**20. No evidence that sun exposure can decrease the risk of vasculitis**

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**Background:** The aetiology of vasculitis remains elusive. An important environmental factor that might increase the risk of developing vasculitis pertains to a lack of sun exposure. Sun exposure is the most important source of vitamin D, and vitamin D deficiency is associated with rheumatological autoimmune disorders. Our hypothesis was that regular sun exposure can affect the risk of developing vasculitis, and our prediction was that vasculitis is less common in people that sunbathe often, go on sun vacations, and/or use tanning beds compared to people that avoid sun exposure. Furthermore, we investigated the relation between cardiovascular risk factors and the risk of vasculitis.

**Methods:** The ‘Melanoma inquiry of Southern Sweden’ (‘MISS’) was a large prospective cohort study concerning risk factors for melanoma. MISS started in 1990 by sending out an initial questionnaire to almost 40000 women in southern Sweden. We focus on the follow-up questionnaire to which 24106 women responded to in the years 2000-2001. Following previous studies, sun exposure was determined by the response (dichotomized into ‘ever’ or ‘never’) to questions regarding sunbathing behaviour, summer and winter sun vacations, and tanning bed use. Based on how many questions were responded to with ‘ever’, a new variable was then created that grouped women into having low, moderate, and high sun exposure. We gathered ICD codes assigned by physicians between 1998 and 2019 from the Skåne Healthcare Register for 17209 women. We identified women with an ICD code for any type of vasculitis, hypertension, hyperlipidaemia, and diabetes. The risk of developing vasculitis was analysed using cox proportional hazard models. The follow up time spanned from the date of filling in the questionnaire until the date of developing vasculitis, date of death, or until the end of follow-up (2019-12-31). First, the importance of several covariates was considered in separate models: age (<50, 50-60, >60), smoking (ever / never), obesity (yes / no), education (primary school, high school, university / college, other), cardiovascular disease at start of study (yes / no), and diabetes at start of study (yes / no). In addition, diagnoses based on ICD codes of hypertension, hyperlipidaemia and diabetes after start of study were considered as time-dependent covariates. After evaluation of the covariates a full model with sun exposure, and covariates for age, smoking, cardiovascular history, hypertension and hyperlipidaemia was constructed.

**Results**: In the 16256 women with sufficient information on sun exposure behaviour and medical history, we identified 200 vasculitis diagnoses, mainly pertaining giant cell arthritis (83% of the vasculitis diagnoses). The most important factor determining the risk of vasculitis was age, with the risk of vasculitis increasing with age. Women that never smoked were more likely to develop vasculitis compared to women that smoked. However, there was no indication that women that had the greatest sun exposure were less likely to develop vasculitis compared to women that avoided sun exposure (Table 1).

**Conclusions:** Our study shows that variation in sun exposure did not lead to differences in the risk of developing vasculitis. Factors such as protective clothing, use of sunscreen, nutrition, drug exposure and genetic factors may have modulated the effect of sun exposure on vitamin D levels and vasculitis. Current or previous smoking was associated with a reduced risk of vasculitis compared to women that never smoked.

**Disclosures:** None.

