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Formulation Development and Evaluation of In-Situ Nasal Gel of Ziprasidone Hydrochloride

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Abstract: The present study was aimed to develop a Mucoadhesive in-situ gel of Ziprasidone Hydrochloride for improved bioavailability by avoiding the hepatic first pass metabolism and patient compliance. Ziprasidone Hydrochloride was incorporated into the blends of thermoreversible polymer poloxamer 407 and Mucoadhesive polymer HPMC K4M in the form of in-situ nasal gel by cold technique to reduce the muciliary clearance, and there by it will increase the contact of formulation with nasal mucosa and hence improving drug absorption. The prepared gels were characterized by, pH, drug content, gel strength,mucoadhesive strength permeation studies, drug release, stability study etc. pH of all the formulations were found to be within the range between 4.5-6.5 and the nasal mucosa can tolerate the above mentioned pH of the formulations. The drug content of all formulations was found to be 90.88 to 98.34%. Tests also revealed that as the level of HPMC K4M increases mucoadhesive strength also increase. Viscosity measurement of the formulations at room temperature & 37°C shows that there was increase in viscosity with increase in the temperature and it was found that all formulations were in liquid state at room temperature and were converted into gel at nasal physiological temperature. The optimized formulation showed a drug release of 97.07 % in 8 hour. The study indicate that the formulation was effective in providing in-vitro release of drug and the mucoadhesive formulation.
Keywords:Ziprasidone Hydrochloride, HPMC K4M, Poloxamer407, In-situ Gelling system.

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