

Heart transplant surgery safe and effective: A Canadian retrospective spanning three decades

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Heart transplantation is a very safe and effective therapy, according to a new long-term study presented today at the Canadian Cardiovascular Congress 2011, co-hosted by the Heart and Stroke Foundation and the Canadian Cardiovascular Society.

Researchers at the University of Ottawa [Heart Institute](#) [heart transplant](#) program revealed results from 25 years of follow-up on a total of 461 [transplant patients](#). Mean age at transplant was 49 ± 13 years. Patients were followed and managed according to guidelines in effect at the time.

They found that survival rates have improved by more than 20 per cent over the years since modern [heart transplantation](#) became available in 1980.

"Heart transplants are amazingly [effective therapy](#)," says Dr. Marc Ruel, surgical director of the heart transplant program at the University of Ottawa Heart Institute. "We must remember that half of these patients would otherwise not have lived one year without a transplant."

The Heart Institute found that survival rates have been good over the years, especially from 2003 onward, with more advanced surgical and medical care, where the survival rate at eight years post-surgery is now 89.3 per cent. "Results have significantly improved over the years," says Dr. Ruel.

The study found that overall survival rates for the 25-year period were:

- At one year – 86%
- At five years – 75%
- At 10 years – 62%
- At 15 years – 47%
- At 20 years – 36%

Fifty-five per cent of all patients were status 3 or higher – meaning they had more complicated and urgent medical needs – at transplant.

Survival was negatively influenced by age at transplant. The younger the patient is at the time of transplant, the more successful the outcome. Each additional 10 years of age decreases the survival rate by 20 per cent, the study found.

Survival was not significantly affected by gender or by whether a patient was on a ventricular assist device – a mechanical pump that helps a weakened heart pump blood throughout the body – pre-transplant.

Causes of death beyond the perioperative period were cardiac allograft vasculopathy in 36 per cent (at a mean of eight years post-transplant), rejection in six per cent (at a mean 1.4 years post-transplant), sepsis in 10 percent (at a mean of one year post-transplant), cancer in 17 per cent (at a mean of 7.7 years post-transplant), and other causes in 32 per cent (at a mean of 8.2 years post-transplant).

Successful heart transplantation is a team effort that starts with donor identification, consent from families, donor preparation, and collaboration between hospitals. It involves a large team of surgeons, transplant cardiologists, nurses, coordinators, physiotherapists, and social workers.

"Heart transplant is one of the most philosophically, symbolically, surgically and medically beautiful acts," says Dr. Ruel. "Although the number of donors will always be insufficient until we find new therapies such as cardiac regeneration, it is important to recognize the importance of heart transplant programs and of organ donation, in light of the many lives saved and families positively touched by this therapy. We hope that this research conveys the message."

"Heart transplant is a very good choice for some patients," adds Dr. Haissam Haddad, medical director of the University of Ottawa Heart Institute heart transplant program. "It has a strong record of safety and success."

Heart disease is a leading cause of death in Canada. "Heart transplantation is an excellent treatment to the select few who need it," says Heart and Stroke Foundation spokesperson Dr. Beth Abramson. "We can all do our part by signing our donor cards and letting loved ones know our wishes." She also recommends we all lead healthy lives to try to prevent heart disease.

"Canadians with heart failure who otherwise might have died have access to a life-saving procedure thanks to generous donors and our incredible multidisciplinary transplant teams," says Dr. Abramson. "This research is a valuable measure of how this life-saving advance is working for our sickest patients – those who need a new heart."

Heart transplant is used to treat severe, end-stage heart failure. This heart failure may be the result of damage to the heart from coronary artery disease, such as a heart attack; severe, untreated hypertension (hypertensive heart disease); heart valve problems; infections such as viruses; alcohol and illicit drug use; inherited heart disease or congenital heart disease.

In 2010 there were 167 heart transplants in Canada, performed in five provinces. On December 31, 2010, there were 135 Canadians on the waiting list for a heart transplant.

Provided by Heart and Stroke Foundation of Canada

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