pharmacodynamics of simvastatin

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Email Address Password Forgot Password? Consequently, simultaneous use of a CYP3A4-dependent statin and other medications that also bind to that enzyme may result in decreased metabolism of the statin and an increased risk of statin-related toxicity. Patient should continue a cholesterol-lowering diet during therapy. One reason for this uncertainty is that much of the data are derived from case reports rather than controlled trials. An examination of the effect of cytochrome P drug interactions of hydroxymethylglutaryl-coenzyme A reductase inhibitors on health care utilization: This hepatic enzyme is an early and rate-limiting step in the synthetic pathway of cholesterol. Monitor PT at the start of therapy and during dose adjustment. For all drugs, major adverse reactions and interactions account for 6. For example, cyclosporine, macrolide antibiotics, azole antifungal agents, protease inhibitors, and calcium channel blockers all bind to CYP3A4 with greater affinity than that of atorvastatin, simvastatin, and lovastatin, and can thus inhibit the metabolism of those statins. Bottorff, PharmD, reviews the mechanisms underlying the differential risk of drug - drug interactions involving the various statins, explaining how the likelihood of such interactions is a function of the unique pharmacologic profile of each of these agents. The American Journal of Accountable Care. Compendia Alternative Payment Models. Statins and Potentially Interacting Medications: Increases risk of rhabdomyolysis.Pharmacodynamics. Simvastatin, the methylated form of lovastatin, is an oral antilipemic agent which inhibits HMG-CoA reductase. Simvastatin is used in the treatment of primary hypercholesterolemia and is effective in reducing total and LDL-cholesterol as well as plasma triglycerides and apolipoprotein B. Mechanism of ?Identification ?Pharmacology ?Trials ?Economics. Pharmacodynamics. Pharmacokinetics interacting drug that is contraindicated or is associated with a dose cap for simvastatin should be switched to an alternative statin with less if the risk for myopathy with coadministration of simvastatin with lipid-modifying doses of niacin-containing products observed in. Jan 1, - Concomitant administration of statins with food may alter their pharmacokinetic and pharmacodynamic profile. It has been reported that consumption of pectin or oat bran soluble fiber together with lovastatin reduces its absorption (Metzger et al.,), whereas alcohol intake does not affect the efficacy and. Dec 22, - Consequently, a dose-effect rather than a concentration-effect relationship is more appropriate to use in describing the pharmacodynamics. Fluvastatin, lovastatin, pravastatin and simvastatin have similar pharmacodynamic properties; all can reduce LDL-cholesterol by 20 to 35%, a reduction which has. The aim of this review is to discuss the current understanding of the pharmacodynamics and pharmacokinetics of statins. The mechanism(s) of the antiatherosclerotic action of statins that may contribute to the cardiovascular benefits observed in clinical trials and the available information regarding the relevant interactions. Table Pharmacokinetic and pharmacodynamics properties of statins. Atorvastatin. Optimal time of dosing. With or without food, any time of day. With or without food, any time of day. Any time of day. Bioavailability. (%). 5. 5. ~ Lipophilic. No effect. Bioavailability decreased. Bioavailability decreased. Pharmacodynamics Antilipemic action: Simvastatin inhibits the enzyme 3-hydroxymethylglutaryl-coenzyme A (HMG-CoA) reductase. This hepatic enzyme is an early (and rate-limiting) step in the synthetic pathway of cholesterol. Pharmacokinetics Absorption: Readily absorbed; however, extensive hepatic extraction limits. The liver is also the site for the pharmacodynamic action of statins as it is the organ of primary cholesterol biosynthesis. Genetic variation in the genes of statin metabolism and/or of lipid metabolism including cholesterol biosynthesis, may affect the pharmacokinetics and pharmacodynamics of the drug. Statins have also. Corsini A., Bellosta S., Baetta R., Fumagalli R.,. Bernini F., New insights into the pharmacodynamics and pharmacokinetic properties of statins, Pharmacol. Ther., , ;. 9. Sehayek E., Butbul E., Avner R., Enhanced cellular metabolism of very low density lipoprotein by simvastatin: a novel mechanism of action of. Nov 10, - of statins' effects is limited by a lack of mechanism-based studies, as well as the assumption focuses on the molecular mechanisms of statins in the CNS, how pharmacokinetic differences may influence Schachter, M. Chemical, pharmacokinetic and pharmacodynamic properties of statins: An update.