



A Green Tea Frappuccino

PIC QUESTION OF THE WEEK: 8/31/09

Q: Are there any drug interactions associated with the consumption of green tea?

A: Green tea is becoming increasingly popular as a nutritional supplement and alternative remedy. It is commonly consumed as a beverage while green tea *extract* is available in many capsule and tablet formulations. The antioxidants and polyphenols in green tea may contribute to its suggested health benefits for cancer prevention, weight loss, relief of gastrointestinal symptoms, osteoporosis, Parkinson's disease, etc. Green tea contains caffeine and a variety of polyphenols including flavanols and flavanoids as well as phenolic acids. A particular group of flavanols found in green tea is referred to as catechins and includes several compounds such as epigallocatechin gallate (EGCG) and epigallocatechin (EGC). Catechins possess anti-inflammatory activity that may contribute to the beneficial effects of green tea. The catechin EGCG has been shown to exert minor inhibitory effects on the CYP3A4 isoenzyme, but the importance of its role in drug interaction has yet to be determined. Caffeine is currently the most significant component of green tea that could result in possible drug interactions. It stimulates the central nervous system, produces diuresis, and exerts effects on several other organ systems. Many drugs (e.g. disulfiram, estrogens, fluconazole, mexiletine, terbinafine, etc.) may reduce the clearance of caffeine and possibly increase its physiologic effects. The following drug interactions might be considered when patients consume green tea:

- Green tea and caffeine possess some anti-platelet properties and may enhance the effects of anti-platelet drugs and anticoagulants such as warfarin, heparin, and low-molecular weight heparins.
- In one case report, green tea was found to double the serum levels of simvastatin in a patient with severe muscle pain and leg cramps (CK values were WNL). The importance of this possible interaction has yet to be determined.
- It has been suggested that green tea may potentially affect the pharmacokinetics of chemotherapeutic agents such as cyclophosphamide, vinorelbine, epirubicin, and irinotecan; however, the clinical ramifications of these combinations has yet to be determined.

In conclusion, there is some potential for drug interaction between green tea and a number of drugs, however, the risk appears minimal. Patients should be advised to avoid excessive use of green tea when taking prescription medications.

References:

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