



Heart Transplantation in New Zealand

Information for referring physicians

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SNAPSHOT OF 2017

This document summarises the work performed by the New Zealand Heart Transplant Service for the 2017 calendar year and has been written to report to the wider cardiology community and referring clinicians. We have also updated our referral information (attached to this document) to assist with the transplant referral process.

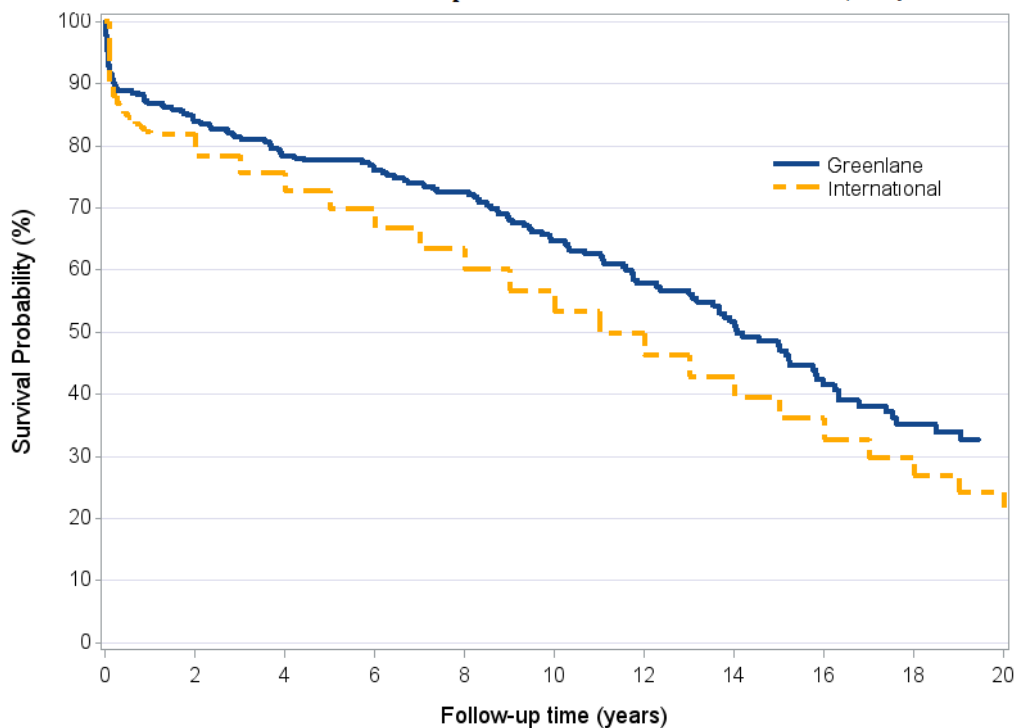
There has been a gradual increase in the rate of solid organ donation over the last few years. In 2017 there were 73 deceased organ donors (compared to 36 in 2013). Mirroring this has been an increase in heart (and other solid organ) transplant activity.

In 2017 24 heart transplant were performed, the highest number ever (historical average 10-15 per year). One patient was bridged to transplant with a ventricular assist device. We saw 28 new patients in clinic, conducted 655 transplant outpatient clinic visits and performed 355 cardiac biopsies. We have a transplant cardiologist on call at all times and strongly encourage referring centres to contact us directly for advice regarding management of advanced heart failure or discussions regarding the potential suitability of patients for transplant or management of patients post transplantation.

We were very pleased to appoint a fourth transplant co-ordinator, James Rance in 2017. We also welcomed Dr Sarah Fitzsimons, Transplant Cardiologist in August 2017 (after her fellowship at Papworth Hospital, UK) and Dr Tom Pasley, Transplant Cardiologist in February 2018 (after his fellowship at the Alfred Hospital, Melbourne).

Outcomes post heart transplant continue to be excellent with a median survival of 14 years. Below is the survival curve for the NZ heart transplant population.

Figure 3. Adult and Paediatric Heart Transplants : Greenlane vs. International (20 - year follow - up)



INTRODUCTION

The NZ Heart and Lung Transplant Service perform 10-15 transplants per year on average although numbers vary from year to year and are dependent on donor availability. In 2017 24 heart transplants were performed, the highest number ever.

Outcomes are excellent by international standards. One year survival is 90-95%, five year survival 76% and ten year survival 65%.

Once listed for transplant patients are closely monitored by the transplant team in conjunction with their referring cardiologist. A small number of patients are bridged to transplant with mechanical support (LVAD therapy) or ambulatory inotropes.

HEART RECIPIENT SUITABILITY CRITERIA

Heart transplantation is a highly effective treatment for patients with advanced heart disease. Heart transplant recipients in Australia or New Zealand survive on average 14 years after transplantation with one-third of patients surviving more than 20 years. This compares with an average survival of less than 2 years for eligible patients who are unable to undergo transplantation.

Criteria for referral for assessment

The large majority of patients referred for heart transplantation have advanced heart failure (severe symptoms/functional limitation). In about 90% of cases, this is secondary to ischaemic heart disease or some form of dilated cardiomyopathy. Less common forms of heart disease such as restrictive cardiomyopathy, congenital or valvular heart disease account for most of the remaining 10% of cases.

Chronic heart failure

Most patients referred for heart transplantation have chronic (long-standing) heart failure.

