Transplantation of organs from donors with Hepatitis C: the potential to substantially increase transplant activity

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Introduction

With the introduction of direct acting antivirals (DAA) Hepatitis C virus (HCV) is now a potentially curable condition. HCV positive (HCV+ve) donors therefore represent a valuable and unutilised resource of potentially transplantable organs.

Aims

- 1) To determine the number of HCV+ve deceased donors in the UK and establish how their organs were used
- 2) To establish the quality of discarded HCV+ve donor organs
- 3) Estimate the benefit of using HCV+ve organs for all organ transplantation

Methods

- UK Transplant Registry
- 1st January 2000- 31st Decemeber 2015
- Identify all HCV antibody positive consented donors, identify all recipients of HCV+ve donor organs Establish quality of discarded HCV+ve donors using eGFR, liver function tests and donor risk indices
- Retrospective matching to patients who died whilst awaiting an organ transplant (Kidney, Liver, Heart and Lung)
- Cost analysis using current cost of combination sofosbuvir + ledipasvir, renal transplantation and haemodialysis

Results

- Over the 16-year study period there were 246 HCV+ve donors identified
- Only 76 (31%) proceeded to organ donation resulting in 63 liver, 27 kidney and 2 heart transplants (figure 1)
- The presence of HCV in the donor did not adversely impact transplant outcomes (figure 2)

Figure 2. Unadjusted 5 year liver patient survival and death censored graft survival by whether or not the recipient received a HCV+ve liver

Kidney	Liver
eGFR 103 (71-144.5) ml/min Creatinine (μmol/l) 68 (51-101)	Bilirubin (μmol/ml) 13 (8-22) ALT (IU/l) 53 (29-111) Alk Phos (IU/l) 93 (70-133)
UKKDRI 50% best two quartiles	DLI 28.7% best two quartiles

Table 1. Estimation of quality of livers and kidneys from non-proceeding HCV+ve potential donors

Figure 1. Total number of Hepatitis C positive donors whose organs were used and not used for transplantation

Figure 3. Reasons for HCV+ve donors to be declined for transplant

- Transplanting a HCV+ve kidney and treating with combination DAA was cost neutral with dialysis at 5 years
- Retrospective matching to patients who died on the list identified 1489 missed opportunities for transplantation

Interpretation

- Large number of HCV+ve donors declined
- Good Quality donors apart from the presence of HCV
- Potential to substantially increase the organ donor pool and improve the quality and duration of live for people on the waiting list
- Use of HCV+ve kidneys would be cost effective compared to dialysis