PHARMACOKINETIC MONITORING OF TACROLIMUS IN RENAL TRANSPLANT PATIENTS

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BACKGROUND AND IMPORTANCE:

Tacrolimus (TAC), a calcineurin inhibitor, is indicated in renal transplantation, and its monitoring is important due to its pharmacokinetic variability.

AIM AND OBJECTIVES:

To describe the demographic,clinical and pharmacokinetic characteristics of patients in immediate post-renal transplantation in treatment with TAC.

MATERIAL AND METHODS:

Retrospective observational study carried out in a Hospital with all patients with renal transplantation between September 2019-September 2021.

Variables (collected from GestLab® and OrionClinic12®):

- ✓ Demographic (sex, age)
- ✓ Anthropometric (weight, height, BMI)
- ✓ Monitoring-related (TAC concentration corresponding to the 1st monitoring and at which optimal levels are reached, time relapsed from the start of TAC to the 1st level and the optimal level, number of determinations)
- ✓ Clinical (creatinine (Cr) and renal clearance (ClCr) on the day of transplantation and day +7)
- ✓ Pharmacotherapeutics (antibody administered)

Target interval of TAC in 1st month post-renal transplant

10-15 ng/mL

Low risk protocol(LR)

Basiliximab 20mg on day 0 (day of transplantation) and on day 4 + **TAC 0.15mg/kg/day** (single pre-transplant dose and maintenance dose)

High-risk protocol(HR)

Thymoglobulin 1-1.5mg/kg/day for 5-7 days and at the end, start with **TAC 0.15mg/kg/day**

RESULTS:

35 pacientes ♂ **57%** → 60±13 years, 78±11kg, 1.69±0.08m, 27±3kg/m^2

♀ **43%** → 57±11years, 67±12kg, 1.52±0.12m, 30±7kg/m^2

Mean pre-transplant TAC dose of 10mg

	Patients	Mean TAC dosing regimen until 1st monitoring	Mean total dose of TAC up to 1st monitoring	ConTAC at 1st monitoring	Determinations to reach target level	Mean time to reach target level
LR (Basiliximab)	18 (51.43%)	7.25mg/12h	33.47±13.42mg	22.89±8.04ng/mL 83.30%>15ng/mL 11.11%<10ng/mL 5.55% 10-15ng/mL	3	6 days
HR (Thymoglobulin)	17 (48.57%)	6.14mg/12h	19.29±8.03mg	14.59±8.87ng/mL 47.05%>15ng/mL 35.30%<10ng/mL 17.65% 10-15ng/mL	3	7 days

Transplant day→ **Cr:** 5.9±2.7mg/dL, **ClCr:** 10.73±5.14mL/min **Day + 7**→ **Cr:** 3.48±2.1mg/dL, **ClCr:** 26.8±19.76mL/min

CONCLUSION:

Pharmacokinetic monitoring of TAC is useful in immediate renal transplantation, since a high percentage of patients present concentrations outside the target therapeutic range in the 1st determination. Further studies are needed to optimize the initial TAC dosage in this type of patients.

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