

E-Poster - P018

SUBCLINICAL GRAFT REJECTION AND LOWER TTV VIRAL LOAD IN RENAL TRANSPLANT PATIENTS

Noelia S. Reyes¹, Raquel Jara¹, Natalia Boccia², Gonzalo Garcia², Eliana Hermida¹, Carlos Diaz², Gervasio Soler Pujol², Fernando A. Poletta³, Gustavo Laham², Marcela Echavarria¹

¹ Virology Unit, CEMIC University Institute (CEMIC-CONICET), Buenos Aires, Argentina.

² Nephrology Section, CEMIC University Institute, Buenos Aires, Argentina

³ Genetic Epidemiology Laboratory, CEMIC University Institute (CEMIC-CONICET), Buenos Aires, Argentina

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Graft Rejection & TTV viral Load

Introduction

- Graft and patient survival are mainly determined by rejections and infectious complications in transplant recipients.
- Subclinical graft rejection (SGR) is defined histologically as acute rejection characterized by tubule-interstitial infiltration of the renal allograft without clinical deterioration.
- The nonpathogenic, highly prevalent Torque Teno Virus (TTV) has been proposed as biomarker of immunosuppression in transplant patients.

Objectives

- To determine clinical and subclinical graft rejection frequency up to 12 months post-transplantation.
- To determine the association between SGR and TTV viral load in renal transplant patients.

Graft Rejection & TTV viral Load

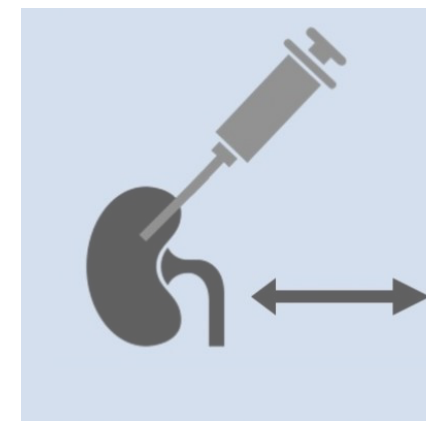
Materials and Methods



CEMIC
2018-2021



135 KTx
2018-2021



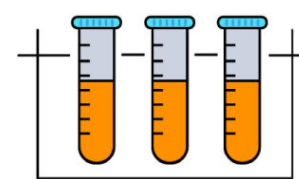
3 - 6 months
9 - 12 months



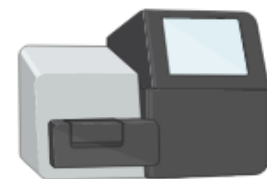
SGR



Control Group: No AR - No Infection



652 blood
samples



TTV Comercial Kit*
R-GENE®PCR

- TTV viral load was determined in plasma samples collected before and after renal transplantation using R-GENE®PCR kit (bioMérieux, Marcy-l'Etoile, France).
- The last sample before renal biopsy was analyzed.
- TTV viral loads from patients with SGR and patients without graft rejection or viral infection (control group) were compared.

Graft Rejection & TTV viral Load

Results

Recipients characteristics	
Age, years old [mean ± SD]	49.2 ± 14.0
Gender (male) [n (%)]	61 (63.5)
Hemodialysis [n (%)]	82 (85.4)
Time on dialysis, months [median (IQR)]	32.1 (18.0-62.3)
Donor characteristics	
Living donor [n (%)]	25 (26.0)
Donor age, years old [mean ± SD]	44.9 ± 17.7
Donor gender (male) [n (%)]	50 (52.1)
Transplant characteristics	
First transplant [n (%)]	85 (88,5)
Donor Specific Antibody [n (%)]	8 (8.3)
ATG induction [n (%)]	95 (98.9)
Tacrolimus, mycophenolic acid and steroids maintenances [n (%)]	96(100%)
DGF [n (%)]	22 (22.3)
Miss match [median (IQR)]	4 (3-5)

Data from 92/96 patients were analyzed.

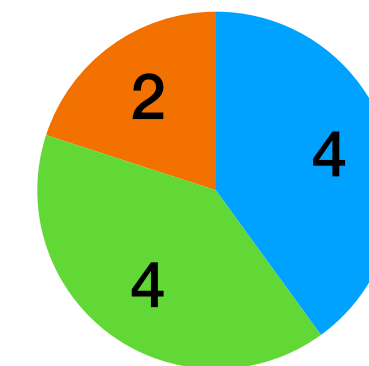
➔ 4 patients died because of infections

- 1 measles encephalitis, 1 bacterial septicemia and 2 severe COVID

Renal Biopsies (protocol and indication): 135

➔ Graft Rejection (clinical & SCR): 28/92 (30%).

➔ SCR: 10/92 (10%).



