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Does malignant melanoma presentation differ with patient vitamin D status?

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Background & Aims: Cutaneous malignant melanoma (CMM) is the most lethal skin cancer. Sunlight is a major risk factor; however, its interaction with melanoma is complex. In particular, vitamin D is a UVB-derived hormone which has been shown to have anti-cancer effects. We investigated the association between clinicopathological features of CMM and patient vitamin D status.

Methods: 109 primary melanomas diagnosed during 2001-2013 were identified from our institutional database with a corresponding 25-hydroxyvitamin D (vitamin D) result within 6 months of diagnosis. Tumor clinical (age, sex, tumor location) and pathological (thickness, mitosis, ulceration, Clark level, subtype, metastatic status) parameters were correlated with vitamin D level.

Results: Vitamin D was inversely associated with Breslow thickness as a dichotomous (≤ 1 mm vs. > 1 mm, 66.96 vs. 57.60 nmol/L; $P=0.045$), categorical (<0.75 mm, 67.19 nmol/L; 0.75-1 mm, 65.43 nmol/L; 1-2 mm, 62.81 nmol/L; 2-3 mm, 43.08 nmol/L; $P=0.044$) and continuous variable (Spearman $\rho=-0.210$; $P=0.028$). Increasing Breslow thickness correlated with lower vitamin D level, controlled for patient age and gender ($P=0.026$). Vitamin D was higher in non-ulcerated tumors compared with ulcerated tumors (64.57 vs. 47.27 nmol/L; $P=0.006$) and in tumors with mitotic rate $<1/\text{mm}^2$ compared with tumors $\geq 1/\text{mm}^2$ (68.81 vs. 57.74 nmol/L, $P=0.036$). A significant association was found between vitamin D and tumor histological subtype ($P=0.019$). On Least Significant Difference testing between subgroups, significant associations were found between SSM and NM (67.42 vs. 51.40 nmol/L; $P=0.026$) and SSM and ALM (67.42 vs. 43.56 nmol/L; $P=0.007$).

Conclusion: Higher vitamin D status may benefit prognosis in patients presenting with CMM. Larger prospective studies are needed in which vitamin D level is measured at time of diagnosis and controlled for patient phenotype and independent risk factors for CMM in order to validate our findings. Vitamin D supplementation may be a safe, novel therapy to improve melanoma prognosis, in addition to other health benefits.

Biography

Alvin Lim is currently a Junior House Officer at Princess Alexandra Hospital, Brisbane, Australia. He was graduated from the Melbourne Medical School in 2014, completing a scholarly selective at the Department of Dermatology, Royal Melbourne Hospital. His current interests are in skin cancer and dermatological surgery.

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