Conversion to everolimus - a treatment option in pediatric heart transplant recipients: impact on CAV, renal function and cardiovascular risk factors

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Introduction: Cardiac allograft vasculopathy (CAV) is considered to be a major cause impairing the long-term survival after heart transplant. Additional side effects of the immunosuppressant such as nephrotoxicity, malignancies or infections play a role. Several studies revealed a positive effect of the m-TOR inhibitor everolimus (Eve) on CAV and renal function. However there are still limited data in children and adolescents. This study was performed to assess the effects on CAV and some side effects as renal function, cardiovascular risk factors, post-transplant lymphoproliferative disorder (PTLD), acute rejections and CMV infections after conversion to Eve in heart transplanted children / adolescents and to gain initial insights into this novel treatment regimen. Additionally the conversion reasons were analysed.

Methods: In this retrospective, single-center study 36 patients were switched to everolimus and observed for up to four years, and descriptive before-and-after comparisons were performed.

Results: 36 patients (mean time after transplantation 6.3 ± 4.7 years) were recruited. Indications to conversion were CAV in 33.0% and renal insufficiency in 16.7%. In terms of the CAV among 9 patients, four showed no progression, three an improvement, one a deterioration of a CAV and one patient a first diagnosis. Renal function shows different courses. The mean kreatinin-clearance of 16 patients at 6 months increased from 95.5 ± 25.8 ml / min / 1.73m² (range: 43.5-155.4) to 99.6 ± 32.9 ml / min / 1.73m² (range: 49.1-185.0). There were trends in increasing lipid levels and decreasing blood glucose levels. In three cases of PTLD the symptoms disappeared and no new event occurred. There were no acute rejections or CMV infection.

Conclusions: In children and adolescents a switch to everolimus is a safe immunosuppressive regimen without increasing the risk of acute rejection or CMV infection. Renal function appears to be improved, with different courses overall. There was a trend to reduce the progression of the CAV however there was a risk of an increase in lipid parameters. In addition there were indicators of a positive influence on glucose metabolism including post-transplant diabetes, as well as a PTLD.