CYP450 isoenzyme-associated food-drug interactions are a neglected issue in medicines information

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Background

Interactions are occurring in the course of liberation, absorption, distribution, metabolism, and excretion of active ingredients, or at the target receptors (Fig. 1). Two concomitantly used substances interact with a probability of 13%, 4 with 38%, and 7 with 82% [1] depending on the individual genetic CYP450 isoenzyme patterns (Fig. 2, 3). Therefore, the elevated number of components comprised in food may result in an alarmingly high frequency of food-drug interactions and, consequently, in pharmacotherapy failure.

Purpose

The aim of this study was to assess whether adequate information on food-drug interactions is made available from manufacturers of medicines.

Materials & Methods

All online monographies according to the “Questionnaire for the information of hospital pharmacists about proprietary medicines” were retrieved from http://www.gsasa.ch and screened for information on interactions involving food.

Results

From a total of 157 monographs, 90 (57%) declared food-drug interactions as being “not applicable”, “unknown”, or informed that “no data” was available. 23 (15%) explicitly mentioned that their medicine “... is not influenced by food intake”. Interactions disclosed relate to absorption (12%) or metabolism (11.5%) (Fig. 1).

Conclusion

Food-drug interactions have consequences which go beyond absorption from the GI tract. Although many food ingredients such as caffeine, flavonoids, licorice, spices, and vitamins are known to be inducers or inhibitors of some of the 57 known human CYP450 isoenzymes [2-5], they are not taken into account in the medicines’ information made available by manufacturers. Thus, risks arising from isoenzyme-associated food-drug interactions are a neglected aspect of medicines’ information.

References

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Disclosure of interest: Nothing to declare

Keywords: Human CYP450 isoenzymes, food-drug interactions, medicines information

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20th Congress of the EAPH
25-27 March 2015, Hamburg, Germany