

Organ Utilisation and Damage Working Group

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Background

The utilisation of solid organ pancreases in the UK remains low. Fatty graft appearance, long cold ischaemic time and organ damage are the main reasons for discard. We retrospectively analysed the decline rates and reasons for decline over a 10 year period (Jan 1st 2005 and Dec 31st 2015).

We then set out to prospectively assess the reasons for discard and investigate if utilization could be increased by refining acceptance criteria and additionally by using a video assessment at retrieval.

1. Retrospective Study

We undertook an analysis of decline rates in the UK over the last ten years.

All pancreas transplants offered for solid organ transplantation were identified from the National Transplant Registry. We analysed the number of organs declined, the reasons and the time point of decline as well as centre specific reasons, consistency in decision and trends over time.

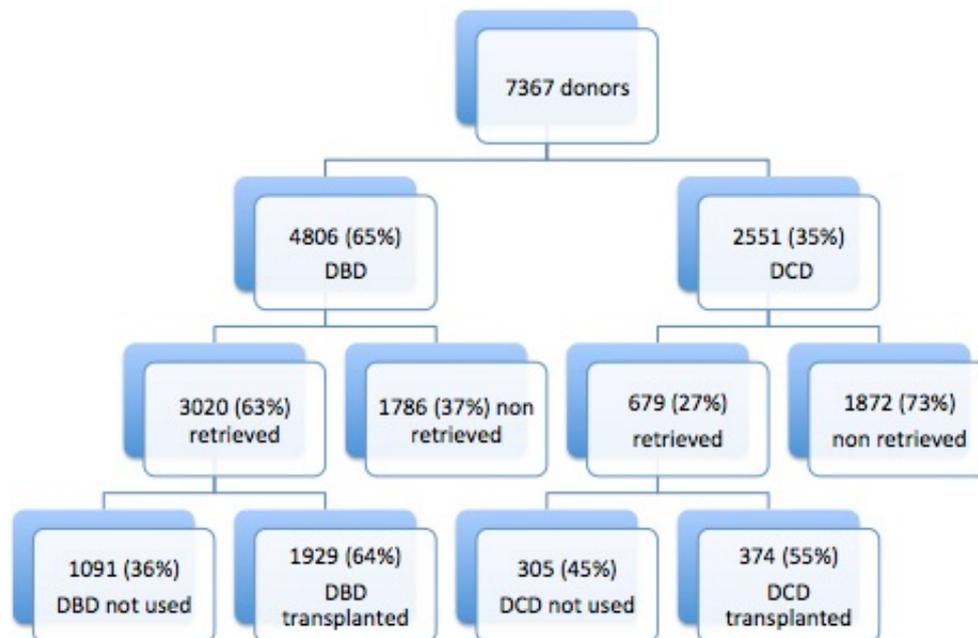
Findings

7367 pancreases were offered for transplantation between January 2005 and December 2015. 4806 (65%) were Donors after brain death (DBD) and 2551 (35%) were Donors after circulatory death (DCD). 3699 (50%) pancreases were retrieved.

2303 (62%) pancreases were transplanted whilst 1396 (38%) were initially accepted but then not used.

3658 (50%) organs were declined on the basis of donor history and were not retrieved. The main reasons for decline were age, BMI, history of alcohol abuse and cause of death.

1176 (55%) were transplanted on the first offer whilst the remaining 970 pancreases were transplanted after a median (IQR) of 3 (2-5) offers. 52% of the DBD pancreases were transplanted on the first offer compared with 69% of the DCD organs. Overall there was an increase in DCD utilization over the ten-year period. A subgroup analysis of the first offer to a named patient of a whole organ, which was subsequently transplanted as a SPK or PA, between 1st of December 2010 and 31st of December 2015, showed significant centre variations in decline rates [28%-61% for DBD and 3%-78% for DCD ($p < 0.0001$, χ^2).



2. Prospective study

All pancreases discarded in the UK over a six-month period (July 2016-January 2017) were assessed in Edinburgh and Oxford. Assessment was undertaken by a consultant surgeon independent of the initial discard decision and involved a video recording before and after preparing the graft for implantation. Evaluation included assessment of fatty infiltration, organ damage, vascular and duodenal integrity, placement of the mesenteric staple and iliac graft integrity. Donor data and the reasons for the initial decline were captured from the National Transplant Database. The concordance between initial assessment and second evaluation was assessed.

Findings

53 pancreases [37 DBD (69.81%) and 16 DCD (30.18%)] were evaluated. The median donor age was 44 years old (range:9-62 yrs) with a median BMI of 23.9 (range:19 –35yrs). 51 organs (96%) were discarded after being accepted by the centre

at the top of the offering sequence. Two were discarded at procurement. 26 organs (49%) were declined due to fatty appearance and 19 (35.8%) due to various degree of damage including 9 major capsular or vascular injuries. 19 organs (35.8%) were subsequently deemed transplantable by the additional assessment. The variation between decisions was primarily related to the size of capsular injury and the degree of steatosis.

3. Summary

Over 10 year period 50% of pancreas offers were declined prior to retrieval. Of the organs accepted and retrieved, 38% were subsequently not used. This represents a potential of 1396 pancreases that potentially could have been used. The prospective study identified that out of 53 pancreases, 19 (36%) were subsequently deemed transplantable and may have potentially have been used.

Potential strategies to increase pancreas utilisation are:

- 1) Accurate assessment at retrieval with photo/video assessment to enable early decision making and avoid unnecessary travel and prolongation of cold ischemic time
- 2) Consideration should be given to direct organs that are deemed fatty or damaged organs to centres with higher acceptance rates and/or centres with islet isolation facilities nearby and monitor transplant outcomes to determine if acceptance criteria can be expanded safely.

Additional work:

1. Definition of acceptable organ for transplantation. Based on the analysis described at point 1, we would like to define the criteria for organs that should be accepted by all centres. Equally, we should be able to define organs that were not accepted by any centre (with the exception of prolonged cold ischemic time due to offering sequence).
2. Explore variability in decision making using video data from the analysis described at point 2 and involving all/most pancreas transplant surgeons in the UK.
3. Undertake same analysis described at point 1 for islet utilisation (when organs were offered for islet recipient as index patient).

Timeline for these two analyses: six months. To be presented at next PAG.