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Cylex Guided Conversion to Everolimus Based Immunosuppression in Heart Transplant Recipients: The Rabin Medical Center Experience

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Background: Everolimus provides effective immunosuppression after heart transplantation (HTx) allowing Calcineurin inhibitors (CNI) minimalization. It has the potential of reducing renal toxicity and the severity of cardiac allograft vasculopathy (CAV). Immunosuppressant dosing is commonly based on measuring drug levels despite the known clinical inaccuracy of this surveillance method. The Cylex assay determines the cellular immunity status by quantitative measurement of intracellular ATP level in CD4+ lymphocytes. Levels below 225 and above 525 indicate over and under immune suppression respectively.
Aim: To assess the efficiency and safety of the conversion to Everolimus based immunosuppression (EBI) in HTx patients using the Cylex assay.
Methods: Since December 2006, Everolimus (initial dose: 1.5 gr/day) was introduced in 43 (35%) of the 108 HTx pts followed at our center: 26 (60%) pts in the reduced CNI dose (CNI reduced by 30% MMF withheld) and 17 (40%) in the CNI free (CNI discontinued, MMF increased to 3 gr/day) protocols. Drug levels were maintained as proposed. The Cylex assay was introduced in June 2007. The 24 pts with Cylex assay performed before and after the conversion to EBI were studied.
Results: Everolimus was introduced due to: worsening renal function, CAV, recurrent CMV, CNI induced neuropathy or malignancy. Everolimus levels in the CNI free and reduced protocols were 6.1±2.5 and 4.8±2 respectively. Cyclosporine and FK levels were 66±21.1 and 4.2±2.5 respectively. Pre conversion, one week and one month post conversion mean Cylex levels were 361±130 (range 187-600), 359±121 (range 142-573) and 378±82 (range 226-513) respectively (p=NS). During the first month post conversion, doses were changed guided by the Cylex levels. No adverse events (rejections or infections) occurred as a result of the doses alterations.
Conclusions: Cylex guided conversion to EBI therapy is safe and efficient in tailoring the most appropriate therapy for each HTx recepient.