Association between tacrolimus variability and development of donor-specific antibodies in pediatric kidney transplantation

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METHODS

- A single-center retrospective study included pediatric kidney transplant recipients (<18 years), transplanted between 2015 and 2020.
- Inclusion criteria: more than 2 years follow-up and ≥ 3 measured tacrolimus trough levels.
- Patients with pre-transplant donor specific antibodies (DSA) were excluded.
- Intrapatient tacrolimus variability was defined using the coefficient of variation (CV) for all trough levels obtained after 3 months post-transplant.

RESULTS

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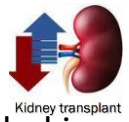


Patients were included in our final analyses.

♂ 37 (60,66%)

♀ 24 (39,34%)

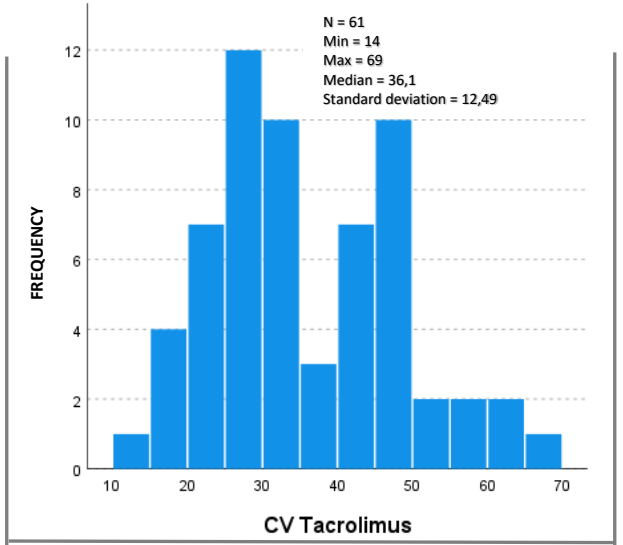
Median age at transplant: 11 (6,46 - 15,54) years.

1580 tacrolimus measurements.

Median CV tacrolimus: 32,91 (20,42 – 45,4) %

14.75% of the patients developed de novo DSA.

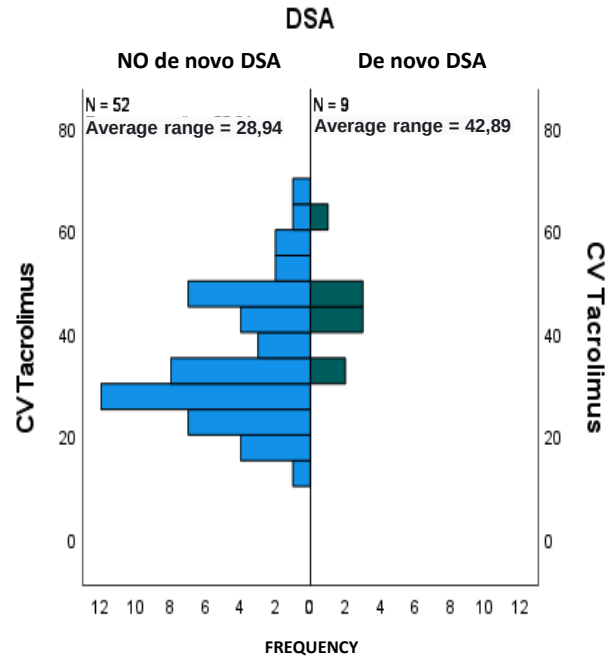
There was no significant difference in age and gender between those who developed DSA and those who did not.



Logistic regression model for de novo DSA development

De novo DSA (outcome of interest)*	Odds ratio	95% confidence interval
Tacrolimus CV	1,069	(1,003 - 1,14)
Age at transplant (years)	0,97	(0,79 - 1,2)
Sexo (Male)	1,58	(0,27 - 9,38)

**In the model above, age at transplant and tacrolimus CV are analyzed as continuous variables Odds ratios. In red are statistically significant*



Higher tacrolimus variability was associated with increased de novo DSA development (p = 0,03).

CONCLUSIONS

In the studied paediatric renal transplanted population, an association between variability in tacrolimus trough levels and the development of DSA was demonstrated. These results can help to early identify the population at risk of developing de novo DSA, in order to modify the dose of immunosuppression pre-emptively.

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