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Comparative bioavailability study of phenytoin in Nepalese healthy Mongolian volunteers

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Background: Bioavailability testing is a means of predicting the clinical efficacy of a drug; the estimation of the bioavailability of a drug in a given dosage form is direct evidence of the efficiency with which a dosage form performs its intended therapeutic function.

Objective: To evaluate the pharmacokinetic parameters and to assess the bioequivalence of different brands of Phenytoin 100mg tablet through in vivo study in Nepalese healthy Mongolian volunteers.

Materials and Methods: A total 12 male volunteers ranging age between 18 to 45 years were randomly selected for the study. Eptoin (containing phenytoin 100 mg), Acme formulation Pvt. Ltd. India (Trademark of Abbot group), was taken as reference preparation (A) and Epileptin (containing phenytoin 100 mg), Asian Pharmaceuticals Pvt. Ltd., Nepal, was taken as test preparation (B). This study was a single dose, randomized, two treatment and two-way cross-over study, with a wash out period of 14 days. Phenytoin plasma levels were determined by validated RP-HPLC method. C_{max}, t_{max}, AUC_{0-t}, AUC_{0-∞}, t_{1/2} and Kel were calculated by using zero moment non-compartmental pharmacokinetics for the single dose bioavailability study. A statistical analysis using ANOVA and 90% confidence interval (CI) test was conducted for this study.

Results: On the basis of comparison of the AUC_{0-t} for Phenytoin after one 100 mg dose administration, the relative bioavailability of the test preparation (B) was 100.826% of that of the reference preparation (A). 90% confidence interval for C_{max}, AUC_{0-t} and AUC_{0-∞} values of test preparation were 0.93-1.11, 0.96-1.06 and 0.86-1.18 respectively.

Conclusion: On the basis of the pharmacokinetic parameters studied, it can be concluded that the test preparation is bioequivalent with the reference preparation.

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New herbal dental formulation – An evidence based approach

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Oral cavity or mouth is an easily available site for various pathogens and microbes to enter human body. Currently, there is an increase in the numbers of oral health diseases/problems as well as in the awareness about oral health hygiene. This puts an increased pressure on the development of various allopathic and modern ailments. Nevertheless, the developed formulations are not only costlier but in addition are poor available and have huge problem of side effects due to chemical based constituency. Alternatively herbal formulations in form of tooth pastes and mouth washes have been hurriedly pumped in the market just to gain revenue and en-cash brand name of Ayurveda. Ayurveda being one of the oldest branches of ancient medicine practice need not to prove its authenticity. While designing these herbal formulations no pharmacological evaluations are done and the ingredients are selected haphazardly. We attempt to highlight the foremost important herbs for the development of complete and ideal toothpaste. This novel formulation possess general dentifrice properties like anti-cariogenic, anti-microbial, anti-inflammatory, analgesic, anti-allergic and plaque reducing properties. The utilization of this novel formulation on regular basis will provide protection against viral diseases, cancer etc and hence enhancing the health quality of an individual. So, we developed a formulation to maintain a good oral hygiene in a cost effective manner and without any side effects. Through this study, we intend to provide an insight into the innovative designing of herbal oral therapeutics to scientists, industry and pharmaceutical professionals.

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