

Letter to the Editor

Renal Allograft Rejection: Difficulties in Biopsy Diagnosis in Low-Income Countries

To the Editor:

The Banff Classification of Renal Allograft Pathology is used internationally for scoring and classifying rejection in kidney transplant biopsies. This score system has gone through a number of modifications since it was first published in 1993. Criteria for diagnosis are changing as new knowledge is accumulated, studies demonstrate the importance of features not previously considered, and ancillary studies are developed for more precise determination of graft dysfunction causes. The 2005-updated Banff schema, published in 2007 (1), recognizes antibody-mediated rejection (AMR), in addition to the traditional category of acute and chronic active T-cell-mediated rejection. The more sophisticated approach to renal biopsy study permits refinement in diagnosis and specific therapeutic approaches.

The latest modifications to the Banff scheme, especially the emphasis on AMR, require that C4d immunohistochemistry (IHC) be performed on all renal allograft biopsies (2). The routine use of C4d antibody in the study of each renal graft biopsy can be implemented without major difficulties in developed countries. Conversely, in low-income countries, obtaining the antibody for C4d is at present difficult, and when possible has a prohibitive cost. Electron microscopy and other molecular tests useful in renal allograft biopsy diagnosis should be far more difficult to carry out in these countries.

Pathologists, both in low-income and in developed countries, have experience in interpreting biopsy findings that might suggest AMR, such as peritubular capillary margination of neutrophils or monocytes, glomerulitis, acute tubular necrosis-like lesions, small vessel thromboses, necrotizing arteritis, glomerular double contours and prominent peritubular capillary basement membrane multi-layering. In contrast to pathologists in developed countries, many pathologists practising in low-income places like Colombia do not have the possibility to perform the IHC for C4d necessary for the diagnosis of AMR.

Therefore, application of the Banff classification of kidney allograft pathology is at present incomplete in some low-

income countries, due to difficulties in performing the IHC required for precise assignment of the observed changes into each category of the scheme. Frequent causes of graft dysfunction, like anti-calcineurin toxicity, T-cell mediated rejection, BK virus-associated nephritis and acute tubular necrosis, can be diagnosed based on microscopic changes, but humoral rejection will be missed in most cases.

Although it is well known that routine stains for light microscopy are insufficient for state of the art kidney allograft biopsy interpretation, at present this is the only tool readily available in many underdeveloped countries.

Cooperative work between centers in low-income countries, in partnership with centers or organizations in developed countries, should be a solution. Another option should be to have, in each low-income country, a reference center with ancillary expensive tests where other centers of the country should send suspicious cases for AMR or other diseases not feasible to diagnose with routine stains. Transplant centers worldwide will need to identify what methodologies to implement and why and how to link up with other centers to access technology if they cannot do so alone.

L. F. Arias, A. A. Arteta and R. D. Giraldo
Department of Pathology and PRYT Group
Faculty of Medicine
University of Antioquia
Medellín, Colombia

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References

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