

ISCHAEMIA TIME IN THE UK LUNG TRANSPLANTATION SERVICE

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Background: Whilst there is evidence that prolonged ischaemia time (IT) is detrimental to heart transplantation, the effect of IT on lung transplant outcome is less clear. We examined whether there was any trend in IT and its components in the UK lung transplant service.

Methods: Data were obtained from the National Transplant Database for 785 first adult cadaveric heartbeating lung (excluding double lung and heart/lung) transplants in the UK from 1 April 1995 to 31 March 2004. IT was analysed separately for the 371 single lung (SLT) and 414 bilateral sequential lung transplants (BSLT), where IT was based on reperfusion on the first lung (but in ten cases only the reperfusion time for the second lung was available, so this was used). Some centres perfuse both lungs at the same time. Patient survival was summarised using Kaplan-Meier estimates of the survivor function.

Results: BSLT had a longer median IT (285 minutes (mins) vs 252 mins for SLT; $p<0.0001$). The median transport times (donor cross-clamp to organ arrival) did not differ (143 vs 141 mins for SLT; $p=0.89$), but the median implant time (organ arrival to reperfusion) for BSLT was longer (131 vs 102 mins for SLT; $p<0.0001$). The median IT for SLT increased over the period, from 240 mins (IQR: 193-264) in 1995/6 to 275 mins (IQR: 225-315) in 2003/4 ($p=0.03$). This was mainly due to an increase in median transport time (1995/6: 105 mins; 2003/4: 173 mins; $p=0.0007$), as there was some evidence of a decrease in median implant time (1995/6: 115 mins, 2003/4: 97 mins; $p=0.09$). There was no obvious trend in IT over time for BSLT. For both SLT and BSLT, median IT and its components differed across transplant centres ($p<0.0001$). A smaller proportion of BSLT were from imported organs (52% vs 64% for SLT; $p=0.001$). There was no significant difference in national short (30-day) or medium-term (1, 3 or 5 year) patient survival across ischaemia time groups (<200 , 200-244, 245-299, ≥ 300 mins) for both SLT and BSLT. There was some evidence to suggest that 30-day survival was improving over the period (BSLT $p=0.007$, SLT $p=0.07$).

Conclusions: There was no evidence to suggest that IT influenced lung transplant outcome in the range observed. Centre differences in IT may be due to geography, transport methods or process diversity. The temporal trend in IT should be monitored to ensure there is no detriment to transplant outcome in the future.