

الحمد لله
الله أكبر

Food-Drug Interaction



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Introduction

- ❑ A Food - Drug interaction occurs when a food, or one of its components, interferes with **Pharmacokinetics** (absorption, distribution, metabolism, and elimination) and **Pharmacodynamics** (biochemical and physiological effects) of a drug in the body.
- ❑ Adverse Food –Drug interaction:
 - Can prevent the therapeutic effect of a medicine
 - Can make a side effect



Mechanisms of Food-Drug Interaction

- Binding of the drug by the food
- Delayed gastric emptying
- Changes in Gastrointestinal pH or flora
- Modification of drug metabolizing enzyme/transporter function
- Changes in drug excretion



**Anti-osteoporosis drugs
(alendronate, risedronate, ibandronate)
+
Foods or Drinks**



Significant reduction in absorption (60%)

Alendronate or risedronate must be taken on an empty stomach with plain water at least 30 minutes before any other food, drink, or medication. Ibandronate must be taken at least 60 minutes before any other food, drink, or medication.





Iron Supplements

+

Foods



50% reduction in absorption

Recommendation

Iron supplements must be taken on an **empty stomach** with **water or orange juice**.
If iron must be taken with food to avoid GI distress, it should not be taken with high-phytate foods, fiber supplements, tea, coffee, dairy products, or calcium supplements.





Entacapone, Carbidopa, and Levodopa

+

Iron



reduction in absorption



Recommendation

Iron supplements must be taken **1 hour before** or **2 hours after taking** the drug.



Ciprofloxacin, Tetracycline, Fluoroquinolone

+

Dairies, Ca, Fe, Zn, Mg supplements, and Aluminum in antacids



reduction in absorption

Recommendation

The optimal approach is to stop noncritical supplements for the duration of the antibiotic prescription. If this is not possible, it is advisable to give the drug at **least 2 hours before or 6 hours after the mineral.**





Amitriptyline AND Digoxin

+

High-fiber or High-phytate foods



reduction in absorption



Recommendation

They should not be taken with high-phytate and high-fiber foods such as wheat bran or oatmeal.



Ketoconazole

+

Reduction in gastric acid pH



reduction in absorption



Recommendation

Ingestion of drug with an acidic liquid such as **cola** or **orange juice** may improve bioavailability in patients.



Cefuroxime AND Saquinavir

+

Foods



Increase in absorption



Recommendation

These drugs are prescribed to be **taken after a meal** to reduce the dose that must be taken to reach an effective level.



Theophylline

+

High-protein low-carbohydrate Diet



Increase in hepatic metabolism

Recommendation

These drugs are prescribed to be taken with a balance diet.





Felodipine AND Simvastatin

+

Grapefruit



Reduction in intestinal metabolism

Recommendation

The effects of grapefruit on intestinal cytochrome P450 3A4 last up to **72 hours**, until the body can reproduce the enzyme. Therefore separating the ingestion of the grapefruit and the drug does not appear to alleviate this interaction.





Tacrolimus AND Simvastatin

+

Tangelos



Reduction in intestinal metabolism



Recommendation

Separating the ingestion of the tangelos and the drug does not appear to alleviate this interaction.



Lithium
+
High sodium Diets



Increase in renal excretion

Recommendation

The drug is prescribed to be taken with a balance diet (adequate sodium and water).





Quinidine gluconate

+

Milk, fruits, and vegetables



Increase in renal resorption

Recommendation

Patients should be cautioned against initiating major diet changes without consulting their physician or dietitian.





Diuretics and antihypertensive drugs

+

Licorice



Increase in cortisol and aldosterone concentration



Recommendation

They should not be taken with licorice due to increase sodium resorption, water retention, increased blood pressure, and greater excretion of potassium.



Thank you for attention

A long, straight path lined with tall, thin trees, creating a tunnel effect. The ground is covered in fallen leaves. The text "Question ???" is overlaid in the center.

Question ???