On the anti-inflammatory effect of vitamin D in the traditional Inuit diet in Greenland

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Purpose

The marine diet is an important source for vitamin D in Greenland and high levels of vitamin D is found in the traditional Greenlandic diet that consists mainly of fish and marine mammals. Vitamin D may dampen inflammation. Yet, the influence of vitamin D from the traditional Inuit diet on inflammation needs to be elucidated.

Methods

Blood samples were drawn and interview-based food frequency questionnaires were conducted in a population based survey in Nuuk and Ammassalik district in West- and East Greenland, respectively. Vitamin D and the markers of inflammation YKL-40 and hsCRP were measured in serum. Participants were divided into 3 groups based on dietary habits: intake of mainly traditional Inuit diet vs. mixed vs. mainly imported food items.

Results

The population consisted of 535 men and women age 50-69 years. They were 434 Inuit and 101 non-Inuit. Vitamin D levels in serum varied with intake of traditional Inuit food items: Inuit diet / mixed diet / imported foods: 74.2 / 69.8 / 52.9 nM (p<0.001). Parallel differences were seen for hsCRP (1.6 / 1.4 / 1.3 mg/l; p=0.002) and for YKL-40 (130 / 95 / 61 micro g/l; p<0.001). YKL-40 level decreased with increasing vitamin D level for the participants living on traditional Inuit diet (p=0.014), this was however not seen in participants living on imported foods (p=0.87). There was no significant difference in hsCRP with increasing vitamin D for either of the diet groups. YKL-40 decreased with higher intake of vitamin D after adjusting for other factors known to influence inflammation (p<0.001). This was not seen for hsCRP.

Conclusion

Vitamin D and markers of inflammation vary in parallel with the intake of traditional Inuit diet. This does not conform to a positive influence of vitamin D on the inflammatory process unless other factors are involved. This may be speculated to be the case.