Poster

[P26-5] P26-5: Immunosuppressive drugs (4): Individualized dosage adjustment

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[P26-5-3] Overweight and underweight kidney transplant recipients at risk of being underdosed or overdosed following standard tacrolimus dosing

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Keywords: Tacrolimus, Starting dose, Bodyweight

Background

With global obesity on the rise, this number is likely to increase even further and prompts the question if it is wise to continue to base the Tac starting dose on bodyweight. More and more studies proved that underexposure of Tac could be related to low bodyweight and overexposure to higher bodyweight in kidney transplant recipients. In this study, we investigated whether Tac dosing not based on bodyweight leads to the achievement of Tac target whole-blood exposure in under or overweight patients.

Methods

All the 189 patients recipients received a Tac-based immunosuppressive regimen (Tac+mycophenolate mofetil+prednisone) after transplantation. The Tac starting dose was 2-3mg/day. This was defined as the Tac C_0 on the morning of post-operative day 7 after patients had received 12 unaltered doses of Tac. Tac C_0 was measured in whole blood by the enzyme-multiplied immunoassay on V-twin (Syva Company/SIMENS). Tac overexposure was defined as a Tac concentration above 8 ng/mL, and underexposure as below 5 ng/mL. The correlation between Tac C_0 and bodyweight (or BMI) was investigated by calculating the goodness of fit.

Results

Correlation analysis showed there was a negative correlation between Tac C_0 and the bodyweight of recipients. The Tac C_0 in 0-45kg bodyweight group was significant higher than those in other bodyweight groups. We did not find significant differences in Tac C_0 between the different BMI groups. The highest rates of reaching the target level were also in middle BMI group(BMI:18.5-23.9). A considerable amount of patients was overexposed (25%) if the BMI was lower than 18.5, whereas 75% patients were underexposed if the BMI was higher than 28. The multivariate analyses demonstrated that CYP3A5 genotype and Tac initial dose were independent associated factors with Tac C_0 in renal transplant recipients.

Conclusions

Basing on the same Tac starting dose leads to under- and overexposure in a substantial proportion of patients, especially in the underweight group (<45kg group).