

DISPOSITION OF SULFADIAZINE/TRIMETHOPRIM IN
PIG SERA AND BRONCHIAL SECRETIONS

아산 생명과학연구소 : 김길수
윤효인

Respiratory infection in pigs are of prime importance in veterinary practice due to overcrowding raising environments in the swine industry. Pathogens causing respiratory infections are reported to be mainly located in the bronchial secretions and mucosa. Therefore, optimum concentrations of antibacterial agents in bronchial secretions have to be maintained during antibacterial therapy. Combination formulation of sulfadiazine(SDZ) and trimethoprim(TMP) have been extensively used in the swine respiratory infections worldwide. But no study was carried out for the kinetic characteristics of the drugs in swine bronchial secretions. In the present study, we studied the pharmacokinetic profiles of SDZ/TMP in sera and bronchial secretion after administering via the left anterior vena cava. TMP and SDZ concentrations in sera and and bronchial secretions were measured by HPLC and pharmacokinetic parameters were calculated with a computer program. The results indicated that pharmacokinetic profiles of SDZ in sera were best described by a two-compartment model whereas that of TMP a one-compartment model. This different pattern could be explainable by short half-life of TMP(0.90 ± 0.08 h) as compared to SDZ(7.25 ± 1.09 h), together with unmeasurable TMP 4 to 8 hours after administration. Concentrations of SDZ in bronchial secretions were maintained throughout sampling period(0.5-32 hrs), with higher concentrations at 16 hr or later as to in plasma. In case of concentrations of TMP, measurable concentrations at as early as from 2 to 3 hours after administration, in comparison with plasma. Significance of SDZ/TMP in bronchial secretions was discussed.