Empowering Heliotherapy in Psoriasis and Atopic Dermatitis: An Observational Study of 186 Subjects

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Accepted May 31, 2016; Epub ahead of print Jul 7, 2016

Psoriasis and atopic dermatitis (AD) have a negative impact on patients' health-related quality of life (HRQoL) (1, 2). There is a long tradition of heliotherapy (HT) in the Canary Islands for the treatment of Finnish patients with psoriasis and AD (3, 4), and the courses have recently been updated to include more empowering elements. The present model of empowering heliotherapy (EHT) consists of meeting peers, adopting a healthy lifestyle, performing exercise, and gaining increased autonomy. The benefits of the new EHT have been shown for patients with psoriasis and those with AD (5, 6). This study is a sequel to our pilot study (5) and provides more evidence of the effects of EHT.

METHODS (for complete details see Appendix S1[1])

Two-week EHT courses were arranged in Puerto Rico (27°N, 15°W), Canary Islands, Spain, between October 2012 and April 2013. The course included an education day before EHT and a reunion weekend 3 months later. Of patients attending the courses, 133/168 of those with psoriasis and 60/72 of those with AD participated in the study, but 7 were excluded from the analyses. Use of systemic and topical medication, as prescribed and previously used, was allowed during the study period. Sunbathing time varied according to the Fitzpatrick's skin phototype (7), season, disease group and severity, being initially 20–90 min for psoriasis and 15–30 min for AD. During the first EHT week, daily exposure time was increased to 90 min and up to 300 min for psoriasis and 120 min for AD in cases of skin phototype IV.

HRQoL was assessed with the Dermatology Life Quality Index (DLQI) (8) and RAND-36 (4-week version), for which physical component summary (PCS) and mental component summary (MCS) scores were calculated (9). Disease severity was assessed with the Self-Administered Psoriasis Area and Severity Index (SAPASI) (10) and Patient-Oriented Scoring of Atopic Dermatitis (PO-SCORAD) (11). Disease severity and pruritus were assessed using a visual analogue scale (VAS) (12). Self-assessments were performed during the education day (T1), after returning home from EHT (T2) and 3 months after T2 (T3). Four points was considered the minimal clinically important change in DLQI (13). Data were analysed using generalizing estimating equation models (Stata 14.0 Statistical Package of StataCorp LP, College Station, TX, USA). The protocol was approved by the ethics committee of Tampere University Hospital (number: o R12219). All participants gave their informed consent.

RESULTS

The mean age of the patients with psoriasis was 51 years (range 20–75 years), 70 (55%) females, 67 (53%) with psoriatic arthritis. Fitzpatrick's skin phototype (II/III/IV) distribution was 21/97/9. Thirty-eight patients (30%) were taking a systemic drug for psoriasis. Mean baseline SAPASI score was 7.4 (95% confidence interval (95% CI) 6.4–8.5).

The mean age of the patients with AD was 37 years (range 19–74 years), 50 (85%) female. Fitzpatrick's skin phototype (II/III/IV) distribution 11/44/4. Mean baseline PO-SCORAD score was 36.8 (95% CI 32.7–40.9).

The DLQI score and the RAND-36 summary scores (PCS and MCS) decreased significantly for both patient groups from the baseline (T1) to the end of the EHT (T2) ($p<0.001$, Tables SI and SII[1]). DLQI scores remained significantly decreased relative to T1 in both patient groups ($p<0.001$) 3 months after the EHT (T3). The minimal clinically important difference (MCID) of 4 points (13) was achieved by 34/92 patients with psoriasis (37%) and 26/45 patients with AD (58%). The RAND-36 summary scores (PCS and MCS) remained significantly improved relative to baseline (T1) for 3 months after the EHT (T3) in both patient groups (Tables SI and SII[1]). The change in global VAS had a moderately positive correlation with the DLQI scores ($r^2=0.40$), but its correlations with the PCS and MCS scores were weak ($r^2=0.08$ and $r^2=0.03$) (Fig. S1[1]).

The SAPASI score was decreased by 5.0 from 7.4 ± 5.8 between T1 and T2 ($p<0.001$) and the PO-SCORAD score by 24.0 from 36.8 ± 15.5 ($p<0.001$). A 75% clearance was seen in 59 patients with psoriasis (46%) and 27 patients with AD (46%). VAS showed a significant decline in disease severity and pruritus in both groups ($p<0.001$) (Table SI[1]). Baseline disease severity and its improvement were independent of the time of year and sunbathing time in both disease groups. Three months after the EHT (T3) the SAPASI and PO-SCORAD scores were still significantly lower than at T1 ($p<0.001$), and the VAS scores were also significantly lower in both groups (Table SI[1]).

