

Advice for melanoma health care teams- vitamin D and melanoma

Once patients have been diagnosed with [melanoma](#), medical teams usually advise them to reduce their sun exposure for two reasons:

- To reduce the risk of developing another melanoma: 1 in 10 melanoma patients develop more melanomas
- Because of concerns that sunburn could reduce the body's immune responses to the melanoma

Yet sun exposure is generally important to health because it allows the body to make vitamin D, which we know is crucial for bone health, and which we suspect is important for other aspects of health too. Studies have also shown that melanoma patients in the north of the UK often have low serum 25-hydroxyvitamin D₃ levels at diagnosis (1) and moreover that Britons with sun sensitive skin (common in melanoma patients) have lower levels of vitamin D than those with skin which is less prone to sunburn (2, 3). The pattern of sun exposure, which is associated with melanoma risk, is intermittent exposure such as that experienced on holidays in sunny places. The difficulty in advising patients about sun protection is that in a country such as the UK, sun exposure levels at home are low so that many patients get much of their vitamin D as a result of that same sun exposure on holiday (2). Thus, melanoma patients are at risk of vitamin D insufficiency, and if patients adhere to advice given to reduce their sun exposure after a melanoma diagnosis, then that advice could exacerbate that tendency to vitamin D insufficiency with potential adverse effects on health generally.

There is some evidence that vitamin D may also be important for survival after diagnosis of melanoma. A UK cohort study reported in 2009 that patients with low levels of vitamin D at diagnosis had thicker tumours and a poorer outcome even in data adjusted for thickness. This study was observational however and what we do not know as yet is whether the relationship between vitamin D levels and survival from melanoma is causal: and we certainly do not know if supplementation after diagnosis is beneficial for survival expectation. We even have theoretical concerns that high levels of vitamin D might be harmful (4).

Never the less, it seems unwise to allow sun protection advice to lead to vitamin D deficiency either from the point of view of bone health or melanoma survival. It also seems sensible to avoid supplementation in patients who have a normal blood level.

So what is our advice to melanoma medical teams?

- To advise melanoma patients (and their families) to avoid the pattern of sun exposure which is associated with melanoma risk, which is

- Sun exposure that is associated with sunburn
- To measure the serum 25-hydroxyvitamin D₃ level at diagnosis
- To use the local laboratory's normal range data to determine whether the patient has deficiency of serum 25-hydroxyvitamin D₃ (normally regarded as equal to or less than 25 nmol/L) or insufficiency (usually regarded as more than 25nmol/L but less than 50 or 60 nmol/L). The University of Leeds regards levels between 60 (in the winter) and 85 nmol/L (in the summer) as optimal for melanoma patients.
 - If levels are either deficient or insufficient then the advice is to follow national or local policies on supplementation
 - If levels are sufficient then supplementation is not required. However if the level has been measured not long after a sunny holiday then it might be sensible to recheck after 6 months
 - If the patient subsequently reduces their sun exposure then the advice would be to supplement as national policy recommends for sun avoidant people in the UK. NHS Direct states in 2015 that: "People should also take a daily supplement containing 10 micrograms (0.01mg) of vitamin D if they are aged 65 years or over, or aren't exposed to much sun – for example, those who cover up their skin for cultural reasons, who are housebound or confined indoors for long periods"
 - If levels are higher than 90nmol/L then we would advise that supplementation if used should be stopped or reduced appropriately in order to maintain levels in the region of 60 to 86 nmol/L

References

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3. Glass D et al. Pigmentation and vitamin D metabolism in Caucasians: low vitamin D serum levels in fair skin types in the UK. *PLoS One*. 2009;4(8):e6477.
4. Field S, Newton-Bishop JA. Melanoma and vitamin D. *Mol Oncol*. 2011 Apr;5(2):197-214.