



Levetiracetam Rectal Suppository for Treatment of Paediatric Epileptic Seizure: Development and Characterization

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Epilepsy is a major public health concern with an estimated 4.7 million people in the Eastern Mediterranean Region. Although, the occurrence of epilepsy is uncertain, it is more likely to occur in young children or people above 65 years old. Levetiracetam (LEV) is the most frequently prescribed anti-epileptic drug for children with less side effects. Unfortunately, it has intense bitter taste and extensive liver metabolism. In this study we aimed to develop paediatric rectal suppositories of LEV to improve bioavailability and patient compliance. Suppository fatty bases (Witepsol® and Massa®; different grades) and hydrophilic bases (PEG, different grades with different proportions) were used to prepare 1 gm rectal suppositories each containing 250 mg LEV by fusion method. The formulations were characterized for weight uniformity, mechanical strength, melting time, penetration time, content uniformity, extraction efficiency and drug release in distilled water using UV spectrophotometry at 209 nm. The results indicated that the preparation method produced suppositories elegant in shape and free of physical deformities. The average melting time for fatty suppositories was 7.5 min, the mechanical strength ranged between 6-8 kg/cm and the penetration time ranged between 5.5-7.5 min. For hydrophilic bases, the average disintegration time, mechanical strength and penetration time were 6 min, 7 kg/cm and 6.5 min, respectively. The drug could be efficiently extracted from the bases. PEG 1000/4000; 96/4 base showed the best results of drug release (100%) followed by PEG 1000/6000; 50/50 (98%) followed by Massa E fatty base (86.1%) after 30 min of dissolution time. In conclusion, LEV rectal suppositories were successfully prepared and characterized and drug incorporated in PEG hydrophilic bases could be used as a potential alternative to the oral

tablets. Extra work will be done to get the optimized formulation that will be tested later for in vivo availability on animal and/or human volunteers.

Keywords: Levetiracetam; Epileptic Seizure; Rectal Suppositories; Characterization

Biography:

Abdelazim Zaghoul is working in Kuwait University. He is Faculty of Pharmacy in Department of Pharmaceutics. He has published many papers in reputed journal as well as a number of book contributions.