

that phototherapy-induced cutaneous depletion of vitamin A increases its skin uptake from circulation and consequently increases mobilization of hepatic and fat stores. Despite this flux to the skin, mobilization of retinol stores may be disproportionate, contributing to the observed increase in serum levels. Only two studies have dealt with the relationship between UVR and serum retinol levels.^{6,7} One involving healthy subjects irradiated for 2 weeks with UVA or broadband UVB did not find variation, and the other with hairless mice showed a transient depletion of serum retinol a few days after a single broadband UVB irradiation.^{6,7} Our data indicate that in patients with psoriasis, vitamin A participates in an adaptive response to NB-UVB exposure; the physiological role of this response needs to be further investigated.

It is well documented that vitamin A and RBP4 are involved in lipid metabolism.¹ Subjects with nonalcoholic hepatic steatosis had lower retinol liver stores and an association between obesity and vitamin A deficiency was proposed.⁸ We found a negative correlation between BMI and Δ vitamin A and we can hypothesize that overweight patients have less adaptive vitamin A response.

In agreement with data from higher-latitude regions, we found a high prevalence of vitamin D insufficiency and a substantial benefit of NB-UVB.^{9,10}

The limitations of the present study include the absence of a control group, and cutaneous retinol and serum RBP4 levels should be addressed in future studies.

In addition to a significant increase of the vitamin D status, NB-UVB increases serum vitamin A levels while clearing psoriasis, the magnitude of this increase being determined by the patient's BMI.

Acknowledgments

We thank the participants for their contribution to the study. We also thank all the nursing staff from our Dermatology Department for their help in the project. A special thanks to Carla Vieira (specialist nurse) for helping with the study.

¹Department of Pharmacology and Therapeutics, Faculty of Medicine, University of Porto, Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal

²Institute for Molecular and Cell Biology, University of Porto, Rua do Campo Alegre 823, 4150-180 Porto, Portugal

³Department of Dermatology and Venereology, University of Porto, Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal
E-mail: smagina@med.up.pt

References

- Berry DC, Noy N. Signaling by vitamin A and retinol-binding protein in regulation of insulin responses and lipid homeostasis. *Biochim Biophys Acta* 2012; **1821**:168–76.

- Schreiber R, Taschler U, Preiss-Landl K et al. Retinyl ester hydrolases and their roles in vitamin A homeostasis. *Biochim Biophys Acta* 2012; **1821**:113–23.
- Fu PP, Xia Q, Yin JJ et al. Photodecomposition of vitamin A and photobiological implications for the skin. *Photochem Photobiol* 2007; **83**:409–24.
- Sorg O, Tran C, Carraux P et al. Oxidative stress-independent depletion of epidermal vitamin A by UVA. *J Invest Dermatol* 2002; **118**:513–18.
- Tran C, Sorg O, Carraux P et al. Topical delivery of retinoids counteracts the UVB-induced epidermal vitamin A depletion in hairless mouse. *Photochem Photobiol* 2001; **73**:425–31.
- White WS, Kim CI, Kalkwarf HJ et al. Ultraviolet light-induced reductions in plasma carotenoid levels. *Am J Clin Nutr* 1988; **47**:879–83.
- Torma H, Berne B, Vahlquist A. UV irradiation and topical vitamin A modulate retinol esterification in hairless mouse epidermis. *Acta Derm Venereol (Stockh)* 1988; **68**:291–9.
- Pereira SE, Saboya CJ, Saunders C, Ramalho A. Serum levels and liver store of retinol and their association with night blindness in individuals with class III obesity. *Obes Surg* 2012; **22**:602–8.
- Gisondi P, Rossini M, Di Cesare A et al. Vitamin D status in patients with chronic plaque psoriasis. *Br J Dermatol* 2011; **166**:505–10.
- Ryan C, Moran B, McKenna MJ et al. The effect of narrowband UV-B treatment for psoriasis on vitamin D status during wintertime in Ireland. *Arch Dermatol* 2010; **146**:836–42.

Funding sources: none.

Conflicts of interest: none declared.

Lichen planus is not associated with human herpesvirus type 7

DOI: 10.1111/j.1365-2133.2012.11009.x

MADAM, Human herpesvirus type 7 (HHV-7) has been proposed to be associated with lichen planus (LP).¹ Furthermore, it has been postulated that a decrease in HHV-7 replication is associated with LP remission.² However, we came to the opposite conclusion in a case-control study conducted at Shohada-e-Tajrish University Hospital from June 2007 to March 2010.

According to the previous study,¹ we arrived at a study size of $n = 53$ in each group with the power of 0.80 to detect a significant difference between cases and controls. We ascertained one control for each case, matched for age. Cases were patients with a histopathologically confirmed diagnosis of LP during acute exacerbation of disease. We obtained control group skin samples from patients admitted for cosmetic procedures who were otherwise healthy. We examined both skin and plasma specimens by polymerase chain reaction (PCR) using QIAamp DNA Mini Kit (Qiagen, Hilden, Germany) according to the manufacturer's instructions. For amplification and detection of HHV-7 genome we used the forward primer 5'-CCC AAC TAT TTT CAG TAG GGT TGG TG-3', reverse primer 5'-TTT AGT

Table 1 Distribution of lesions in patients with lichen planus (n = 54)

	Frequency, n (%)
Skin (only)	31 (57)
Skin and mucous membranes	16 (30)
Skin and nails	3 (6)
Skin and hair follicles	2 (4)
Skin, mucous membranes and nails	2 (4)

TCC AGC ACT GCA ATC G-3' and TaqMan[®] probe (Applied Biosystems, Foster City, CA, U.S.A.) 5'-Cy5-CTA TTT TCG GTC TTT CCA ATG CAC GCA-BHQ2-3'.

