

THE ROLE OF PROTOCOL BIOPSIES IN FACILITATING PRESERVATION OF THE KIDNEY ALLOGRAFT FUNCTION

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Objectives: Retrospective analysis of protocol biopsies revealed their valuable diagnostic role. The incidence of various pathological changes was determined and compared in different immunosuppressive protocols with regard to the development of chronic allograft nephropathy (CAN).

Methods: 227 ultrasound-guided biopsies were performed between 2002 and 2006, in adult patients with normal kidney function (creatinine 158 ± 38 $\mu\text{mol/l}$, GFR 51.2 ± 12.9 ml/min/1.73 m²). Samples were taken 3 (78 pts), 12 (85 pts) or 36 months (41 pts), or later (23 pts) after transplantation. 114 patients received cyclosporine (CsA) and 99 pts tacrolimus (Tac)-based immunosuppression in combination with MMF and steroid. The morphological examinations included the standard light microscopic staining, immunofluorescence with IgG, IgA, IgM, C3, C4d, HLA-DR, and electron microscopy, if needed. The control group of 72 pts transplanted in the same period did not undergo biopsy.

Results: There were no major complications with the sampling procedure. Pathological changes were diagnosed in 72% of the samples (Table 1.). 65% of these patients (88 pts) were treated on the basis of the protocol biopsy findings. Clinically, the biopsy group demonstrated a significantly better graft function at the 2-year follow-up (Δ GFR 0.1 vs. -5.26 ml/min/1.73 m² in the control group). Comparison of the Tac-based protocols with the CsA-based combinations revealed that Tac was associated with significantly lower rates of CNI toxicity (7% vs. 19%), CAN (35% vs. 52%) and chronic rejection (3% vs. 15%).

Conclusions: Accordingly, the protocol biopsy is an excellent method for the early diagnosis of different disorders developing in the transplanted kidney and for control of the effectiveness of immunosuppression. Chronic allograft nephropathy can be reduced by using tacrolimus instead of cyclosporine. The early detection and treatment of disorders can therefore help preserve the allograft function and improve the graft survival.

Table 1.
Biopsy findings

	N	Marginal Samples (%)	Acute rejection		CNI tox. (%)	CAN		Other	Norm. (%)
			AR	BL		CR+	CR-		
M3	79	4 (5)	10 (13)	19 (25)	9 (12) *	0	13 (17)-**	17	37 (49)*
M12	86	9 (10)	19 (24)	23 (29)	22 (28)*	7 (9)	37 (48)**	17	17 (21)*
Y 3	41	5 (12)	7 (19)	10 (27)	18 (50)*	8 (22)	14 (38)	5	5 (13)
Late	23	3 (13)	1 (5)	6 (30)	13 (56)	5 (25)	8 (40)	3	2 (10)
All	229	21 (9)	37 (17)	58 (27)	62 (30)	20 (10)	72 (35)	42	61 (28)

* p < 0.05