**Conference abstract SL-09**

**Increased Skin Permeation of Acyclovir by Incorporation into Chitosan-Triplyphosphate Nanoparticles**

**A. HASANOVIC, C. VALENTA**

Department of Pharmaceutical Technology and Biopharmaceutics, University of Vienna, Althanstraße 14, A-1090 Vienna, Austria

E-mail: amra.hasanovic@univie.ac.at (A. Hasanovic)


**Purpose:** To create a skin delivery system based on chitosan-triployphosphate nanoparticles (cs-tpp np) for acyclovir with enhanced chemical stability and satisfying permeation through skin.

**Methods:** Cs-tpp np were prepared based on ionotropic gelation between positively charged amino groups of cs and negatively charged tpp as previously reported by Krauland et al. [1] with different amounts of cs. Acyclovir concentration in np was determined weekly by HPLC measurements. In vitro permeation studies with porcine abdominal skin were performed as previously reported by our group [2]. Cs-tpp np impregnated skin was analysed by differential scanning calorimetry (dsc) in relation to untreated skin samples.

**Results:** Chemical stability of acyclovir in np was increased compared to its water solution. Permeation studies indicated a 1.5 fold increase in permeation of acyclovir from np with higher cs content. One possible reason might be the reported cs interaction with epithelial structures of membranes. This interaction could be interpreted by dsc data, where the characteristic transition temperature of porcine skin was shifted to lower temperature after impregnation with cs-tpp nanoparticle formulations.

**Conclusion:** These studies demonstrate the possible use of cs-tpp np system for acyclovir on skin with a significant increase of its chemical stability. The ratio of cs to tpp is the most important factor in formation of reproducible np. Moreover, the size of np was dependent on the cs content. The higher the cs content, the higher was acyclovir skin permeation. This could be defined by cs interaction with skin epithelial structure.

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