

INCIDENCE AND CHARACTER OF C4D STAINING IN LATE ACUTE OR CHRONIC REJECTION AND ITS IMPACT ON LONG-TERM KIDNEY GRAFT OUTCOME

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OBJECTIVES

Rejection has always been one of the most important cause of late renal graft dysfunction. The aim of the study was to analyze the prevalence and character of C4d staining during the late acute and chronic rejection, and evaluate its impact on long-term outcome.

METHODS

This is a retrospective study that analyzed 239 needle core biopsies specimens from renal transplant recipients with late (48,8±46,1 months after transplantation) allograft dysfunction caused by late acute rejection (LAR n=175) or chronic rejection (CR n=64). C4d staining was performed by immunofluorescence (IF) on frozen sections using a standard protocol. All biopsy were evaluated and scored according to the updated Banff criteria¹ (Fig.2).

RESULTS

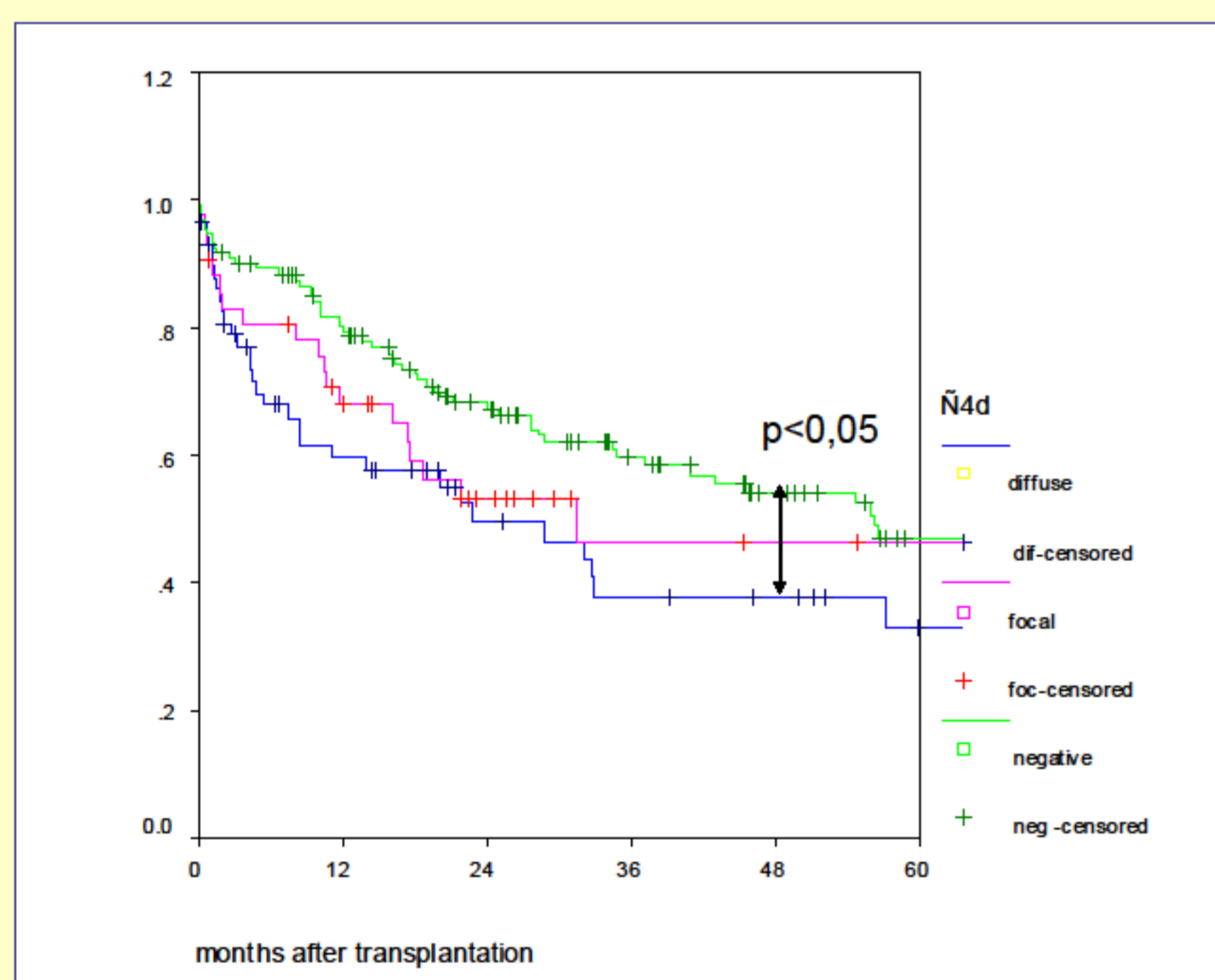


Fig 1 the significance of the character of C4d staining (diffuse vs focal)

