Prevalence of donor-transmitted atherosclerosis—Clinical utility of intracoronary ultrasound early after heart transplantation. A single-center study

Helena Bedanova, Marek Orban, Martin Tretina, Ales Tomasek, Petr Malik, Petr Fila, Vladimir Horvath, Jiri Ondrasek, Radka Stepanova, Petr Nemec

Abstract

Introduction

Coronary allograft vasculopathy (CAV) is one of the main factors limiting long-term survival following orthotopic heart transplantation (HTx). Whether or not and, if so, how donor-transmitted atherosclerosis (DCA) affects the post-transplant course of the allograft recipient is still unclear. Conventional coronary angiography is a moderately accurate technique for DCA detection as it will reveal only the more gross morphological lesions. By contrast, intravascular ultrasound (IVUS) has been shown to be a much more sensitive technique for CAV and DCA detection. In our study we sought to determine the prevalence of DCA in our HTx patient population and identify main risk factors of DCA based on donor characteristics.

Patients and methods

We performed a retrospective analysis of data of 119 patients (92 men, 27 women) undergoing transplantation in our center from August 2006 through September 2012, who had survived their first post-transplant month and had coronary angiography and IVUS.

Results

DCA was present in 39 patients, and not documented in 80 patients. The main risk factors for DCA included donor age, cigarette smoking, and hypertension; the other parameters were not shown to be statistically significant. In-hospital mortality was low in both groups (DCA positive and DCA negative), with one patient dying in either group. One-year mortality rates post-HTx were likewise almost identical in both groups (15.4% and 15% in DCA positive and negative, respectively).

Conclusion

The prevalence of DCA in our patients was 32.8%, with major risk factors for DCA including donor age, cigarette smoking, and hypertension. As age seems to be the strongest predictor, coronary angiography should be a routine examination in individuals aged over 40 years; the examination should be considered in younger individuals with a cluster of several of risk factors. The 1-year survival in this selected patient population was identical in both groups, the implication being that the diagnosis of DCA had no effect on 1-year survival post-HTx.

Keywords

Heart transplantation; Coronary allograft vasculopathy; Donor-transmitted coronary atherosclerosis