Lack of BK Polyoma Viraemia in an Islet Cell Transplant cohort

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Introduction:

BK virus nephropathy (BKVN) occurs in approximately 5% of renal transplant recipients (RTRs) and is preceded by BK viraemia which occurs in approximately 10-20% of RTRs. It appears to be much less common post non-renal solid organ transplantation, although few robust studies have been performed in this population.

A study of 38 pancreas alone transplants at a mean of 16 months described 4 cases of BK viruria but did not test for viraemia [1]. A systematic review including 18 studies of lung, heart, liver and pancreas transplants, reported an incidence of BK viraemia of 3%. Moreover, 17 cases of BKVN in the native kidneys were reported [2], mostly in heart transplant recipients. There are no published data on BK viraemia following islet-cell transplantation (ITx).

Methods:

We performed cross-sectional testing in our ITx cohort for BK viraemia using a PCR assay (Vela Diagnostics-Singapore). Immunosuppression was broadly similar to contemporary RTRs consisting of maintenance therapy using tacrolimus and mycophenolic acid preparations. Induction with alemtuzumab was used allowing for a corticosteroid-free regime.

Results:

Overall, 19 patients [12 females; mean age 51 years (range 38-73)] had a single test performed. Renal function was stable with an eGFR >60mls/min/1.73m² in all patients from time of transplantation until BK testing. The mean time of testing was 10.6 months post transplant (range 2-42 months) and all were negative for BK viraemia.

Discussion:

The testing was performed during the 'at risk' time for developing BK viraemia in RTRs. Recent evidence demonstrates that kidney donor BK sero-positivity correlates strongly with BK viraemia and BKVN post transplant, with high sero-reactive donors into low sero-reactive recipients particularly being at risk [3]. This suggests that BK disease in renal transplantation is primarily due to BK virus transmission by the transplanted organ and may explain the higher incidence in renal transplantation compared with other solid organ or cellular transplants.

Our findings suggest that BK virus infection is not common post ITx. However, we only tested for BK viraemia once and at varying time points in each patient. We plan to perform prospective testing at multiple time points which will provide a more robust reflection of the risk of BK virus infection post ITx.

References:

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