



Preparation and Evaluation of W/O/W Multiple Emulsion Containing Naltrexone Hydrochloride: A Pilot Study

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SUMMARY. W/O/W multiple emulsions containing naltrexone (NTX) hydrochloride were prepared by a two-step emulsification method at 20 °C. Characterization of the developed system was evaluated and the release kinetics of the drug was determined. The tissue response to the injection of the multiple emulsion in mice was observed by histological analysis. The entrapment efficiency of NTX hydrochloride in W/O/W multiple emulsion was 97.72 ± 0.8 % and the mean diameter of the multiple globules was 18.6 ± 7.7 μm . The main *in vitro* drug release mechanism observed for the developed system is supposed to be a swelling-breakdown phenomenon after dilution of the emulsions under hypo-osmotic conditions. Biocompatibility studies showed that the multiple emulsion was well tolerated as no significant toxic reaction was observed. The W/O/W multiple emulsion containing NTX hydrochloride may represent a potential alternative dosage form for the treatment of alcohol dependence.

KEY WORDS: Alcohol dependence, Drug delivery system, Naltrexone hydrochloride, W/O/W multiple emulsion.

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