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Measuring the rate of therapeutic adherence among outpatients with type-2 Diabetes mellitus in Dhule

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The support of therapeutic adherence is considered as an essential component of pharmaceutical care practice and patient healthcare. It has been shown that even with effective methods of treatment, 50% of diabetic patients fail to reach the satisfactory glycemic control, which leads to accelerated development of complications and increased mortality. Clinical practice indicates that no improvement of metabolic control is possible without patients' adherence to medications. This study sought to examine the rate of medication adherence and different factors affecting it among type 2 diabetic patients in Dhule. A total of 216 type 2 diabetic patients who fulfilled the inclusion criteria were recruited in the current study. Adherence to the treatment was evaluated during patients' in the Outpatient Medicine Department at SBHGMC in Dhule (MS) The medication adherence has been assessed during a personal interview with each patient using a multiple choice graded questionnaire. In the study population, the adherence rates for medication, dietary/exercise and appointment were observed to be suboptimal. The most important social factors that were significantly affecting adherence rate to the prescribed oral hypoglycemic agent(s) included marital status (P<0.01), family support (P<0.01), and socioeconomic level (P<0.01). Other patient factors that were significantly affecting therapeutic adherence were patient knowledge about the disease (P<0.01), patients' attitude and motivation about prescribed drugs (P<0.01), and regularity of patient self monitoring of blood glucose level (P<0.01). Among drug factors which found to affect significantly the rate of medication adherence are the number of drugs taken (P<0.05), difficulty of the drug regimen (P< 0.01), and the presence of drug side effects (P<0.01). Economical factor played an equally important role. Direct and indirect care costs in relation to patients' income were significantly affecting the rate of adherence to medication (P<0.01).

Conclusions: Improvement with the adherence to oral hypoglycemic agent(s) may be achieved through continuing patient education about diabetes, enhancement of patients' economical levels as well as a reduction in the cost of medication. Pharmaceutical care has to be involved and pharmacists have to help chronically ill patients to take their medicines correctly for improving clinical outcomes.

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Formulation and evaluation of hydrogels containing Miloxicam niosomes for topical delivery

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Niosomes have been reported as a possible approach to improve low skin permeation shown by conventional vehicles. In this study, a noisome-based delivery system of meloxicam (MX) was developed and characterized for *in-vitro* performance. Niosomes were prepared by reverse-phase evaporation method (REV) using different non ionic surfactants and cholesterol in different molar ratios (1:1, 2:1, 3:1,1: 2 and 1:3) and different drug loading (5, 10 and 15 mg). The used surfactants included Tweens (20, 40 and 80), Brij (35 and 58) and Myrj 52. The prepared systems were characterized for entrapment efficiency, and *in-vitro* release. Accordingly, selected systems were evaluated for vesicle size, and formulated into different hydrogel bases (carbopol 934, sodium carboxymethyl cellulose, hydroxypropyl cellulose, pluronic F-127 and sodium alginate). *In-vitro* drug release from the different formulations was studied over a period of 8 hr. Effect of formulation additives on drug release was also investigated. The anti-inflammatory activity of the selected formulations was evaluated by the paw edema test. Histopathological examination of rat skin treated with the selected formulations was also carried out. Results showed high encapsulation efficiency which ranged from about 81.93% to 99.23%. The highest entrapment efficiency was obtained with 1:1 surfactant: cholesterol ratio and 15 mg drug loading, so niosomes prepared by this ratio were selected for further studies. Particle size ranged from 4.4 to 14.0 µm for different niosomal systems. *In-vitro* drug release from different gel formulations containing 0.3% MX was compared to that from the same formulations containing 0.3% niosomally entrapped drug. In all formulations the drug release was more sustained in case of niosomally entrapped drug. Incorporation of glycerol and propylene glycol as formulation additives into gel formulations markedly enhanced the drug release, but the release from gels containing niosomally entrapped drug was still delayed.

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