EFFECT OF SHIGA-LIKE TOXIN II ON INTESTINAL CLEARANCE OF NORFLOXACIN IN RATS.

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E. coli O157 infection causes diarrhea, HUS or TTP, due to its bacterial toxin, called Shiga-like toxins (SLTs). It is deemed important to elucidate intestinal functions after E. coli infection in order to establish a safe and efficient prescription for disinfecting colonized E. coli in intestine. However, there is little information to address this issue. Thus, we investigated the effect of SLT-II on intestinal function by using the antibiotic norfloxacin (NFX) as a model drug. Twenty-four hours after SLT-II (2 µg/animal, i.v.) injection, the intestinal clearance (CLi) of NFX was determined by loop method in the jejunum of Male SD rats. SLT-II significantly decreased CLi of NFX. No histological changes were observed in SLT-II-treated rats, suggesting the deterioration of active transport systems by SLT-II. Western blotting analysis revealed decreased intestinal expression of P-gp by SLT-II. However, it is likely that P-gp might not be involved in the decreased CLi of NFX by SLT-II, since both CLi of NFX and the intracellular accumulation of NFX in P-gp-expressed K562/ADR cells failed to be altered by a potent P-gp inhibitor, cyclosporin A. CLi of NFX in control rats was inhibited by carnitine (CAR), but not other cations such as tetraethylammonium and cimetidine, suggesting the possible involvement of CAR-sensitive transporter in CLi of NFX. Further studies to understand the precise mechanism of the decreased CLi of NFX by SLT-II are now in progress.