MEDICAL THERAPIES AND PHARMACOLOGY

SUN-INDUCED SKIN DAMAGE AND VITAMIN D STATUS IN YOUNG WOMEN: RESULTS FROM THE SAFE-D STUDY

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Background: Vitamin D deficiency is highly prevalent in young Australian females. Sun exposure via ultraviolet radiation (UVR) is the major source of vitamin D, though it can increase the risk of actinic damage, photo ageing, solar keratoses and skin cancer.

Objective: To evaluate vitamin D status in young women, cross-sectionally and in a randomised trial, in relation to demographic features, sun-related behaviours, actinic damage, UVR exposure.

Materials & Methods: Australian women aged 16-25 years, with serum 25-hydroxyvitamin D (25-OHD) levels 25 – 75nmol/L were recruited and following baseline assessment were randomised in 1:1:1 ratio to [A] a behavioural intervention (phone application to safely improve vitamin D status) (n=41), [B] vitamin D supplementation (n=42) or [C] a control group (n=42). They were re-assessed at 4 and 12 months. Serum 25-OHD levels, sun behaviours, UVR exposure, cutaneous melanin density and actinic damage were measured.

Results: At baseline (n=407), the most common Fitzpatrick phototypes were type II (33%) and III (34%). Baseline hand melanin density was inversely correlated with level of actinic damage ($p=0.046$). Number of sunburns was positively associated with serum 25-OHD ($p<0.001$). No differences in 12-month skin cast score change were noted between groups ($p=0.535$). A difference in 25-OHD levels was noted between arm B compared to arm A and C separately ($p<0.001$). Skin cast Intra-observer and inter-observer reliability were assessed.

Conclusions: This study provides a longitudinal assessment of interventional strategies to improve vitamin D status in young women and assesses associated actinic damage in an

Australian population. (Australian NHMRC project grant APP1049065).