

Research paper 5

Histopathological features associated with c4d positivity in post-transplant renal biopsies with features suspicious of acute or chronic antibody-mediated rejectionP.G.N.L. Chandrasiri¹, H.D. Wijesinghe¹, A.A.H. Priyani^{1,2}, M.V.C. De Silva^{1,2}¹Department of Pathology, Faculty of Medicine, University of Colombo, Sri Lanka²Lanka Hospital Diagnostics, Narahenpita, Sri Lanka

Introduction: Antibody-mediated rejection (AMR) accounts for 30% of renal transplant rejections and adversely affects the survival of the graft. The diagnosis of AMR requires the simultaneous presence of AMR activity/chronicity on histology, evidence of antibody interaction with tissue by C4d positivity and donor-specific antibodies or equivalent.

Objectives: To describe clinicopathological features and their association with C4d positivity in “post-transplant renal biopsies with features suspicious of acute or chronic AMR”.

Methodology: This was a descriptive cross-sectional study with an analytical component, conducted at the Department of Pathology, Faculty of Medicine, University of Colombo and Lanka Hospital Diagnostics, Narahenpita, including all post-transplant renal biopsies with features suspicious of AMR and tested for C4d during 2017-2020. The association between C4d positivity with the selected clinical parameters, Banff-defined histological criteria of AMR activity/chronicity, interstitial oedema (IO) and plasma cell infiltrate (PCI) were analysed.

Results: Ninety-eight cases were included. The age ranged from 15-70 years. 83.4% (82/98) were males. Serum creatinine levels ranged from 53-730 µmol/l. 56.2% (54/98) were >1-year post-transplant. 49% (48/98) were C4d positive. Glomerulitis, peritubular capillaritis (PTCtis), glomerular basement membrane (GBM) double contours, IO and PCI showed a statistically significant association with C4d positivity, being present in 36.7%: p=0.012, 91.8%: p=0.003, 22.4%: p=0.003, 84.7%: p=0.002 and 87.9%: p=0.015 cases, respectively. Intimal arteritis, thrombotic microangiopathy (TMA), acute tubular injury and arterial fibrointimal thickening were present in 7.1%, 3.1%, 54.1% and 47.1% of cases, respectively and did not show a significant association with C4d positivity. The highest sensitivity, specificity, and positive and negative predictive values were detected for IO-98%, TMA-98%, GBM double contours-81.8% and IO-93.3%, respectively.

Conclusion: This study identified that glomerulitis, PTCtis, GBM double contours, IO and PCI were more predictive of C4d positivity.

Keywords: antibody mediated, C4d, post-transplant, renal

Corresponding author: Dr Nayana Chandrasiri

Department of Pathology, Faculty of Medicine, University of Colombo, Sri Lanka

nayanalasanthipg@gmail.com



This is an open access article licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/). (CC BY-SA 4.0), which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are attributed and materials are shared under the same license.