Deceased organ donors with a history of behaviour associated with an increased risk for the transmission of blood-borne viral infection: The UK experience

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Introduction

Deceased organ donors are routinely screened for behaviours that increase the risk of having a transmissible blood borne viral (BBV) infection (Hepatitis C (HCV), Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Human T-lymphotrophic virus (HTLV)), but the impact of this policy on organ donation and transplant outcome is not well documented

Methods

- UK Transplant Registry
- 1st January 2003- 31st Decemeber 2015
- Identify all donors with a disclosed history of Increased risk behaviour (IRB): Intravenous drug use (IVDU), imprisonment and increased risk sexual behaviour (including men who have sex with men)
- Recipient outcomes: Graft and patient survival, and disease transmission

Results

- Over the 13 year-study 640 donors were identified with IRB.
- In order to assess the impact that IRB has on organ donation and transplantation all those with positive serology for BBV were excluded, resulting in 392 proceeding seronegative donors

Figure 1. Number of consented donors with IRB whose organ transplantation and those whose were not

	History of IRB (n=392)	No history of IRB (n=12,345)	p-value
Age (y)	39 (30-48)	50 (38-61)	<0.001
Gender (Male)	87%	53%	<0.001
Ethnicity (non-white)	90%	94%	0.004
Alcohol Abuse	42%	13%	<0.001
Smoking History	79%	43%	<0.001
Hypertension	16%	26%	<0.001
Diabetes	6%	7%	0.669

Table 1. Clinical characteristics of deceased donors with IRB compared to those without IRB

- Deceased donors with IRB were significantly younger, more likely to be of an ethnicity other than white (Table 1).
- Donors with IRB were significantly less likely to have a past medical history of hypertension (Table 1).

Variable	Odds Ratio (95% Confidence Interval)	P-value
Donor age (y)	1.04 (1.03-1.04)	<0.001
Past medical History of hypertension	1.19 (1.09-1.3)	<0.001
High risk sexual behaviour	1.37 (0.9-2.1)	NS
Imprisonment	0.86 (0.57-1.30)	NS
Historical IVDU	1.98 (1.2-3.27)	0.007
Recent IVDU	3.55 (2.37-5.32)	<0.001

Table 2. The likelihood of potential donors not proceeding to become actual organ donors based on the presence of selected risk factors

- A large proportion of donors with IRB did not proceed to organ donation. Logistic regression analysis indicated that it was the presence of IVDU that impacted on donors proceeding to organ donation(table 2)
- Organ donors with IRB resulted in 1091 organ transplants (624 kidney, 278 liver, 63 heart transplants, 39 lung transplants, 2 heart and lung transplants, 84 pancreas glands, 1 bowel transplant)

Figure 2. Graft and patient survival of recipients of kidneys from IRB donors and all other deceased donors

- Recipients of livers and kidneys from IRB donors had similar graft and patient survival to those who received kidneys and livers from all other deceased donors
- There were three cases of unexpected HCV disease transmission

Interpretation

- Donors with history of increased risk behaviour are a valuable source of organs for transplantation
- Potential to use more organs from donors with a history of IVDU
- Risk of disease transmission small
- New HCV treatments mean HCV curable