

TWENTY-SEVEN YEARS EXPERIENCE WITH HEART TRANSPLANTATION

Călin VICOL¹, Sieglinde KOFLER¹, Amir Khosrow BIGDELI¹,
Ingo KACZMAREK¹, Diana KELLERER¹, Thomas MÜLLER¹,
Michael SCHMÖCKEL¹, Gerhard STEINBECK¹, Peter ÜBERFUHR¹,
Bruno REICHART¹, Bruno MEISER¹

Abstract. *Background: The objective of this study was to evaluate long-term outcomes of cardiac transplantation (HTx) in different eras of innovation at a single center during a period of 27 years. Methods: We performed a retrospective analysis of 960 cardiac allograft recipients (40 re-HTx) between 1981 and 2008. The results of 6 different eras based on milestones in HTx were analyzed: Era1: the early years (n = 222, 1981 - 1992); era2: introduction of inhalative nitric oxide, prostanooids, University of Wisconsin solution (UW) replacing Bretschneider's solution (HTK, n = 118, 1992 - 1994); era3: statins (n = 102, 1994 - 1995); era4: tacrolimus (n=115,1995-1996); era5: mycophenolate mofetil (MMF, n = 143, 1997 - 2000) and era6: sirolimus (n = 300, 2000 - 2008). Outcome variables were survival, freedom from transplant vasculopathy (CAV) and from acute rejection episodes (ARE). Results: Differences in survival was found comparing era1 and era2 with era4 and era6 (p < 0.001). Organ preservation through UW demonstrated a significantly better survival compared to HTK (p < 0.001). Less ARE occurred in patients receiving tacrolimus-sirolimus or tacrolimus-MMF (p < 0.001). Patients receiving tacrolimus-MMF showed less CAV than treated with cyclosporine-MMF (p < 0.005). There were more ventricular assist device implantations and more re-HTx in era6 (p < 0.0001). Conclusions: Although the causes for improvement in survival over time are multifactorial, we believe that changes in immunosuppressive therapy have had a major impact on survival.*

Keywords: Heart transplantation, immunosuppression, survival, chronic allograft vasculopathy, acute rejection.

1. Introduction

On August 19, 1981, the first successful heart transplantation (HTx) was performed by Reichart and colleagues at our center and on July 8, 2008 the one-thousandth heart transplantation. During the last 27 years many advances have been made in the field of surgical care, organ preservation, perioperative management, immunosuppression, and infection control. These advances have contributed to establish heart transplantation as an effective therapy for patients with end-stage heart disease [1]. Nowadays, the patients who undergo HTx differ from those in earlier periods. There are an increasing proportion of older patients

¹ Department of Cardiac Surgery and Department of Cardiology, University Hospital Grosshadern, Ludwig-Maximilians University, Marchioninistrasse 15, 81377 Munich, Germany