resulted in increase of dissolution rate. The milk did not affect the dissolution. The effect of dissolution media was more predominant in SIF due to poor solubility of ITR. Dissolution rate of ACV-IR was rather decreased in the presence of surfactants in both SGF and SIF. On the other hand, sustained release rate of NIF-SR was highly affected by the dissolution media in both SGF and SIF. The release rate was highly increased when surfactants(SLS and Tween) were added. Dissolution rate was shown to be dependent on formulation and dissolution medium, especially class II drugs (ITR, NIF) due to their poor solubility. This work was supported by grant No 2000-1-21700-001-3 from the Korea Science & Engineering Foundation.

[PE3-3] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Preparation and evaluation of bupivacaine microspheres by a solvent evaporation method

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Various bupivacaine-loaded microspheres were prepared from poly(d,l-lactide) (PLA) and poly(d,l-lactic-co-glycolide) (PLGA) by a solvent evaporation method for the sustained release of drug. The effects of process conditions such as drug loading, polymer type and solvent type on the characteristics of microspheres were investigated. The prepared microspheres were characterized for their drug loading, size distribution, surface morphology and release kinetics. Drug loading efficiency and yield of PLGA microspheres were higher than those of PLA microspheres. The prepared microspheres had an average particle size below 5 ㎛. The particle size range of microspheres was 1.65~2.24 ㎛. As a result of SEM, the particle size of PLA microspheres was smaller than that of PLGA microspheres. In morphology studies, microspheres showed a spherical shape and smooth surface in all process conditions. In thermal analysis, bupivacaine-loaded microspheres showed no peaks originating from bupivacaine. This suggested that bupivacaine base in microspheres exist in an amorphous state. The release pattern of the drug from microspheres was evaluated for 96 hours. The initial burst release of bupivacaine base decreased with increasing the molecular weight of PLGA and the drug from microspheres released slowly. In conclusion, bupivacaine-loaded microspheres were successfully prepared from poly(d,l-lactide) and poly(d,l-lactic-co-glycolide) polymers with different molecular weights allowing control of the release rate.

[PE3-4] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Mono-, di-, and oligosaccharide analyses using HPAE/PAD and HPLC/fluorescence detector

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In the present study, we performed high-performance anion exchange chromatography using CarboPac PA-1 and CarboPac PA-100 columns with pulsed amperometric detector (HPAE/PAD) in order to quantitatively analyze mono-, di-, and oligosaccharides, including sialic acid derivatives such as N-acetylneuraminic acid, N-glycolylneuraminic acid and sialylated triantennary oligosaccharide. HPAE/PAD is an effective method for determining the composition and structure of carbohydrates without requiring any derivatization. HPAE/PAD analyses were performed using a BioLC system (Dionex). Elution was carried out in 16 mM NaOH for 0-20 min, and in 150 mM sodium acetate in 100 mM NaOH from 0-20 min for the analysis of sialic acid derivatives. A sensitive method for the structural analysis of sialylated oligosaccharide was also developed using HPLC with fluorescence detector. We are currently using our preliminary observations to analyze the structure and composition of oligosacchrides in our lab.

[PE3-5] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]