Before referral for heart transplantation

- Establish, where possible, optimal medical therapy (maximally tolerated doses of angiotensin-converting enzyme inhibitors, beta-blockers and spironolactone).
- Poor tolerability of these agents (usually manifested as symptomatic hypotension, renal impairment or worsening heart failure) means a poor prognosis and, in the absence of contraindications, patients should be referred for heart transplant assessment.
- Repeat hospitalisations for decompensated heart failure or the need for repeated or chronic administration of intravenous diuretic or inotropic therapy to achieve fluid control and/or haemodynamic stabilisation is indicative of a particularly poor prognosis. These patients should be referred for heart transplant assessment.
 - Some will ultimately require permanent mechanical circulatory support as a 'bridge' to transplant (~20% of heart transplants in New Zealand).
- ICD implantation is indicated in most patients referred for heart transplantation as primary or secondary prevention against sudden death. Frequent ICD discharges may be an indication for transplantation if no alternative therapy possible.
 - Many will also be candidates for CRT. CRT non responders or who deteriorate after a period of improvement may also be candidates for heart transplantation

Acute heart failure

Approximately 5% of transplant recipients present acutely with cardiogenic shock of various causes (myocardial infarction, myocarditis, peripartum cardiomyopathy). In carefully selected patients excellent survival can be achieved. These patients should be discussed with the transplant team at an early stage.

Contraindications to heart transplantation

- Irreversible degeneration/damage of other organ systems that precludes rehabilitation after heart transplantation (e.g. advanced neurodegenerative disease, advanced rheumatoid arthritis, severe peripheral vascular disease not amenable to revascularisation).
- In cases where there is irreversible failure of other transplantable organs, combined organ transplantation may be a consideration (discussed in next section).
- A number of acute medical conditions may render a person temporarily unsuitable for heart transplantation. These include active peptic ulcer disease, acute pulmonary embolism and intercurrent systemic bacterial or fungal infection.
 - Patients can be reconsidered for transplantation once these illnesses have resolved with appropriate medical therapy.
- Active substance abuse (including smoking, on-going alcohol consumption and illicit drug use). A period of 6 months abstinence is recommended (with confirmatory blood testing if considered appropriate) before assessment is considered.
- Obesity, a BMI of >30 is a relative contraindication to transplant, a BMI of >35 is an absolute contraindication to transplant.
- Exclusion criteria include any condition or combination of conditions that result in an unacceptably high mortality risk from heart transplantation or that preclude active rehabilitation after transplantation.

Relative contraindications to heart transplantation

Clinical characteristics which identify individuals with a marked increase in post-transplant mortality regardless of whether there is evidence of intrinsic kidney, liver or lung disease

- Uraemia with calculated (or measured) glomerular filtration rate (GFR) < 40 mL/min
- Hyperbilirubinaemia > 50 mmol/L
- Intractable ascites with hypoalbuminaemia
- Fixed pulmonary hypertension with transpulmonary gradient (TPG) > 15 mmHg or pulmonary vascular resistance (PVR) > 4 Woods Units after pulmonary vasodilator challenge.
- Age (due to comorbidity and inferior long term outcomes patients over the age of 65 are rarely considered for heart transplantation).

Infection

- Chronic hepatitis B or C infection may not be an absolute contraindication to heart transplantation depending on the presence and severity of chronic liver disease.

- Active infection with multiresistant bacteria such as methicillin-resistant staph aureus (MRSA) or vancomycin-resistant enterococcus (VRE) is regarded as an absolute contraindication to heart transplantation.

Psychosocial issues

- Recent history of medication non adherence.
- Inability to comply with complex medical therapy (e.g. chronic cognitive or neuropsychiatric deficits).
- Inadequate psychosocial support.

Combined organ transplantation (heart/liver, heart/kidney)

Combined organ transplantation can be undertaken with the expectation of a similarly low perioperative mortality and reasonable life expectancy as stand-alone heart- transplantation in carefully selected individuals.

- Patients being considered for combined heart/other organ transplantation need to meet all standard criteria for heart transplantation plus have evidence:
 - of advanced irreversible dysfunction of the other organ and meet standard criteria for transplantation of that organ; and
 - have a poor life expectancy from heart transplantation alone unless the other organ is also transplanted.
- Evaluation of patients for combined organ transplantation requires detailed assessment and agreement by both organ transplant teams that the patient meets all eligibility criteria.
- The NZ Heart and Lung transplant Service does not perform heart/lung transplantation.

Heart retransplantation

- Heart retransplantation has rarely been performed in Australia and New Zealand but has been undertaken with success and can be considered in suitable patients. The most common indication is late graft failure secondary to cardiac allograft vasculopathy in an otherwise well patient. ISHLT registry data indicate these patients can achieve an excellent short and long-term survival.

REFERRAL TEMPLATE

In order to expedite the assessment process for your patient a comprehensive referral to the transplant team with all relevant information is recommended. Often this will include sending copies of clinical letters and investigations with the referral.

It is desirable that the referral letter covers the following information:

- Medical/surgical Problem List: Cardiac and non-cardiac diagnoses should be listed
- Medications (and medication intolerances if relevant)
- History of cardiac condition (including investigations and treatments) and current symptomatic/functional status.
- Examination findings including height, weight and BMI

- Current cardiac investigations (echocardiogram report, coronary angiogram report, cardiac MRI report if performed)
- Psychosocial history
 - Tobacco/Alcohol/drug use
 - Support network
 - Heart failure self-management/adherence to medical therapy
 - Employment history/status

The more comprehensive and complete a referral is, the better we are able to assess/triage it meaning that delays to assessment are minimized.