

Nadeem Ahmad

Advanced Product Design Services Inc., Canada

Evaluating a novel drug delivery system for oral Amoxicillin

Antibiotic resistance is one of the major concerns for clinicians engaged in the management of infectious diseases. One of the major reasons for antibiotic failure is the lack of optimum serum concentration. The Pharmacokinetics (PK) and Pharmacodynamics (PD) features indicate that intermittent infusion of antibiotics is inefficient in ensuring clinical cure. Intermittent infusion results in short half-life and ineffective serum concentrations. Hence, continuous infusion of antibiotics has attracted much attention. Extended release drug delivery systems have been documented for ensuring optimum serum concentrations. Gastrointestinal Therapeutic System (GITS) is one such system which is used for the delivery of prazosin hydrochloride. The present study evaluated the PK/PD features of Amoxicillin in GITS formulation. 1.5 gram Amoxicillin trihydrate was introduced in the tablet formulation with GITS release system. The GITS tablet formulation had two compartments. The lower compartment was designated as the osmotic compartment, while the upper compartment is designated as the drug compartment. Due to the osmotic pull of water, Amoxicillin was slowly released from the drug compartment through the laser drilled hole. The study indicated that optimum serum concentration achieved with Amoxicillin GITS was significantly higher than intermittent doses of Amoxicillin (500 mg thrice daily). Moreover, the serum concentrations of Amoxicillin GITS was significantly higher than the MIC₉₀ values of most of the pathogens ($p < 0.0001$). Amoxicillin in GITS is effective in ensuring optimum serum concentration of Amoxicillin, over and above the MIC₉₀ values of bacterial pathogens.

Biography

Nadeem Ahmad has over six years of experience in the quality assurance, compliance and quality control, regulatory affairs, reduction and process technology, personal care products. He has strong background in testing, validating and maintaining a wide range of equipment. He has extensive knowledge of applying modern complex chemical analysis methods and techniques to inorganic and biochemical data. He holds a CRA certification, Post-graduate Diploma in Pharmaceutical Quality Control and Quality Assurance. Currently he is the Quality Associate in Advanced Product design Services.

nadeemahmad_84@hotmail.com