Centre Hospitalo-Universitaire Ibn Rochd

« Characteristics, management and outcomes of patients with terminal heart failure and pre-cardiac transplantation, experience of the CHU IbnRochd of Casablanca »

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Introduction

- Despite advances in medical and device therapy, the prognosis and quality of life of patients with advanced heart failure (HF) remains poor. For a carefully selected group of these patients, cardiac transplantation is the treatment of choice .
- Heart transplantation is the treatment of choice for selected patients with advanced HF who have limiting symptoms despite optimal conventional treatment and evidence of a poor prognosis. The limited number of available donor hearts restricts this treatment to a small fraction of potential recipients (1) .
- With increasing numbers of patients now referred for consideration of transplantation, a significant imbalance between supply and demand exists (2).

History

First human-to-human heart transplant was performed in Cape Town on 3 Dece 1967 by Christiaan Barnard; the patient died 18 days later of infective complications. Outcomes were poor in the early years, but with the discovery of ciclosporin in 1980s there was an improvement in survival which led to a peak in cardiac transplant activity in the early 1990s (1).

Aim of this study

The purpose of this study is to report characteristics, outcomes and pre-transplantation management in patients with terminal heart failure based on Heart transplant registery (HTR) of Centre Hospitalo-Universitaire Ibn Rochd of casablanca

Patients and methods

- A registry has been updated between March 2020 - Now.
- To date, 80 patients with end-stage heart failure have met the inclusion criteria for the transplant registry.
- 54 patients have been removed from the registry after improvement of symptoms and echocardiographic findings in response to optimal medical therapy (OMT) and resynchronisation. Only 26 patients continue to have end-stage heart failure despite optimal medical therapy and are considered candidates for heart transplantation.

Box 1 Indications for cardiac transplantation (1)

Indications for referral of ambulatory patients with chronic heart failure

1. Patients on optimal medical therapy who have limiting symptoms on exertion.
2. Patients who require frequent admission to hospital (two or more in 12 months) despite adequate therapy and adherence.
3. Deteriorating renal function or inability to clear congestion without adversely affecting renal function.
4. The need to decrease the dose of/stop prognostically beneficial medication due to symptoms (often hypotension), or side effects like renal dysfunction.
5. Worsening right ventricular function or rising pulmonary artery pressure.
6. High or rising natriuretic peptide levels despite optimal therapy.
7. Frequent episodes of ventricular arrhythmia despite optimal drug and electrophysiological therapy.
8. Anaemia, weight loss, hyponatraemia, liver dysfunction attributable to heart failure.

Box 2 Contraindications to cardiac transplantation (1) :

Active infection

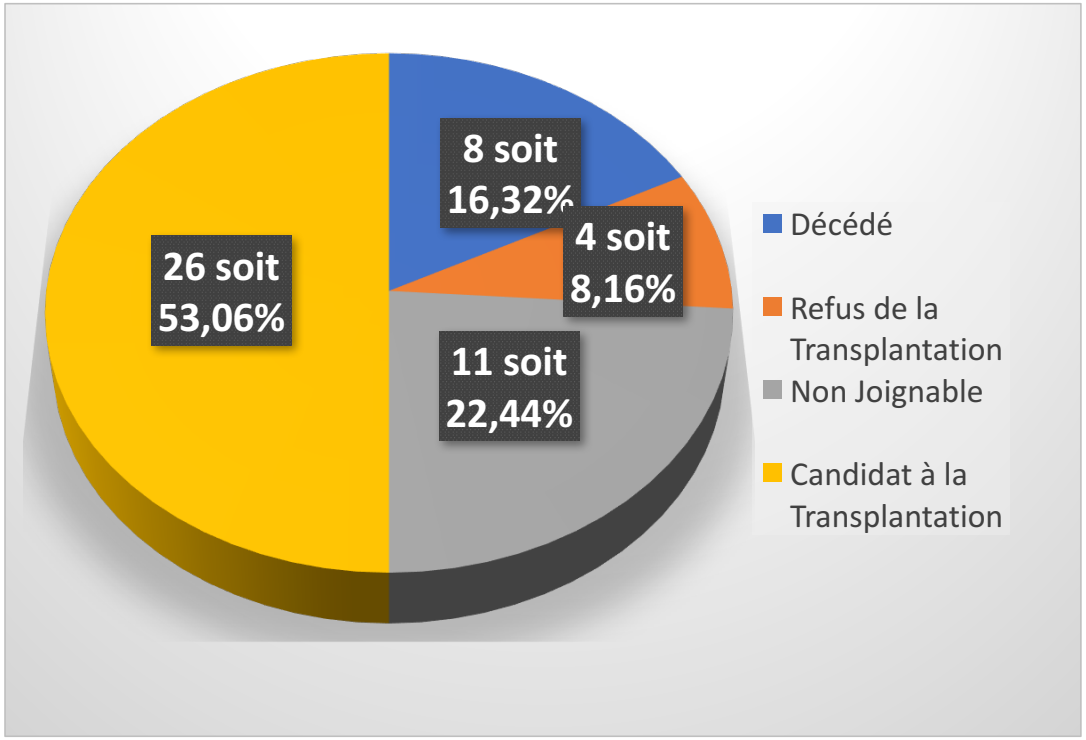
- Poorly controlled Diabetes mellitus
- Current or recent neoplasm , Pulmonary hypertension
- Severe lung disease , Psychosocial factors , Obesity
- Irreversible renal dysfunction
- Irreversible liver dysfunction
- Recent pulmonary thromboembolism

We have excluded all paediatric patients and urgent indication from this statistic - analysis.