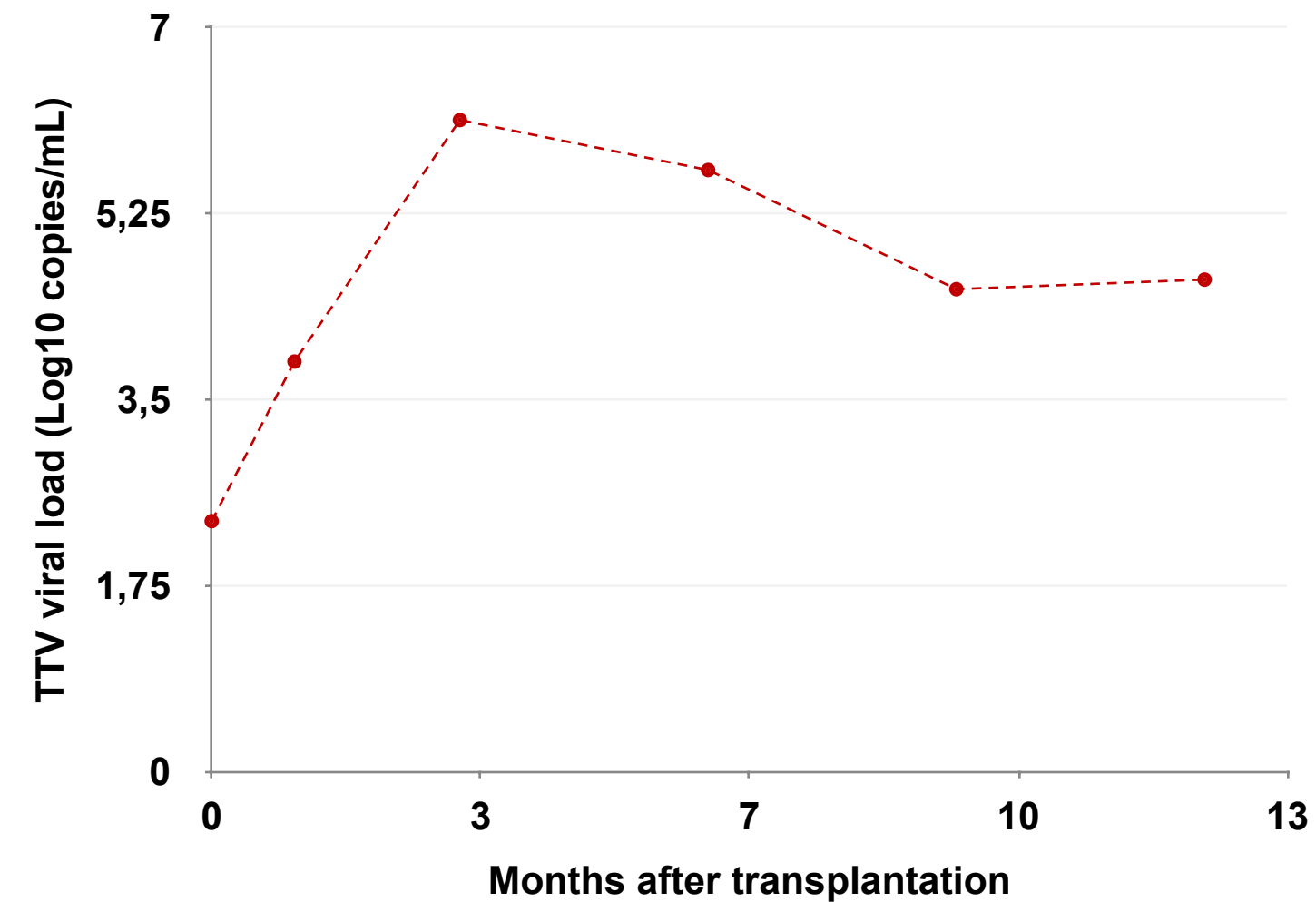
Type of Rejection	
TCMR	7
BL	2
ABMR	1

All patients remained with a functional graft.

Graft Rejection & TTV viral Load

Results

- Fig 1. TTV viral load kinetics



TTV viral load increased after transplantation, reaching the peak at month 3. Afterwards, it slightly decreased and reached a plateau.

- Fig 2. TTV viral load & SCR

Months post-transplantation	TTV MEDIAN VIRAL LOAD (IQR)				
	n patients		R-GENE®PCR		
	SGR	Control Group	SGR	Control Group	p value
3-6	4	44	4.8 (3.7 - 6.8)	6.1 (5.0 - 7.0)	0.360
6-9	4	29	2.4 (0.5 - 4.8)	6.0 (4.3 - 7.0)	0.017
12-15	2	22	3.6 (2.6 - 4.6)	5.0 (3.8 - 6.3)	NA

NA: not applicable

Between months 6-9 post-transplantation, TTV viral load was significant lower in patients with SGR (2.4 Log₁₀ copies/mL) compared to control group patients (6.0 Log₁₀ copies/mL) (p=0.017).

Graft Rejection & TTV viral Load

Conclusion

- Graft rejection (clinical and subclinical) occurred in 30% of our cohort.
- Specifically, a third of them had a SGR.
- TTV viral load was significant lower in patients with SGR compared to control group patients at 6-9 months post-transplantation.

- *TTV could be used as an early biomarker to identify patients at higher risk of developing SGR.*

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To contact us: mechavarria@cemic.edu.ar - cdiaz@cemic.edu.ar