Graves' hyperthyroidism and moderate alcohol consumption: evidence for disease prevention - DTU Orbit (21/12/2018)

**Graves' hyperthyroidism and moderate alcohol consumption: evidence for disease prevention**

**BACKGROUND:**
We recently demonstrated that moderate alcohol consumption is associated with a considerable reduction in the risk of autoimmune hypothyroidism, similar to findings in other autoimmune diseases such as systemic lupus erythematosus and rheumatoid arthritis. We aimed to study a possible association between alcohol intake and autoimmune Graves' hyperthyroidism.

**DESIGN:**
population-based, case-control study

**METHODS:** In a well-defined Danish population (2,027,208 person-years of observation), we prospectively identified patients with new overt thyroid dysfunction and studied 272 patients with Graves' hyperthyroidism. For each patient, we recruited four age-sex-region-matched controls with normal thyroid function (n=1,088).

**MEASUREMENTS:**
Participants gave detailed information on current and previous alcohol intake as well as other factors to be used for analyses. The association between alcohol intake and development of hyperthyroidism was analyzed in conditional multivariate Cox regression models.

**RESULTS:**
Graves' patients had a lower reported alcohol consumption than controls (median units of alcohol (12g) per week: 2 vs. 4, p<0.001). In a multivariate regression model, alcohol consumption was associated with a dose-dependent reduction in risk for development of overt Graves' hyperthyroidism. Odds ratios (95% confidence interval) compared to the reference group with a recent (last year) consumption of 1-2 units of alcohol per week were: 0 units/week 1.73 (1.17-2.56), 3-10 units/week 0.56 (0.39-0.79), 11-20 units/week 0.37 (0.21-0.65), ≥21 units/week 0.22 (0.08-0.60). Similar results were found for maximum previous alcohol consumption during a calendar year. No interaction was found with type of alcohol consumed (wine vs. beer), smoking habit, age, sex, or region of inhabitancy.

**CONCLUSIONS:**
Moderate alcohol consumption is associated with a considerable reduction in the risk of Graves' disease with hyperthyroidism - irrespective of age and sex. Autoimmune thyroid disease seems to be much more dependent on environmental factors than hitherto anticipated.

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