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Oxidative damage in young alcohol drinkers: A preliminary study

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Abstract Full Text References

Abstract

Background

Oxidative damage (OD) biomarkers have been used to evaluate metabolic stress undergone by alcoholic individuals. In alcoholic patients, these biomarkers are usually measured at late stages, i.e., when the alcoholic patients are showing clear signs of impaired hepatic function. OD biomarkers are sensitive indicators of impaired metabolic function, and might be useful in early stages of alcohol consumption to identify individuals who are at greater risk of damage in later stages of alcohol consumption. The aim of the present work was to evaluate some OD biomarkers in young people at early stages of alcohol consumption.

Methods

The study was carried out in a group of young people (18–23 years old) who drank alcohol, Youngsters Exposed to Alcohol (YEA) with an average intake of 118 g of ethanol/week, and a control group (CG) of non-drinkers. Blood counts, alcohol dehydrogenase (ADH) activity, glutathione peroxidase (GSH-Px) activity, oxidative damage to DNA, and lipid peroxidation were determined in both groups.

Results

The anthropometric and blood parameters of both groups were similar and no clinical symptoms of hepatic damage were observed. Nevertheless, ADH activity, lipid peroxidation, and percentage of damaged DNA cells were higher in the YEA group than in the control group. In contrast, GSH-Px activity was lower in the YEA group than in the control group.

Conclusion

Alteration in OD biomarkers can be found in individuals with 4–5 years of alcohol drinking history. To our knowledge, this is the first study giving evidence of OD in individuals at early stages of alcohol abuse.

Keywords:
Alcohol, Young alcohol consumers, Free radicals, Oxidative damage, Lipid peroxidation

November 2013 Volume 47, Issue 7, Pages 501–504 Next Article >

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