



Bioavailability study of zolmitriptan sublingual tablets on sheep model

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Sublingual tablet administration has an important field in therapy because of taking immediate pharmacologic response, bypass of first pass effect and so high bioavailability and patient satisfaction. Zolmitriptan is a good candidate as an active pharmaceutical ingredient in sublingual tablet formulations because of its freely soluble in water, exposing first pass effect and high potency impact. Sublingual tablet formulations were prepared with different polymers such as hydroxypropyl methyl cellulose (HPMC), chitosan and sodium carboxy methyl cellulose (CMCNa) with direct compression method. The effect of polymers has been investigated on in vitro and in vivo drug studies. In vitro studies show that all formulations met the pharmacopeial criteria. The optimum formulations for different ratios of polymers were chosen for in vivo bioavailability studies on sheep model. A simple solution formulation of zolmitriptan was used for in vivo studies to calculate relative bioavailability of sublingual tablets. The results of in vivo studies showed that formulation containing 5% chitosan, has the maximum C_{max} and AUC and minimum t_{max} values ($p < 0.05$). Increasing the contact time with the sublingual mucosa with a mucoadhesive polymer improve sublingual bioavailability and result in more predictable plasma levels of the drug, leading to better therapeutic efficacy. As a result sublingual tablet administration of zolmitriptan formulated with appropriate excipients and especially with chitosan seems promising alternative to traditional routes.

Biography

Ziya Bayrak has begun doctoral studies in 2009. He continues doctorate education in Gulhane Military Medical Academy, Department of Pharmaceutical Technology. The main fields of research area are tablets, drug absorption and penetration from mucosa and skin.