PHARMACOKINETIC ADVANTAGE OF DOCETAXEL INTRAPERITONEAL ADMINISTRATION FOR PERITONEAL DISSEMINATION

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Intraperitoneal chemotherapy of docetaxel has been used for the peritoneal dissemination in clinic, but the safety of this method is not confirmed until now, even the basic study. This study compared the pharmacokinetic behavior of docetaxel after intravenous and intraperitoneal administration in MKN-45P bearing CD-1 nu/nu mice. Docetaxel (8 mg/kg) was intraperitoneally or intravenously administered to mice. The plasma concentrations after intraperitoneal administration were lower in early phase, and then became slightly higher than those after intravenous administration by 8 hr. In peritoneal solid cancer, after intraperitoneal administration docetaxel concentration gradually increased by 8 hr, while after intravenous administration the docetaxel concentration gradually decreased according to change in the plasma concentration. Also, docetaxel concentrations of ascite and suspended cancer cells after intraperitoneal administration were approximately 100 times higher than those of intravenous administration. And docetaxel concentrations of abdominal organs after intraperitoneal administration were lower by first 2 hr, and then became almost same or slightly higher than those after intravenous administration. Our results indicated that intraperitoneal administration of docetaxel was advantage in the peritoneal dissensions because the drug concentrations in peritoneal solid and suspended cancer cells were higher for longer time than intravenous administration.