow related to a combination of all these factors and is in fact a statistical quirk although it is a fascinating and very topical finding in an era of trying to redistribute organs in a fair way.

Stratification analysis according to CIT, MELD and liver transplantation indication suggested that airplane transportation was an independent predictor for survival. Further studies with larger patient number are of great interest to validate the finding of this study. A comment was added to the discussion. See change: page 12, paragraph 2.

### **2. Reviewer 00504811**

2.2 Introduction. Use similar units of measure, either km or miles, when describing distances.

See corresponding change: Page 5, Paragraph 2.

2.3 Several factors contributing to the donor risk index are described. Were these used in your analysis? For example, use of inotropes, hypernatremia, cause of death, pre-existing liver disease or warm ischemia time.

The variables that were included in our analysis are shown in table 1. These variables did not include the use of inotropes, hypernatremia, warm ischemia time or pre-existing donor liver disease. This data was not reliably available from interstate donors. Please see 2.5 for all variables that were included in the study. A comment has been added to the discussion. See change: page 12, paragraph 2.

2.4 Why was follow up limited to 2012?

This retrospective study was started in 2013.

## 2.5 What variables were included in the univariate and multivariate analysis?

The variables that were included in our analysis are shown in table 1. Univariate analysis included all collected clinical data in this study, namely: donor location, donor liver transport, donor age, donor gender, donor weight, donor height, donor BMI, donor liver function test (ALT, AST, bilirubin and ALP), donor blood type, cold ischemic time, donor cause of death, donor past CMV infection, donor smoking/drinking history, recipient age, recipient gender, recipient race, recipient weight, recipient height, recipient BMI, recipient blood type, recipient MELD score pre-LT, LT indication, recipient past CMV infection. Multivariate analysis included: donor age, donor gender, recipient age, recipient gender, cold ischemic time, transplant indication and donor liver transport.

## 2.6 This was a long study, 1992-2012. Did survival vary during the study period? Was airplane transport used consistently throughout the study? Was there a change in surgical technique or surgeons?

There was a slight improvement in patients survival for LT performed in 2003-2012 (n=184) compared to 1992-2002 (n=102). However, this was not significantly different (p=0.0628). The percentage of airplane transported livers was 47.1% in 1992 - 2002 and it decreased to 24.5% in 2003-2012. Liver transplantations were performed by four different surgeons due to the long study period. The detailed information in terms of operation surgeons and surgical techniques were not included in this study. Additional multivariate analysis found that airplane transported liver was independently associated with graft survival after adjusting era of liver transplantation (1992 - 2002 & 2003-2012) with HR of 1.90 (95%CI: 1.26-2.89, p=0.002). This suggested that neither the year of liver transplantation nor the change of surgical technique or surgeons over time were likely to be the cause of the significant decreased survival for airplane transported donor livers.

## 2.7 Did immunosuppression vary and influence survival? Where clotting abnormalities in the recipient studied?

Immunosuppression use clotting abnormalities were not analysed in this study. A comment was added to the discussion. See : page 12, paragraph 2.

## 2.8 The differences between the local and airplane transported donors should be mentioned in the abstract.

See corresponding change: page 3, paragraph 3.

## 2.9 Table 1 included the incidence of CMV infection, tobacco use, indication for transplant for chronic liver disease (HCV, etc.) , re-transplant. These factors may influence survival.

All factors listed in the Table 1 were included in the univariate analysis to predict survival. Please see 2.5 for more details.

### **3. Reviewer 00504802**

3.1 Minor revisions only: -would avoid abbreviation in Abstract, at least spell out first (ALT, CIT) [even if appear self-evident]

See corresponding change: Page 3, Paragraph 3.

### **4. Reviewer 00504647**

4.1 I would suggest more detailed analysis of clinical factors which may be responsible for observed differences in survival.

All clinical factors that that were available in this retrospective analysis have been included. See patient characteristic table (table1). Some clinical variables which were not available for analysis in this study may influence survival. A comment regarding this was added to the discussion. See: page 12, paragraph 2.