PEDIATRIC KIDNEY TRANSPLANT MONITORING WITH PROTOCOL BIOPSIES AND HLA ANTIBODIES

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OBJECTIVES

Kidney transplantation is the standard of care in the treatment of pediatric patients with end-stage renal disease. Technical and pharmaceutical progress have helped to dramatically reduce the incidence of acute rejection episodes and to improve first-year outcomes. However, long-term graft survival remained largely unchanged over decades (1).

Alloimmunity together with non-immunological factors is the most common mechanism leading to kidney graft failure (2).

METHODS

Our study retrospectively analysed a sample of pediatric kidney transplant recipients with normal and stable graft function to investigate 1) the prevalence of acute and chronic humoral lesions detected on surveillance biopsies and 2) the association between these histological features and the presence of circulating anti-HLA-antibodies.

We analysed 41 pediatric renal recipients (M/F 32/9, mean age at transplantation 9.73±6.24 years) who underwent between January 2011 and January 2012 at least one surveillance biopsy at 6, 12 or 24 months post-transplantation and a contemporary blood sampling for anti-HLA-antibodies detection (3,4,5).

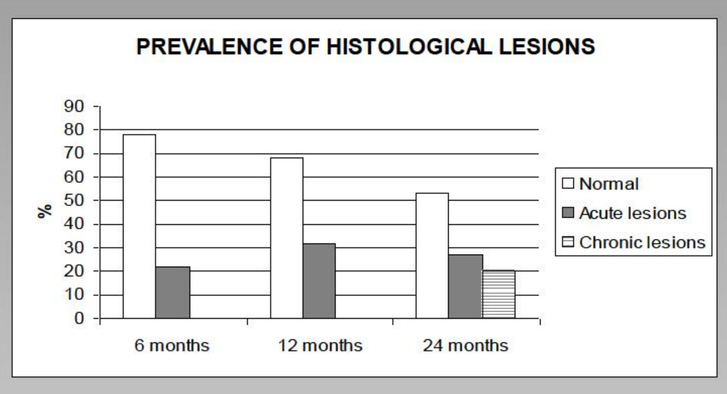


Figure 1: Prevalence of subclinical histological lesions.

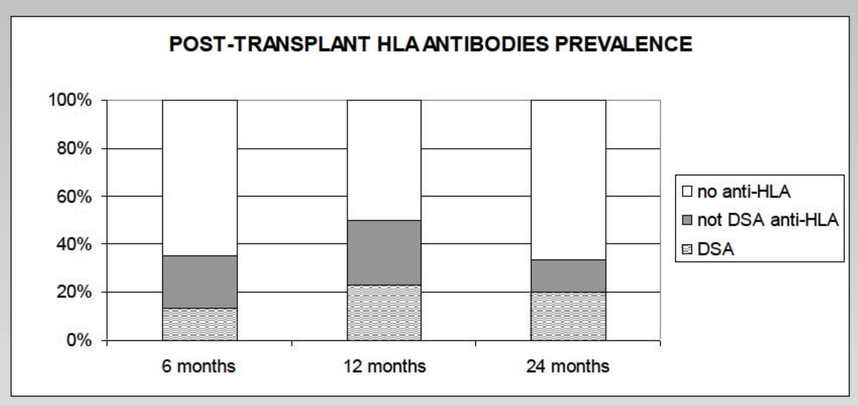


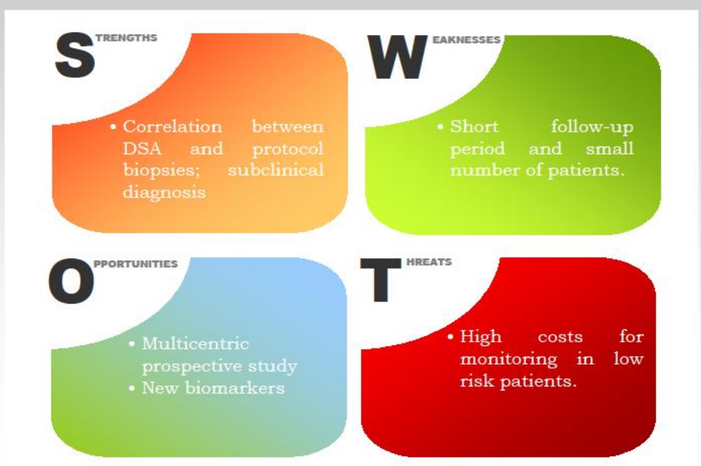
Figure 2: Prevalence of post-transplant HLA antibodies.

RESULTS

We observed a prevalence of subclinical acute lesions (Banff '05 2, 3, 4Ia) equal to 21.7%, 31,8% and 26,6% respectively at 6, 12 and 24 months post-transplantation (5% of humoral lesions) (Figure 1). DSA prevalence resulted equal to 13%, 22,7% and 20% respectively at 6, 12 and 24 months post-transplantation. Similarly non-DSA anti-HLA antibodies prevalence resulted equal to 21,7%, 27,2% and 13,3% at 6,12 and 24 months post-transplantation respectively (Figure 2). Circulating anti-HLA antibodies were associated with the presence of subclinical acute lesions.

CONCLUSIONS

Our study demonstrates a high prevalence of histological acute lesions and circulating anti-HLA antibodies detected in patients with normal and stable graft function. These observations highlight the fundamental role of kidney graft monitoring through histological and serological testing to early identify and treat subclinical humoral damage.



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