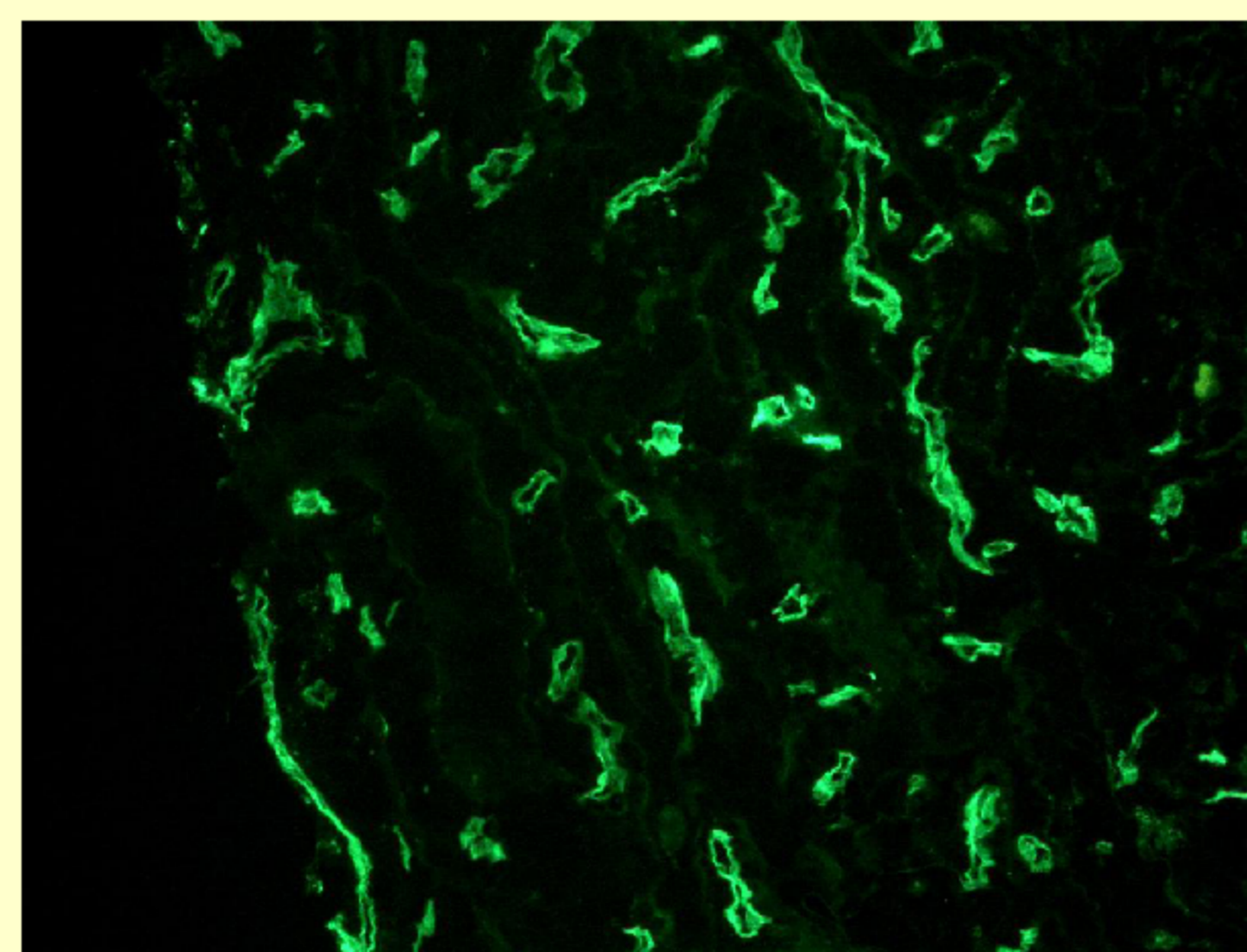


Fig 2 diffuse staining of C4d in peritubular capillary

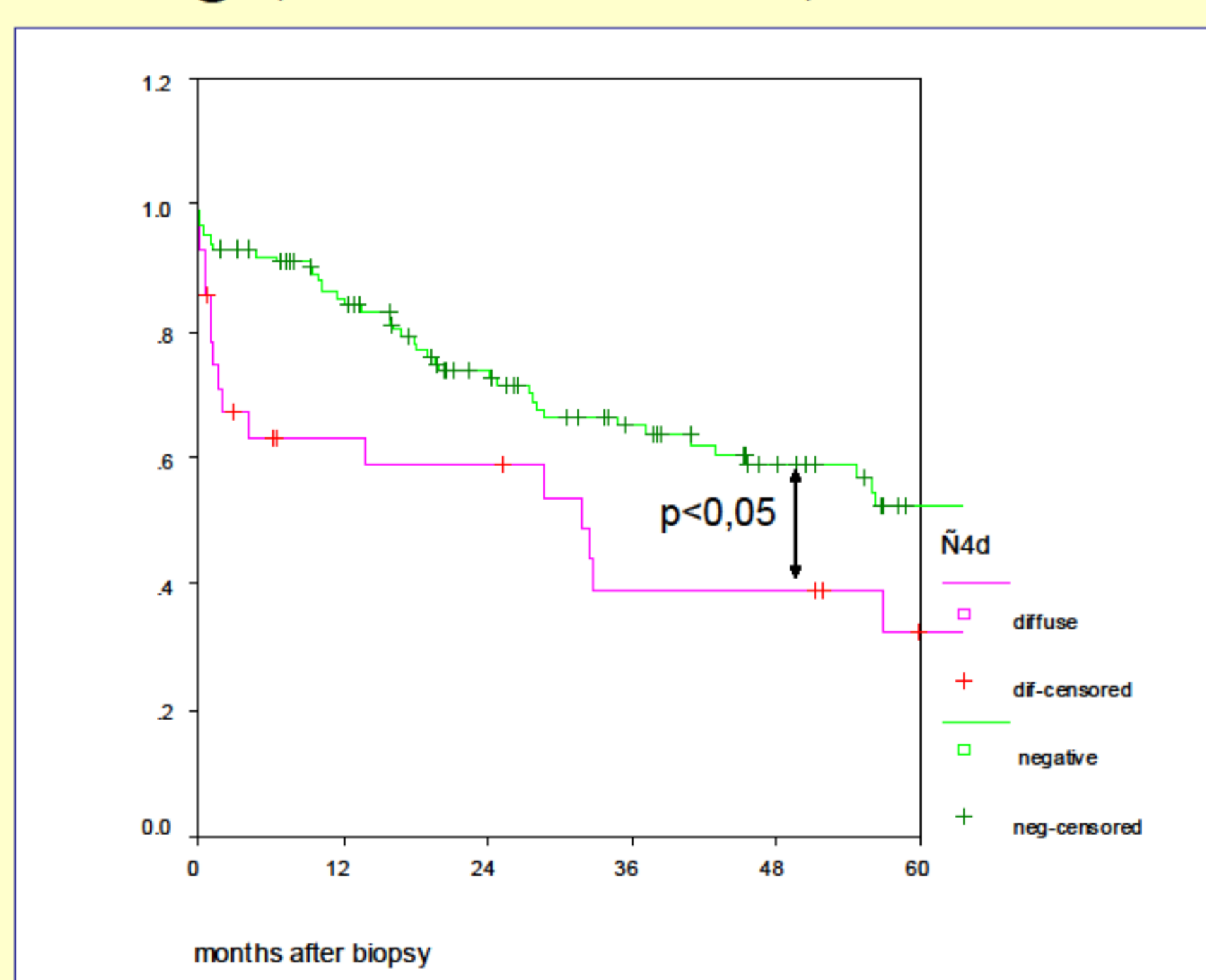


Fig 3. Acute rejection: graft survival according to C4d-staining

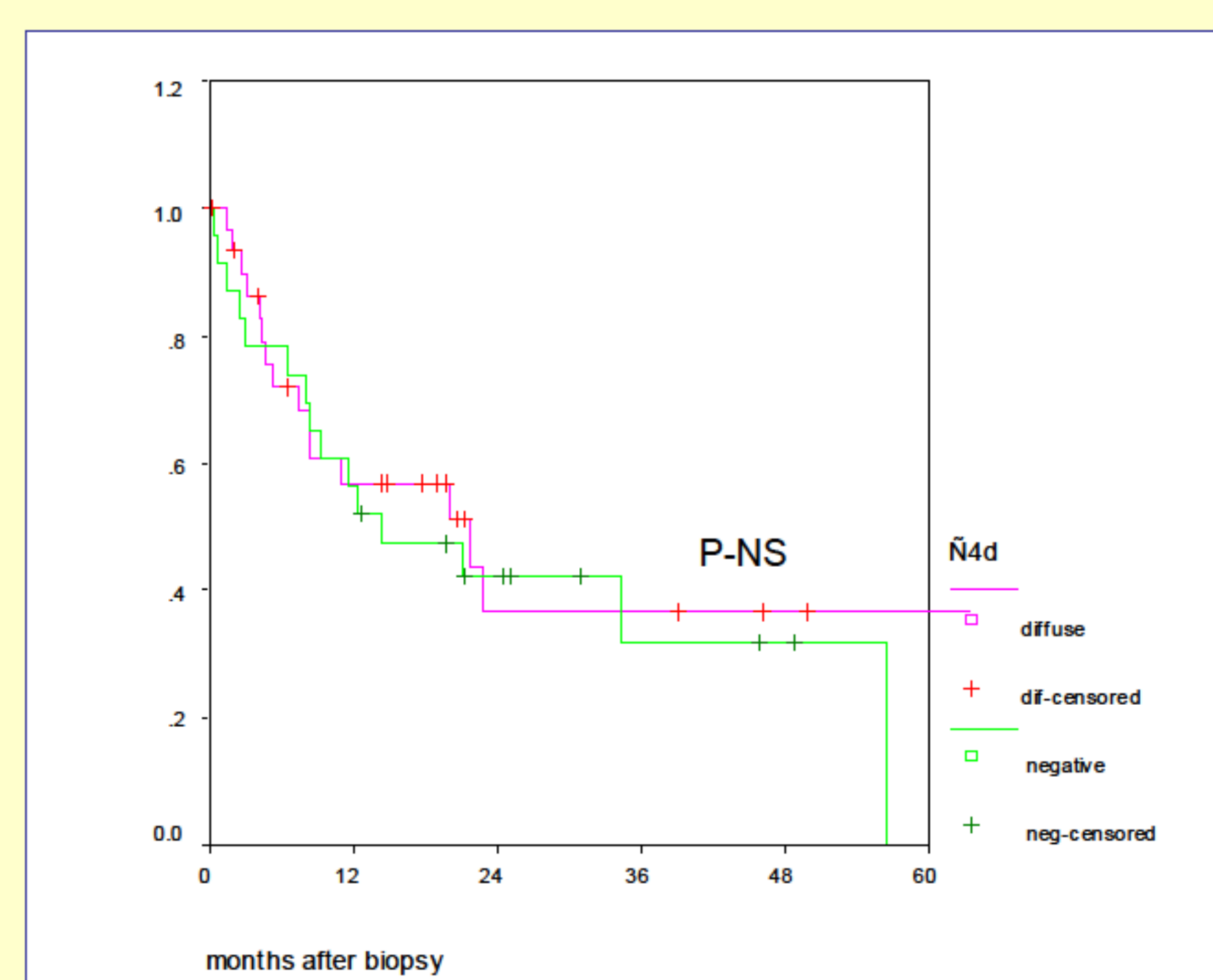


Fig 4. Chronic rejection: graft survival according to C4d-staining

Peritubular capillary C4d deposition was identified in 61/175 (35%) of samples of late acute rejection (19% of them was focal and 16% - diffuse) and in 40/64 (62%) cases of chronic rejection (48%-diffuse and 14% - focal). Signs of cellular rejection were seen in the majority of C4d+ LAR episodes (41/61; 67%) and only 20 patients had "pure" humoral rejection.

At 60 months, graft survival for C4d + diffuse vs C4d + focal vs C4d-negative rejection were 33% ; 46% and 47% respectively (Fig.1). 5-year graft survival of C4d- LAR was better than of C4d+ acute rejection (53% vs 33% $p=0.02$) (Fig3). In cases of chronic rejection the difference in graft survival between C4d+ (diffuse) and C4d - groups was not statistically significant 32% vs 36% $p=0.7$) (Fig4).

CONCLUSIONS

- In long-term allograft biopsy C4d staining in peritubular capillary is more common for chronic rejection than for acute rejection.
- Only diffuse, but no focal C4d staining affect the outcome.
- C4d-positivity is associated with worse allograft survival in cases of late acute rejection but not in chronic

REFERENCES:

1. Sis B, Mengel M, Haas M, et al Banff '09 meeting report: antibody mediated graft deterioration and implementation of Banff working groups. Am J Transplant. 2010 Mar;10(3):464-71.

