RENAL TRANSPLANT BIOPSIES IN THE ERA OF C4D STAINING: ASSOCIATION OF DIFFERENT PATHOLOGIES

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Positive C4d immunostaining in the peritubular capillaries (PTC) has been associated with different renal allograft pathologies. It has both diagnostic and prognostic implications. We evaluated the histopathologic diagnoses of renal allograft biopsies since the implementation of routine C4d immunostaining at our center. We reviewed a total of 376 renal transplant biopsies performed between May 2002 and March 2007. All biopsies were performed because of deterioration in renal function and/or proteinuria. Banff criteria were used for the diagnosis and classification of acute cellular rejection (ACR), acute humoral rejection (AHR), chronic allograft nephropathy (CAN) and transplant glomerulopathy (TGP).

144 (38%) biopsies had evidence of ACR. Of these, 102 (71%) biopsies exhibited features of pure ACR; 18 (18%), 60 (59%), 19 (19%), and 5 (5%) were borderline, IA/IB IIA/IIB, and III, respectively. 27 (19%) biopsies had concomitant features of ACR and AHR; 3 (11%), 14 (52%), 8 (30%), and 2 (7%) were borderline, IA/IB, IIA/IIB, and III, respectively. The Banff class distribution was not different in biopsies with ACR and those with concomitant ACR and AHR.

61 (16%) biopsies exhibited features of humoral rejection defined as positive C4d staining in PTC (34 pure AHR, 20 humoral rejection with features of CAN, and 27 AHR and ACR).

164 (44%) biopsies had features of CAN; 37 (22%), 52 (32%), and 75 (46%) were classified as grade I, II and III, respectively. Of the 164 biopsies with CAN, 20 (12%) had positive C4d immunostaining [5 (3%) had concomitant ACR and AHR and 15 (9 %) had AHR]. A total of 77 biopsies (20% of all biopsies) had additional features of TGP. 61 biopsies (37% of CAN biopsies) had concomitant TGP and CAN. Of the biopsies with TGP, 11 (14%) of them were associated with positive C4d staining in PTC.

In our center, ACR seems to be the predominant histopathologic diagnosis in patients with allograft dysfunction; 19% of them had features of concomitant AHR. A sizable number of biopsies exhibited features of CAN; only 12% of them had concomitant AHR with or without ACR.