Risk assessment of green tea EGCG for pharmacokinetic interaction with prescription drugs

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The pharmacokinetic and pharmacodynamic interactions between prescription drugs and epigallocatechin gallate (EGCG), a polyphenol and the main catechin in green tea. Many Japanese people consume green tea in beverages and foods. Functional foods that contain green tea or EGCG are claimed to reduce allergies and have inhibitory effects on lipid absorption. There are 5 prescription drugs with descriptions of possible interactions with green tea on the package inserts; however, none of them described specific interactions with EGCG. Studies have suggested the effects of EGCG on cytochrome P450 (CYP), organic anion transporting polypeptide (OATP), and biomolecules that affect the pharmacokinetics of various prescription drugs. In multiple databases in mid 2019, there are 34 drugs which showing OATP-mediated interactions with EGCG, and investigated interactions between some of these drugs and EGCG that caused inhibition of intracellular drug uptake in the literature mainly involving *in vitro* experiments, which increases the drug blood concentration and risk of associated side effects. The literature shows that the blood concentration of EGCG following green tea intake is at most 1 μM, and I could not find a manuscript on specific accumulation in tissues or organs. Based on the literature, since the pharmacokinetics of bortezomib, nadolol, warfarin, and many statins is affected by EGCG at concentrations close to the blood drug concentration range, there is a possibility that green tea consumption during drug administration could be restricted depending on evidence accumulation in the future.