In each group, 54 patients agreed to participate (38 females and 16 males with mean \pm SD age 42 ± 14.9 years in LP group and 34 females and 20 males with mean \pm SD age 38.6 ± 13.9 years in control group). There was no statistical difference between study groups with regard to gender and age. Table 1 illustrates the distribution of the lesions in the patients with LP.

HHV-7 DNA was not detected in either skin biopsies or plasma specimens of patients with LP; in contrast, the real-time PCR revealed six (11%) positive skin biopsies and six (11%) positive plasma specimens in the control group. A significant difference was found between the study groups with regard to skin biopsies ($P = 0.027$) and plasma specimens ($P = 0.027$). In two (4%) control subjects, both skin biopsy and plasma specimens were HHV-7 DNA positive ($P = 0.495$). Overall positive results (either plasma or skin specimens) were found in 10 participants (19%) in the control group: a statistically significant difference compared with the LP group ($P = 0.001$).

We found no HHV-7 DNA in either lesional skin biopsies or plasma specimens during exacerbation of the disease. In contrast, 19% of the samples taken from skin and plasma of the healthy individuals were positive for HHV-7.

In summary, our results were in contrast to the previous results; in our study, not only were all LP lesional and plasma samples negative, but also HHV-7 DNA was detected more frequently in normal skin and plasma samples of control individuals. The reason for this discrepancy is not clear, but it could be attributable to immunogenetic factors that are expressed differently among different ethnic groups. It is observed that despite the high conservation of HHV-7 DNA, distinct variants of this virus exist and are distributed differently among different human populations.³ This observation may play a role in explaining the inconsistent findings regarding the causative relation between HHV-7 and LP. Although it is demonstrated that most of the general population is seropositive for HHV-7⁴ and that around 90% is acquired during childhood,^{5,6} as yet we do not know the prevalence of HHV-7 in our population or the identity of the virus variant in affected Iranians, due to lack of epidemiological studies. Our results could not demonstrate any relation between HHV-7 and LP in our population.

¹Skin Research Center, Shahid Beheshti University of Medical Sciences, Shohada-e-Tajrish Hospital, Tehran 1989934148, Iran

H. MORAVVEJ¹
E. ABOLHASANI¹
H. RAHIMI¹
P. ALIREZAEI¹

²Department of Virology, Tehran University of Medical Science, Tehran

M. MAHMOUDI-RAD¹
H. KEYVANI²

Correspondence: Mahnaz Mahmoudi-Rad.

E-mail: mahnazrad@gmail.com

References

- De Vries HJ, van Marle J, Teunissen MB et al. Lichen planus is associated with human herpesvirus type 7 replication and infiltration of plasmacytoid dendritic cells. *Br J Dermatol* 2006; **154**:361–4.
- De Vries HJ, Teunissen MB, Zorgdrager F et al. Lichen planus remission is associated with a decrease of human herpes virus type 7 protein expression in plasmacytoid dendritic cells. *Arch Dermatol Res* 2007; **299**:213–19.
- Franti M, Gessain A, Darlu P et al. Genetic polymorphism of human herpesvirus-7 among human populations. *J Gen Virol* 2001; **82**:3045–50.
- Chuh AA, Chan HH, Zawar V. Is human herpesvirus 7 the causative agent of pityriasis rosea? – A critical review. *Int J Dermatol* 2004; **43**:870–5.
- Black JB, Pellett PE. Human herpesvirus 7. *Rev Med Virol* 1999; **9**:245–62.
- Blauvelt A. Skin diseases associated with human herpesvirus 6, 7, and 8 infection. *J Invest Dermatol Symp Proc* 2001; **6**:197–202.

Funding source: Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Conflicts of interest: none declared.

Mohs micrographic surgery in primary care: knowledge of the technique and perceptions of Mohs surgeons among general practitioners in one U.K. region

DOI: 10.1111/j.1365-2133.2012.10989.x

MADAM, Dermatology consultations in primary care are common. There are data showing that 24% of the U.K. population seek advice from their general practitioners (GPs) for skin conditions (including skin cancers).¹ Given the rising incidence of nonmelanoma skin cancer (NMSC) in the U.K.,² the number of patients presenting to GPs with malignant skin lesions will undoubtedly continue to increase.

Mohs micrographic surgery (MMS) is considered the gold-standard treatment for high-risk facial NMSC.^{3,4} Although access to MMS in the U.K. is predominantly via a tertiary referral pathway, an understanding of the merits of MMS among GPs would be beneficial when they advise their patients and in generating appropriate referrals to the correct speciality, first time.

We undertook an on-line survey assessing knowledge of MMS among GPs and their perceptions regarding the recon-