

INTRA-RENAL COMPLEMENT ACTIVATION IN RENAL TRANSPLANT RECIPIENTS WITH ACTIVE BK VIRUS REPLICATION

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Objectives: Diagnosis of acute rejection in biopsies with BKV nephropathy is a challenging problem. The significance of tubulitis in this setting is controversial, while intimal arteritis, and glomerulitis are believed to favor rejection. C4d staining has been suggested as a marker for acute antibody mediated rejection. In this study we present whether viral infection can itself cause complement activation.

Design: Retrospectively we studied 127 biopsies from 53 patients with at least one episode of BK viruria; the biopsies were performed within 14 days of paired urine and plasma quantitative BKV-PCR or showed BK virus nephropathy.

Biopsies were graded according to Banff 97 criteria for acute rejection; no rejection (20), borderline changes suspicious for acute rejection (27), IA (39), IB (27), and IIA (5), while 9 biopsies showed BKV nephropathy. Peritubular capillary C4d immunostain (PTC4d) was graded as 0, 1, 2 corresponding to negative, focal, and diffuse respectively.

Samples were divided into 3 groups: BKV negative, viruric and viremic/nephropathic.

Results: Viremic/nephropathic group consisted of 14 biopsies from 9 patients, graded as borderline suspicious for AR (1), IA (1), IB (2), and IIA (1), and BKV nephropathy (9). Mean C4d was 0.4 +/- 0.65, it was graded as 0 (n=9), 1(n=3) and 2(n=1), and it was not available on 1 occasion.

Viruric group composed of 61 samples from 38 patients and were classified as no AR (9), borderline AR(16), IA(20), IB(15), and IIA(1). Mean C4d was 0.41 +/-0.7, it was graded as 0(n=39), 1(n=10), 2(n=5), and it was not available in 7 occasions.

BKV negative group composed of 52 samples from 25 patients classified as no AR(11), borderline AR(10), IA(18), IB(10), and IIA(3). Mean C4d was 0.47+/- 0.68, it was graded as 0, 1, and 2 in 31, 13, and 5 respectively (C4d not available in 3 biopsies).

There was no significant difference comparing PTC-C4d staining in viremic/nephropathic, viruric, and BKV negative groups [Kruskal-Wallis One Way Analysis of Variance on Ranks (P=0.84)]

Conclusion: BKV replication does not per se lead to complement deposition in the peritubular capillaries. In renal allograft biopsies with BKV reactivation, C4d stain can be used as a marker for concurrent antibody mediated rejection.