

EVALUATION OF THE IMPACT OF TABLET SPLITTING ON THE ACCURACY OF DRUG DOSING

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Tablet splitting is commonly used in pharmacy practice. There are many reasons to split tablets such as to get the prescribed dose, to adjust the dose, for the easiness of swallowing and to minimize the cost. Splitting of most non-scored and scored tablets can result large variations on the weight of split fragments and therefore, the amount of active ingredient/s remain in fragments may deviate from pharmaceutical standards resulting therapeutically ineffective tablet fragments. Three commonly split tablets; Metformin 500 mg (large non-scored) tablets, Paracetamol 500 mg (scored-large size) tablets, Hydrochlorothiazide 50 mg (scored-small size) tablets were used for the study. Intact tablets were divided in to two by hand and kitchen knife. Weight variation, content of active ingredient and disintegration time of whole tablets and half tablets were tested. A questionnaire base survey was done to evaluate the basic practices of tablet splitting among patients. The survey showed that, 81% of patients practice tablet splitting and most commonly, tablets are split using hands (67%) or a kitchen knife (22%). All the whole tablets tested met British Pharmacopeial (BP) specifications for weight variation and content of active ingredient. Weight variation test revealed that, 85% of Metformin, 35% Paracetamol, and 35% Hydrochlorothiazide tablet halves resulted due to splitting by hand were not within BP specifications. Also, 55% of Metformin, 10% Paracetamol, and 27.5% Hydrochlorothiazide tablet halves produced by kitchen knife did not contain the required weight. Scored large tablets showed lower weight variation than non-scored or/and small size tablets. Similarly, variations in content of active ingredient were lower in scored large tablets compared to non-scored or/and small size tablets. Splitting tablets using a kitchen knife provided lower variations in weight and content of active ingredient in split tablet halves compared to hand split tablet halves. Disintegration profiles of both whole tablets and tablet halves were within the range of BP specification. According to the results, splitting tablets is not an acceptable practice because, it result in large weight variation thus, amount of active ingredient vary than desired or prescribed dose. Even though splitting tablets by hand is commonly practice, it results large variations in weight and uniformity of active ingredients than splitting by a knife. Splitting non-scored tablets is also not appropriate. Splitting by sharp equipment like kitchen knife is more reliable for scored, large size tablets (*eg: paracetamol*) but not for small tablets.