The patients were divided in terms of severity into mild and moderate-to-severe subgroups, the cut-off points being a SAPASI score of 10 and a PO-SCORAD score of 25.

Patients with mild psoriasis ($n=86$) had a mean age of 51 years (range 23–72), 62% were females and their baseline DLQI was 6.7 ± 4.8, whereas patients with moderate-to-severe psoriasis ($n=33$) had a mean age of 48 years (range 20–71 years), 52% were females and

[1]https://doi.org/10.2340/00015555-2506

doi: 10.2340/00015555-2506
Acta Derm Venereol 2017; 97: 255–257

their baseline DLQI was 11.0 ± 6.0. The former had a mean DLQI improvement of 1.7 ± 5.4 and the latter of 5.3 ± 6.0, the latter also being clinically significant (13). The groups differed significantly only in their baseline DLQI ($p < 0.001$).

The patients with mild AD ($n = 16$) had a mean age of 39 years (range 20–74 years), 88% were female, and their baseline DLQI was 5.6 ± 3.1, whereas those with moderate-to-severe AD ($n = 43$) had a mean age of 37 years (range 19–65 years), 84% were female, and their baseline DLQI was 12.2 ± 5.2. The former had a mean DLQI improvement of 1.1 ± 2.9 and the latter 6.3 ± 4.2, the latter being clinically significant (13). The groups differed significantly only in their baseline DLQI ($p < 0.001$).

DISCUSSION

The EHT improved the HRQoL and alleviated disease severity in the patients with psoriasis and those with AD for at least 3 months. A larger proportion of the patients with AD (58%) than of the patients with psoriasis (37%) achieved a clinically significant DLQI improvement, possibly because of their initially more severe disease. The RAND-36 PCS score improved more in the patients with psoriasis, and the MCS score in the patients with AD. The schedule for the patients with psoriasis included more physical exercise, with the aim of inspiring them to reduce their risk of comorbidities and alleviating symptoms related to psoriatic arthritis. The difference in course content must be kept in mind when comparing the results between the groups.

Although the initial SAPASI was low (7.4), indicating mild disease, the proportion of patients with psoriasis who achieved 75% clearance was only moderate (46%), which could have been due to the short duration of the EHT or to the insensitivity of SAPASI with regard to a mild disease state. Psoriasis in general requires more than 2 weeks of any phototherapy to achieve alleviation. As reported by Wahl et al. (6) in a similar setting, the SAPASI was still significantly reduced after 3 months. The initial PO-SCORAD score reported here (36.8) and its improvement after 3 months are in agreement with the results presented earlier by Autio et al. (4).

Patient education as an adjunct to treatment is a novel element in the long-term treatment of chronic skin diseases. Teaching in self-care, peer-to-peer support, workshops, relaxation practice and multidisciplinary discussion groups have been shown to improve the HRQoL of such patients (14). The new EHT combines these methods with traditional heliotherapy. During an EHT course the patients are away from their homes and jobs and in a stress-free environment together with peers. Since at least 5 of the questions in DLQI are related to home environment, work and personal relationships, DLQI scores immediately after returning home must be interpreted with caution. The challenge of EHT is how to maintain the effects in the long term after returning to normal life (6).

There are certain limitations in the study design, such as the lack of a control group. To demonstrate the superiority of EHT compared with HT, the patients should be randomized to receive either traditional HT or EHT. This is difficult, since the new EHT model has become a routine practice. There is also no long-term DLQI data from past traditional HT courses arranged in the Canary Islands to compare these new results. Empowerment can be assessed with novel tools, such as the Health Education Impact Questionnaire (heiQ) measuring illness perception, self-management and coping (6), but unfortunately these were not commonly used in dermatology when we were planning the present study. Our primary focus was to demonstrate how empowerment methods and alleviation of disease severity improve HRQoL, which we consider the most important end-point. The season of EHT or sun exposure time did not seem to affect the outcomes during EHT, but drug adjustments were allowed during the 3-month follow-up, which might have had an effect on outcomes.

ACKNOWLEDGEMENTS

The authors thank the Finnish Psoriasis Association and the Finnish Central Organisation for Skin Patients for their collaboration. The work was supported by Competitive State Research Financing from the Expert Responsibility Area of Tampere University Hospital.

The authors declare no conflicts of interest.

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