Summary

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


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Measurement of $^{99m}$Tc-MAG3 plasma clearance (CLmag) 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 CLmag 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. CLmag 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: $^{99m}$Tc-MAG3, Renal transplantation, MPC method, MAG3 plasma clearance.