Antioxidant action of plant polyphenols in the counteraction of alcohol-abuse induced damage: Impact on the Mediterranean diet.

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Polyphenols are a structural class of more than five thousand chemicals, including organic but also synthetical and semi-synthetical components. Their molecules are characterized by multiples phenolic structures that contribute to their functional activity. Polyphenols can be found in a large variety of plants, including foods like fruits, vegetables, cereals, tea, coffee, olive oil and red wine which are part of the Mediterranean diet. The phenolic fraction in the olive includes among others oleuropein, tyrosol, hydroxytyrosol, polyphenols, secoiridoids and ligands while in the wine is the resveratrol. However, the quite toxic effects of alcohol abuse on health shouldn’t be downrated: alcohol consumption may cause various kinds of tissue damage in several regions of the body as the brain, liver, kidney, endocrine glands and its intake can disrupt the synthesis and functionality of neurotrophins, proteins that play an important role in nerve cells development and growth, immune and endocrine functions and also in the fine tuning of memory and learning processes. Data have shown that the antioxidant properties of polyphenols can play a pivotal role in counteracting alcohol-induced damage in animal models and during alcohol withdrawal in humans by reducing oxidative stress and by the modulation of neurotrophins as nerve growth factor (NGF) and brain-derived neurotrophic factor (BDNF). In conclusion, the Mediterranean diet is globally known as the dietary pattern that provides the greatest number of positive effects on health because using food and drinking rich in polyphenols as vegetables, fruits, extra-virgin olive oil and a moderate intake of wine. Thus, the detrimental effects of ethanol contained in alcoholic beverages seem to be partly counterbalanced by the presence of polyphenols in the foods and extra-virgin olive oil which yield an important antioxidant action. However, further studies on humans will be necessary to fully disclose if and how it will be possible to include polyphenols supplementation in the treatment of patients affected by alcohol use disorders and in the management of abstinence.

References:

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