

Pancreatic Islet Isolation from Donors after Euthanasia

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Rationale

Human donor pancreases can be processed to islet cell grafts but less than 50 percent of isolates reach criteria for clinical transplantation. Donor, procurement and processing conditions are considered to influence this utility rate. The Brussels Beta Cell Bank receives organs procured from donors after brain death (DBD) or after circulatory death (DCD) from the Eurotransplant network. The subgroup of DCD involving euthanasia (DCD-V) has been associated with excellent outcome of solid organ transplants.

Aim

To evaluate outcome of islet graft preparation from pancreata procured from donors after euthanasia



Results

Donor Type	DBD	DCD III	DCD V	P
Number of organs	231	54	7	
Transplantation Ratio	44%	39%	100%	<0.01
Isolation yield (μ l DTZ)	279	230	569	0.06
Glucose (mg/dl)	192	197	91	<0.05
Sodium (mmol/l)	148	144	140	<0.01
ASAT (U/l)	91	118	28	<0.01
Hospitalisation (days)	3.5	7.5	0.0	<0.01
Organ extraction time	43m	44m	26m	0.15
Cold ischemia time	8h 37m	8h 51m	2h 49m	<0.05

100% of grafts were used for transplantation versus 43% in other donor types

Beta cell mass extracted from a single organ exceeded 200% of other donor types

DCD V donors score better for relevant donor characteristics such as glycemia, sodium, liver enzymes, organ extraction time and cold ischemia time

Conclusion

The markedly higher clinical utility of islet cell isolates prepared from post-euthanasia-donor pancreases underlines the critical importance of donor and procurement conditions for this type of graft.



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