

Metabolism of drug interactions: pharmacodynamic and pharmacokinetic interactions

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ABSTRACT

A drug interaction could also be a change within the action or side effects of a drug caused by concomitant administration with a food, beverage, supplement, or another drug. An explanation for a drug interaction involves one drug which alters the pharmacokinetics of another medical drug. Alternatively, drug interactions result from competition for one receptor or signaling pathway. Both synergy and antagonism occur during different phases of the interaction between a drug, and an organism. For instance, when synergy occurs at a cellular receptor level this is often termed agonism, and therefore the substances involved are termed agonists.

Keywords: Drug interactions, pharmacokinetics, antagonism.

INTRODUCTION

When two drugs are used together, their effects are often additive (the result's what you expect once you add together the effect of every drug taken independently), synergistic (combining the drugs results in a bigger effect than expected), or antagonistic (combining the drugs results in a smaller effect than expected). There's sometimes confusion on whether drugs are synergistic or additive, since the individual effects of each drug may vary from patient to patient. A synergistic interaction could even be beneficial for patients, but also can increase the danger of overdose.

Pharmacodynamics interactions

Both synergy and antagonism can occur during different phases of the interaction between a drug, and an organism. The various responses of a receptor to the action of a drug have resulted during a number of classifications, like "partial agonist", "competitive agonist" etc. These concepts have fundamental applications within the pharmacodynamics of those interactions. The proliferation of existing classifications at this level, in conjunction with the actual fact that the precise reaction mechanisms for several drugs aren't well-understood means it's almost impossible to provide a transparent classification for these concepts. It's even possible that a lot of authors would misapply any given classification. Direct interactions between drugs also are possible and should occur when two drugs are mixed before injection. For instance, mixing thiopentone and suxamethonium within an equivalent syringe can

cause the precipitation of thiopentone.

The change in an organism's response upon administration of a drug is a crucial think about pharmacodynamic interactions. These changes are extraordinarily difficult to classify given the big variety of modes of action that exist, and therefore the incontrovertible fact that many drugs can cause their effect through variety of various mechanisms. This wide diversity also means, altogether but the foremost obvious cases it's important to research, and understand these mechanisms. The well-founded suspicion exists that there are more unknown interactions than known ones.

Pharmacokinetics interactions

Modifications in the effect of a drug are caused by differences in the absorption, transport, distribution, metabolism or excretion of one or both of the drugs compared with the expected behavior of each drug when taken individually. These changes are basically modifications in the concentration of the drugs. In this respect, two drugs can be homergic if they have the same effect in the organism and heterergic if their effects are different.

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Received: January 06, 2021; Accepted: January 12, 2021; Published: January 28, 2021

Citation: Trivedi A (2021) Metabolism of drug interactions: pharmacodynamic and pharmacokinetic interactions. J Pharma Reports 5: e101.

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