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Food Influence Kinetics and Effects of Drugs. Do We Have Major Problems?

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It has been a while since I noticed a comprehensive review about food and drugs interactions [1], but even at that time a large number of problems were noted. Drug-drug interactions have received much more attention than food-drug interactions during the last decades. The problems with interaction between food intake and drug kinetic are predominantly on the absorption level. Meals delay gastric emptying and thereby the delivery of drugs to the absorptive sites in the most proximal parts of the small intestine. Drugs are bound chemically to food components probably predominantly by hydrogen bonds or even weaker, but sometimes ionic bonds too. Again, this means a delay in absorption of the drug and lower concentrations in both portal and peripheral blood. Most of the documented interactions are of major importance for the patient, being in the size of order of 50% either increase or decrease in plasma concentrations. Another interaction happens in the liver, if cytochromatic enzymes are blocked by food components. A good example is Felodipine used for arterial hypertension and grape fruit. The concentration of Felodipine is increased in plasma by around 300% because the elimination of the drug is markedly decreased [2]. Our knowledge about these interactions is typically from single meal studies, so we know very little about potential adaptions to the problems.

Another source of uncertainty arises from the FDA-demands for registration of new drugs. FDA demands single meal testing with a FDA-meal composed much like American breakfast – tea, milk or juice, rolls/toast with butter, cheese or marmalade and egg. This means that the fiber content is very low, but seemingly, dietary fibers carry larger problems than any other element in a meal. The example with lovastatin [3] is a dramatic as addition of fibers to the diet completely reversed the cholesterol lowering effect of the drug. Only few drugs are tested, so we have many surprises to expect in the future. A demand for better testing of these aspects in new drugs could be a way to follow in the future, but the established knowledge also needs to be incorporated into our clinical practice. As shown in the study by Gravesen et al., the interactions may also have potential benefits [4].

References

1. Schmidt LE, Dalhoff K (2002) Food-Drug interactions. Drugs 62: 1481-1502.
2. Bailey DG, Spence JD, Munoz C, Arnold JM (1991) Interaction of citrus juices with felodipine and nifedipine. Lancet 337: 268-269.
3. Richter WO, Jacob BG, Schwandt P (1991) Interaction between fiber and lovastatin. Lancet 338: 706.
4. Gravesen HN, Bach U, Hansen SH, Holst M, Rasmussen HH, et al. (2016) Clinical effect of fiber supplementin patients with ulcerative colitis treated with 5-ASA. J Diet Res Nutr in press.