

Risk factors for cardiovascular disease in the renal transplant recipient

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INTRODUCTION

Cardiovascular disease is a leading cause of morbidity and mortality after kidney transplantation. Death from cardiovascular disease is also the most common cause of graft loss.

This topic reviews the risk factors of cardiovascular disease among renal transplant recipients. The epidemiology of cardiovascular disease following transplantation, cardiovascular outcomes compared with dialysis patients, and the evaluation of renal transplant candidates are discussed elsewhere. (See "[Patient survival after renal transplantation](#)" and "[Evaluation of the potential renal transplant recipient](#)".)

OVERVIEW OF CARDIOVASCULAR RISK

Transplant recipients have a lower risk of fatal and nonfatal cardiovascular events compared with waitlisted patients on dialysis [1-4], but a much higher risk compared with the general population [5]. Fifty to 60 percent of posttransplant deaths are directly attributable to cardiovascular disease, with an incidence of ischemic heart disease of approximately 1 per 100 person-years at risk [6,7]. Cardiovascular disease is the most common cause of death with graft function after transplant and accounts for 30 percent of graft loss from death overall, with the greatest rates early after transplant [8].

The high rate of cardiovascular deaths in the transplant population is due in part to the large number of diabetic patients in the end-stage renal disease (ESRD) population, who are at markedly increased cardiovascular risk, compared with nondiabetic transplant recipients. As an example, in one study of 933 transplant recipients, cardiovascular disease was the most common cause of death among diabetic recipients; in contrast, most deaths among nondiabetic recipients were due to infection, malignancy, or other causes [9].

However, the cardiovascular risk among transplant recipients who do not have ESRD related to diabetes is still higher than in the general population [8]. The increased cardiovascular risk is due to the following:

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