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Critical review of resveratrol in xenobiotic-induced hepatotoxicity.

McGill MR[1], Du K[2], Weemhoff JL[2], Jaeschke H[2].

Author information

Abstract

Use of natural products is increasingly popular. In fact, many patients with liver diseases self-medicate with herbal supplements. Resveratrol (RSV), in particular, is a common natural product that can reduce injury in experimental models of liver disease. Xenobiotic hepatotoxicity is a particularly important area-of-need for therapeutics. Drug-induced liver injury, for example, is the most common cause of acute liver failure (ALF) and ALF-induced deaths in many countries. Importantly, RSV protects against hepatotoxicity in animal models in vivo caused by several drugs and chemicals and may be an effective intervention. Although many mechanisms have been proposed to explain the protection, not all are consistent with other data. Furthermore, RSV suffers from other issues, including limited bioavailability due to extensive hepatic metabolism. The purpose of this article is to summarize recent findings on the protective effects of RSV in xenobiotic-induced liver injury and other forms of liver injury and to provide a critical review of the underlying mechanisms. New mechanisms that are more consistent with data emerging from the toxicology field are suggested. Efforts to move RSV into clinical use are also considered. Overall, RSV is a promising candidate for therapeutic use, but additional studies are needed to better understand its effects.

KEYWORDS: Acetaminophen; Inflammation; Liver injury; Mitochondria; Natural products; Oxidative stress

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