Poster

[P27-9] P27-9: Pharmacokinetics and PK/PD

Chair: Kosuke Doki, Japan

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[P27-9-2] Effect of sampling time on prediction accuracy of serum drug consentrations

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Keywords: sampling time, prediction accuracy, therapeutic drug monitoring

Background

The blood collection is necessary to perform TDM, however, it cause pain and burden on the patient. Therefore, it is desirable to reduce the number of blood sampling.

In order to increase the accuracy of assessment for the TDM from a small number of blood samples, it is important to collect blood at an appropriate time. The objective of the study is to find the optimal sampling time.

Methods

The total clearance (CL) and distribution volume (Vd) of model drug were 3.5 L/hr and 50 L, respectively. Blood concentrations of 100 patients with interindividual variation were calculated and the theoretical values were changed to measured values by residual error. Estimation of the pharmacokinetic parameters from two points (peak and trough) and one point (trough) by the population analysis and the influence of measurement time of blood concentration on estimated value was studied.

Results

In the estimation of the pharmacokinetic parameters by 2 blood concentrations, errors between the estimated and true values were small.

On the other hand, differences between the estimated and the true CL values were significant when the values were estimated by one sampling point. The smallest difference was shown at 48 hours after administration.

When the CL was reduced to 1.75 L/hr (ie, renal disfunction), the smallest error was demonstrated at 84 hours after administration.

Conclusions

Both peak and trough sampling showed good prediction of pharmacokinetic parameters.

Prediction of one point (trough) sampling at steady-state would the better than those before the steady-state.

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