Results

Of the 26 patients who were eligible for transplantation:

- 4 patients refused the transplant, mainly for religious reasons.
- 8 patients died.
- The remaining 14 patients were listed on the waiting list of the Heart Transplant Registry (THR).



Distribution of patients admitted to the heart transplant registry

Pretransplant investigations

Sérologie : *(VIH, VHB, VHC, Syphilis, EBV, CMV, KH, Toxoplasmose)*
Coronarographie :
Epreuve d'éffort :
VO2 max :
KT droit :
TDM CTAP
Scintigraphie de Perfusion Pulmonaire :
EFR/DLCO :
Bronchoscopie :
FOGD/Colonoscopie :
ODM :
Pénotype HLA (tube mauve) :
Consultation psychiatrique :
CPA :

The main aetiology was dilated cardiopathy of ischaemic origin, followed by myocarditis.

Comorbidites : 65% were smokers, 27% were diabetics, 11% with hyprtension, 7% or 2 patients has dyslipidaemia, one patient with terminal renal failure, 2 patient were alcoholics.

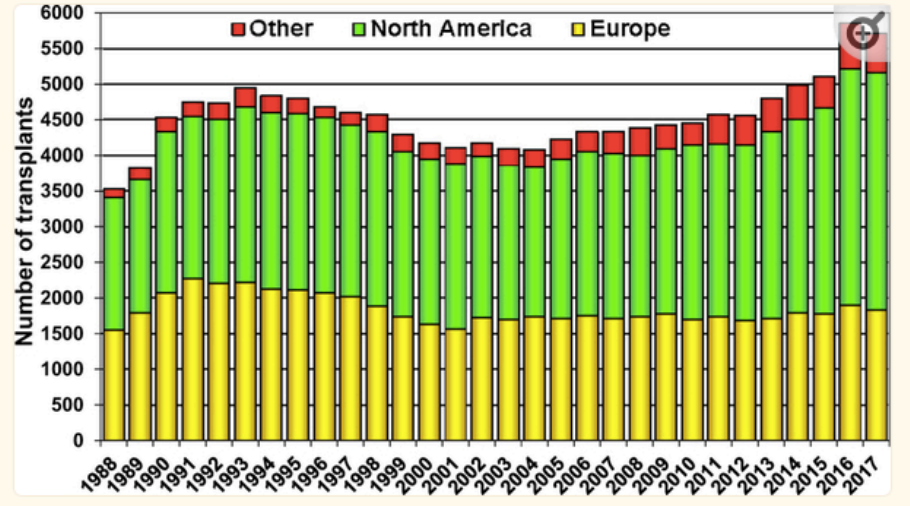
The most common antecedent was the multiples hospitalization for decompensation, 2 patients had strokes, 1 BPCO, one pulmonary embolism .

Concerning the cardiac rhythm, 80% are in sinus and 15% in atrial fibrillation, only one patient with flutter, the mean LVEF is 20% (most of them have 13%),

All patients are on the first line drugs for heart failure, , the most prescribed beta-blocker was the bisoprolol and CEI is ramipril, 4 patient's narcissist ivabradine, one had a DAI, no one had the resynchronisation.

Discussion

The number of heart transplants reported to the ISHLT Transplant Registry is significantly higher than a decade ago (Figure 1), driven mainly by higher heart transplant volumes, particularly in the most recent years in North America and Other (non-North American, non-European) countries .



- Immunosuppressive therapy is commenced at the time of transplantation and continued life long. Box 4 lists of the most commonly used immunosuppressive medications (2) .

Box 4 Immunosuppressive drug therapy

Induction therapy (perioperatively and early post-transplant):
- ► Polyclonal: antithymocyte globulin.
- ► Monoclonal: basiliximab (anti-CD25), alemtuzumab (anti-CD52).

Maintenance therapy
- ► Calcineurin inhibitor: tacrolimus, ciclosporin.
- ► Antimetabolite: mycophenolate mofetil, mycophenolic acid, azathioprine.
- ► Corticosteroid: prednisolone, prednisone, methylprednisolone.
- ► Mammalian target of rapamycin inhibitor: sirolimus, everolimus.

Early post-transplant problems (3) **:**

Box 5 Risk factors for cardiac allograft vasculopathy

Immunological
- ► Number of episodes of acute rejection.
- ► HLA-DR mismatch between donor and recipient.
- ► Anti-HLA donor-specific antibodies in the recipient.

Non-immunological
- ► Donor age.
- ► Recipient age and gender.
- ► Coronary artery disease as a cause for transplantation in the recipient.
- ► Cytomegalovirus infection.
- ► Smoking.
- ► Hypertension.
- ► Obesity.
- ► Hyperlipidaemia.

Conclusion

- Heart transplantation is the treatment of choice for selected patients with advanced heart failure (HF).
- Patients with ongoing HF symptoms despite optimal medical and device therapy, and patients who cannot be safely discharged from hospital should be referred for transplant evaluation. The availability of suitable donor hearts limits the number of transplants that can be carried out and patients must therefore be carefully selected.
- Modern immunosuppression has decreased the incidence of acute rejection, but it remains an important problem in the early post-transplant period. Long-term problems include cardiac allograft vasculopathy, renal dysfunction and an increased incidence of malignancy.

Bibliographe

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