used. In case of their application such as ointments, creams, it is difficult to expect their effects, because they are easily removed by wetting, temperature, movement and contacting. We need to develop the new formulations that have suitable bioadhesion using HPMC and poloxamer 407. Bioadhesive forces of various HPMC gels at 2% concentration was tested using Auto-peeling tester. HPMC-K100M gels showed the best bioadhesive force. As the concentration of HPMC-K100M increased, the bioadhesive forces increased.
The effects of drug concentration on drug release was studied from the prepared 2% HPMC-20% poloxamer 407 gels at 37±0.5℃. As the drug concentration in the gels increased to 3%, the permeation of drug increased, thereafter slightly increased. As the temperature increased, the permeation of drug increased. Activation energy for drug permeation was 3.29 kcal/mol for lidocaine, 4.35 kcal/mol for procaine, and 4.47 kcal/mol for tetracaine.
The enhancing effects through skins, using some kinds of enhancers such as glycols, non-ionic surfactants, bile salts was studied. Among the enhancers used, diethylene glycol showed the most enhancing effects. The analgesic effects was studied using tail-flick analgesimeter. According to the rat tail flick test, 3% drug gels containing diethylene glycol showed the better local analgesic effects.
For the percutaneous delivery of water soluble anesthetics, the enhanced local anesthetic gels containing penetration enhancer and vasoconstrictor could be developed by using the bioadhesive polymers, HPMC and Poloxamer 407.

[PE1-18] [10/19/2000 (Thr) 15:00 - 16:00 / [Hall B]]

Studies on Chitosan strip containning Doxycycline hydrochloride nanopaticles

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In the field of dental therapy, doxycycline is usually first choice because of its broad-spectrum antibiotic. To examine the preparation and evaluation of chitosan strip, nanoparticle strip containing doxycycline hydrochloride, and to examine the antimicrobial activity, dissoultion, and biodegrability of the prepared samples containing doxycycline hydrochloride in vitro. The weight of cast strip containing a 5mg of doxycycline hydrochloride and a 45mg of chitosan polymer was 57.67±0.17mg. In vitro release test, the drug from chitosan strip and nanoparticle strip showed zero order release with initial burst effects, and release rate was showed to 50㎍/mL in first 24 hours. In antimicrobial test, 1 day to 7 days of release experiments showed growth inhibitory activity after 24hrs anaerobic incubation. In vitro degradability showed demolished weight of 93.74 ±0.08% chitosan strip, 82.48±1.29% chitosan nanoparticle strip, 2.47±1.99% polycarprolactione strip(control), respectively, at 7 days($p<0.001$).

[PE1-19] [10/19/2000 (Thr) 15:00 - 16:00 / [Hall B]]

Drug release from cholic acid conjugated glycidyl methacrylate pullulan nanoparticles

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Pullulan is edible and has been extensively used for food and pharmaceutical additives. Pullulan tends to accumulate to the liver to a significant extent compared with other water-soluble polymers, such as poly(ethylene glycol), poly(vinyl alcohol), and dextran. Pullulan is widely under investigation as a polymeric carrier in drug delivery systems. Because of its good biocompatibility, pullulan is also a sutiable polymer to be used for the preparation of hydrogels, which are becoming increasingly important in the biomedical, pharmaceutical, and biotechnological fields. Glycidyl