

# Minimal Alcohol Consumption Reduces the Risk of Graves' Disease

Albert G. Burger

Carlé A, Bülow Pedersen I, Knudsen N, Perrild H, Ovesen L, Rasmussen LB, Jørgensen T, Laurberg P. Graves' hyperthyroidism and moderate alcohol consumption: evidence for disease prevention. Clin Endocrinol 2013;79:111-119. Epub April 19, 2013.

## SUMMARY • • • • • • • • • • • • • • • •

### Background

Alcohol consumption is known to provide some protection not only from cardiovascular diseases but also from autoimmune disorders. Moderate consumption of alcohol, it is claimed, prevents hypothyroidism. As far as a possible link between alcohol consumption and hyperthyroidism is concerned, there is considerable controversy. The present results, obtained from the Danish iodination program, which included 2 million person-years, are relevant to this debate.

### Methods

From 1997 to 2000 the populations of two districts of Denmark were enrolled in a study of iodine deficiency. In this group of subjects, newly diagnosed cases of hyperthyroidism were studied. For a diagnosis of Graves' disease, a positive TSH receptor antibody titer and/or thyroid scintigraphy were required. A total of 484 cases of Graves' disease were identified in 1682 patients with overt hyperthyroidism. These subjects were required to fill out a questionnaire aimed at gathering information on alcohol consumption and the presence of comorbidities. The staff of this case-control study investigated 272 cases of newly diagnosed Graves' disease and 1018 individually matched control subjects from the same population. Alcohol consumption was expressed in units consumed per week, with one unit corresponding to 12 g of alcohol. Alcohol consumption was scored during the year before the diagnosis and at the maximum during any calendar year of the subjects' lives.

### Results

The age of the patients ranged from 20 to 79 years. Patients with Graves' disease had a 30% prevalence of cardiovascular comorbidity.

Abstainers were more frequent in the group of patients with Graves' disease than in the control group. The difference was considerable—28% of patients with Graves' disease were abstainers, versus 12% in the control group. This difference was even observed in the group with the lowest alcohol consumption. The patients in this group consumed approximately 12 g of alcohol per week at the time they were diagnosed. With higher alcohol consumption (up to 120 g), the protective effect steadily increased. Twelve grams of alcohol corresponds to one 0.33-liter bottle of beer or one 120-ml glass of wine, clearly a moderate consumption. There was no detectable difference between types of alcohol consumption—beer, wine or spirits.

### Conclusions

Even a minimal amount of weekly alcohol consumption (one bottle of beer or one glass of wine) appears to reduce the risk of Graves' disease. This finding was independent of age, sex, smoking, and comorbidities. This effect of alcohol was higher with moderate alcohol consumption, such as 1 to 2 glasses of wine or a similar amount of any other kind of alcohol per day.

*continued on next page*

## Minimal Alcohol Consumption Reduces the Risk of Graves' Disease

Albert G. Burger

### ANALYSIS AND COMMENTARY ● ● ● ● ●

Even a small alcohol intake may have some preventive effect on the mechanisms that produce Graves' disease. This conclusion appears to apply independently of cofactors such as age, sex, and smoking. The present extensive study strongly supports earlier work, so that one can now add Graves' disease to the list of autoimmune diseases—such as lupus erythematosus, rheumatoid arthritis, and autoimmune diabetes—known to be prevented by the effect of alcohol. The odds ratio between abstainers and minimal alcohol consumers for Graves' disease

developing was 1.7. This rather convincing difference remained stable regardless of whether the data of current or earlier alcohol consumption was taken into account. Several mechanisms for the protective effect of alcohol are proposed, such as loss of natural killer cell activity and alterations in both T helper cell 1 (Th1)- and Th2-mediated immunity. In many studies, mostly done in animals, the impact of large quantities of alcohol on the immune system were tested. These results may not be relevant to the present observation. Alcohol consumers will not be bothered about the lack of explanation but will probably appreciate the message.