Residue Determination of Cephalexin in Swine

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ABSTRACT This study attempts to determine not only an appropriate dosage of Cephalexin monohydrate, but also Cephalexin monohydrate residue in swine tissue after the drug is administered orally. The in vitro antibacterial activity of cephalexin against 4 varieties of clinical bacterial isolates of a total of 81 strains from swine were evaluated. Among the bacteria tested, Staphylococcus spp. and Escherichia coli are the most susceptible to cephalexin and the drug inhibits more than 90% of the strains (MIC_g) at a concentration of 14 \( \mu \)g/mL. Two doses (28 or 42 mg/kg body weight) of Cephalexin monohydrate were administered orally, respectively, to three pigs. Experimental results indicate that the peak serum concentrations of Cephalexin monohydrate appeared two hours after the amounts of drug administered were 13.1 and 19.5 \( \mu \)g/mL respectively. Additionally, no toxicity was found in the liver and kidney with both two dosages and, therefore, the proper dose of oral administration is 42 mg/kg bodyweight. Cephalexin monohydrate was administered orally in feed at a dose of 42 mg/kg bodyweight daily for consecutive 5 days to twenty pigs. The residues of Cephalexin monohydrate in flesh, serum, liver and kidney of two pigs from each group including control were then determined by HPLC at 1, 3, 5...and 20 days (total of 10 intervals) after withdrawing the drug. Moreover, no cephalexin (above 0.25 ppm) was detected accordingly in the serum, kidney, and liver of various time intervals after withdrawing the drug. Whereas, the muscle residual level of 0.18 ppm appeared on the first day until the seventh day and no cephalexin (above 0.05 ppm) was detected on the ninth day. Our results further demonstrate that the withdrawal time of Cephalexin monohydrate via oral administration in swine is 14 days.


Key words: Cephalexin, Swine, Oral dosage, Residue, High performance liquid chromatography (HPLC)