Systemic alcohol-protective effects of quercetin besides its ameliorating effect on alcohol-induced neuropathic pain

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To the Editor

I read with great interest the recent article by Raygude et al. (2012) in a recent issue of your esteemed journal. The article is highly thought provoking. Interestingly, the past few years have seen the emergence of evidence that quercetin not only attenuates alcohol-induced neuropathy but also inhibits the other detrimental side effects of alcohol exposure.

For instance, quercetin attenuates alcohol-induced MDA/4HNE production and has a negative effect on glutathione peroxidase 4 expression (Oliva et al. 2011). Besides this, quercetin also acts on the MAPK/Nrf2 pathways and thereby up regulates the expression of heme oxygenase-1 (Yao et al. 2007). By virtue of these enzymatic modulations, quercetin protects hepatocytes from alcohol-induced damage, and also protects other organs from alcohol-induced ethanol damage by attenuation of the oxidative effects of ethanol as is evident by a reduction in interferon- γ , plasma thiobarbituric acid reactive substance, and tumor necrosis factor- α (Liu et al. 2010). Similarly, quercetin also attenuates alcohol-induced cognitive deterioration by reversing alcohol-induced intracranial decline of catalase and glutathione (Kahraman et al. 2012).

Also, quercetin prevents “reactive oxygen species” production and attenuates glutathione depletion in mitochondria and thereby prevents alcohol-induced hyperlipidemia (Singh et al. 2003). Similarly, seizures secondary to ethanol withdrawal are inhibited by quercetin (Tang et al. 2012). Quercetin also mitigates ethanol withdrawal-associated anxiety, and also decreases the incidence

of gastric ulcers by decreasing the proliferation of mast cells in gastric tissue (Joshi et al. 2005).

It is obvious that quercetin has significant anti-oxidative effects and protects cells both in vivo and in vitro from the adverse effects of alcohol. Future studies are needed to further realize the other alcohol-protective effects of quercetin.

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