

## Summary

### Application of Measuring $^{99m}\text{Tc}$ -MAG3 Plasma Clearance Based on One-Compartment Model (MPC Method) to Renal Transplantation

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Measurement of  $^{99m}\text{Tc}$ -MAG3 plasma clearance (CL<sub>mag</sub>) based on one-compartment model (MPC method) was applied to renal transplantation and evaluated for the factors which might affect the calculated results, especially concerning renal depth. Correlation coefficient of CL<sub>mag</sub> between MPC method using real renal depth and Russell or Bubeck single sampling method was good ( $r = 0.852$  or  $0.876$ , respectively). Regression equation between MPC method and Russell method was  $y = 1.044x - 3.0$  and was more closer to  $y = x$  than that between MPC method and Bubeck method. CL<sub>mag</sub> of MPC method

calculated by estimated renal depth from the abdominal thickness was also similar to that by real renal depth. Even if the fixed renal depth, 4 cm, was applied, the coefficient and regression equation between MPC method and Russell method were  $r = 0.884$  and  $y = 1.004x - 10.2$ . In conclusion, MPC method is applicable to the evaluation of renal transplants. Though measuring renal depth is best, calculation with fixed renal depth of 4 cm might be practically acceptable.

**Key words:**  $^{99m}\text{Tc}$ -MAG3, Renal transplantation, MPC method, MAG3 plasma clearance.