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Alcohol consumption and the prevalence of metabolic syndrome : a meta-analysis of observational studies

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Published in « Atherosclerosis », October 2008, available online 11 November 2008

Background

In the past two decades, the metabolic syndrome has given rise to much clinical and research interest. The broad overlap of alcohol consumption with different components of metabolic syndrome makes alcohol-metabolic syndrome relationship a controversial topic.

Objectives

To support the evidence available about the relationship between alcohol consumption and metabolic syndrome as a comprehensive clinical entity, as well as to identify the gender-specific dose response, by performing a meta-analysis based on information from published data.

Methods

Manual and computer searches in different bibliographic databases were performed to identify the relevant scientific publications, on the relation between alcohol consumption and metabolic syndrome. Alcohol intake was converted into a same unit (g/day) and then categorized using standard classification in order to provide relevant comparisons. Fixed and random effects models were used to aggregate individual Odds Ratios and to derive pooled estimates and 95% Confidence Intervals.

Results

Fourteen relevant publications were identified on the relation between alcohol consumption and the prevalence of metabolic syndrome. 7 studies were included in the meta-analysis.

In men, the fixed effect model showed a significant relationship of the (MS) and drinking 0.1- 39.9 g/day of alcohol. A protective effect could be attributed to alcohol consumption (OR=0.84, 95%CI= [0.75; 0.94]) (Figure 1). Due to the heterogeneity, a random effect model was used in women (Figure 2). The odds ratio of (MS) was 0.75 (95%CI= [0.64; 0.89]).

Figure 1 Odd ratios for metabolic syndrome in men comparing cartegory 1 of alcohol intake versus no-drinkers by using a fixed effect model

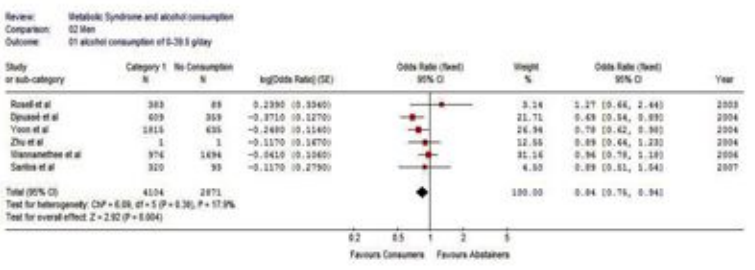
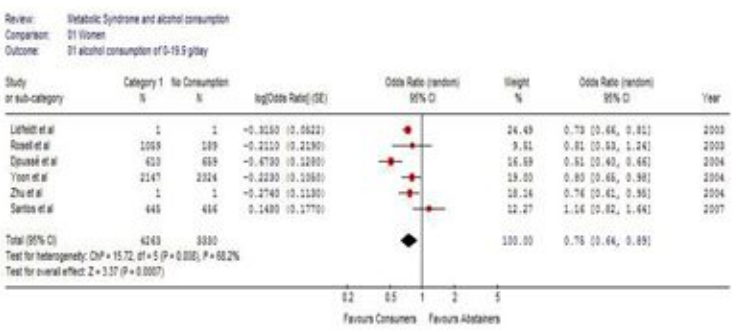


Figure 2 Odds ratios for metabolic syndrome in women comparing category 1 of alcohol intake versus no-drinkers



The results showed that alcohol consumption of less than 40 g/day in men and 20 g/day in women significantly reduced the prevalence of metabolic syndrome.

Conclusion:

"Responsible alcohol intake" appears to be associated with a reduced prevalence of metabolic syndrome. Favorable metabolic effect seemed to be restricted to alcohol consumption of less than 20 g/day among women, and of less than 40 g/day among men. These findings support the actual recommendations regarding alcohol consumption among apparently healthy people.

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