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POSTER PRESENTATION

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A phenotypic, transcriptional and TCR V β repertoire signature of CD8⁺ T cells define a population at-risk of long-term kidney graft dysfunction

Nicolas Degauque^{1,2,3*}, Françoise Boeffard^{1,2,3}, Annaick Pallier^{1,2,3}, Richard Danger^{1,2,3}, Magali Giral^{1,2,3}, Jacques Dantal^{1,2,3}, Yohann Foucher^{2,4}, Cécile Guillot-Gueguen², Jean-Paul Soulillou^{1,2,3}, Sophie Brouard^{1,2,3}

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Introduction

The biological mechanisms leading to chronic antibody-mediated rejection (CAMR), a major cause of late graft failure following kidney transplantation, are still poorly defined. Although anti-donor HLA antibodies are commonly associated with poor graft outcome; less attention had been paid to other players of the adaptive immune system.

Aim

We took advantage of a large cohort of 133 selected patients (112 patients remaining stable in time and 21 with kidney dysfunction over 6 years) to question the factors that may influence graft outcome.

Results

We show that T cell monitoring, and especially CD8 TCR repertoire alterations, may allow identifying patients at risk of graft dysfunction. As compared to patients without TCR V β repertoire alterations, patients with an altered TCR V β repertoire at the inclusion have a 2.1 fold higher risk of graft dysfunction during their follow-up. The V β repertoire alteration occurs years before the appearance of de novo anti-HLA antibodies.

Moreover, these patients with an altered TCR repertoire exhibit an increase in effector memory CD45RA⁺CD197⁻CD8⁺ T cells with an accumulation of differentiated (CD28^{low}) CD8 T cells. Finally, a specific CD8 gene expression pattern composed of 92 genes related to CD8

T cell function and phenotype can discriminate these patients from patients with lesions of CAMR.

Conclusions

Monitoring the TCR V β repertoire of circulating CD8 T cells may help to improve the identification of at-risk patients before the detection of HLA antibodies. Besides offering a new tool for monitoring patients, our data shed new light on the status of T cell immunity in long-term graft outcome.

Author details

¹INSERM, UMR 1064, Nantes, France. ²CHU de Nantes, ITUN, Nantes, France. ³Université de Nantes, Faculté de Médecine, Nantes, France. ⁴Université de Nantes, EA 4275, Nantes, France.

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¹INSERM, UMR 1064, Nantes, France

Full list of author information is available at the end of the article