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INVESTIGATIVE REPORT

Hypnosis and Alopecia Areata: Long-term Beneficial Effects on Psychological Well-being

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Although there often exists important psychological comorbidity in patients with alopecia areata, few studies have investigated the role of psychotherapeutic interventions. The aim of this prospective cohort study was to investigate the long-term evolution of psychological symptoms in twenty-one patients with refractory alopecia areata. Patients received 10 individual sessions of hypnosis during an approximate 6-month period. Before treatment, patients presented a pathological psychological comorbidity. After treatment, a significant amelioration of alexithymia, anxiety, depression and mental well-being was observed. These improvements were maintained up to 6 months after the end of treatment. Important limitations of this study include the recruitment of highly motivated patients and a non-controlled study design. In summary, hypnotherapy may be effective for significantly improving and maintaining psychological well-being and quality of life in patients with refractory alopecia areata. ***Key words: alopecia areata; hypnosis; HRQOL; alexithymia.***

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Alopecia areata (AA) is a T-cell mediated autoimmune disease of the hair follicle (1). Its relationship with stress is not fully understood, but some personality factors may enhance disease susceptibility. Research data show that patients with AA present higher scores for alexithymia, a personality construct involving difficulties in identifying and recognising emotions (2). Elsewhere, findings from several studies (3–5) show an important impact of AA on the psychological well-being of patients, resulting in significant anxiety and depression.

In contrast to the extensive research on the effects of conventional therapies for AA, only three small studies have investigated the use of psychopharmacological treatments (6–8). Data on the psychotherapeutic managements of AA are even more lacking. Indeed, no good evidence-based studies have been performed (4).

Recently, in a research letter (9), we presented the preliminary results of a prospective cohort study into the use of hypnosis combined with self-hypnosis (without any other form of treatment) in patients with refractory forms of AA. Patients were compared with other AA patients with similar baseline characteristics receiving only standard AA treatment. Our data showed that treatment with hypnosis produced significantly beneficial effects on psychological well-being (9).

In the present study, we present the results of following up our treatment group 6 months post-hypnosis in order to find out whether the psychological improvements were maintained. We describe the long-term evolution of patients treated with hypnosis in terms of quality of life, psychological well-being and alexithymia status.

METHODS

Patients

The study was performed between September 1, 2006 and August 30, 2009 at the Outpatient Clinic of the Department of Dermatology of Universitair Ziekenhuis Brussel and in the private practice of the first author. All patients newly referred for AA and willing to attend a psychosomatic dermatology consultation were considered for enrolment in the study, according to the following inclusion criteria: a) age between 18 and 70 years; b) current diagnosis of AA (with more than 30% hair loss), alopecia totalis (AT) or alopecia universalis (AU); c) absence of actively growing hairs; d) minimal AA duration of 3 months; e) failure of conventional AA treatment; f) no local AA treatment in the preceding 4 weeks; g) no systemic AA treatment in the preceding 6 months; and h) no psychopharmacological treatment or form of psychological counselling in the previous 6 months. All patients gave written informed consent. The study protocol was approved by our local ethical committee and by our institutional review board.

Evaluations

The following parameters were evaluated using several questionnaires (see below): alexithymia, psychological well-being and quality of life. All questionnaires were completed before treatment was started (T1), at the end of hypnosis treatment (T2), and at 6 months follow-up (T3). At T1, motivation for treatment was evaluated using a visual analogue scale (range: 0, no motivation to 10, maximum motivation). At each consultation, patients were asked to report the frequency of daily self-hypnosis, performed at home between the hypnotherapy sessions.

Questionnaires

The Toronto Alexithymia Scale-20 (TAS-20) (10) is the most widely used tool for measuring alexithymia. It comprises a 20-item self-report scale with a three-factor structure congruent with the alexithymia construct: difficulty in identifying feelings (e.g. "Often I do not know my feelings"), difficulty in describing feelings (e.g. "It is difficult for me to find words for my feelings "), and externally oriented thinking (e.g. "I do not like to talk with others about their feelings, I prefer talking about their daily activities"). Subjects are asked to respond on a 5-point scale, rating the extent to which they agree or disagree with each statement. The results are expressed as the TAS-20 global score, as well as three subscale scores. The TAS-20 score ranges from 20 to 100; subjects scoring 61 or more are considered alexithymic, and those scoring 51 or less non-alexithymic. Patients obtaining scores between 51 and 61 are classified as borderline alexithymic (10).

The Symptom Check List-90 (SCL-90) (11) evaluates a broad range of psychological problems and symptoms of psychopathology. It measures eight different psychological symptoms: agoraphobia, anxiety, depression, somatisation, insufficiency in thinking and behaving, paranoid ideation and interpersonal sensitivity, hostility and sleep problems. The sum of the scores on these subscales yields a global severity index. The SCL-90 instrument is designed to provide an overview of the patient's symptoms and their intensity at a specific point in time, but at the same time it can also be used to measure patient progress and/or treatment outcomes. Previous studies (12, 13) have demonstrated the reliability, validity and usefulness of this instrument.

The SF-36 (version 2.0) general health survey is a well-validated, generic widely used questionnaire for assessing health-related quality of life (HRQOL) (14). It is considered the generic "questionnaire of choice" in dermatology (15). It consists of eight scales: physical functioning, social functioning, role limitations caused by physical problems, bodily pain, general mental health, role limitations caused by emotional problems, vitality and general health perception. For each scale, a score from 0 to 100 is calculated, with higher scores indicating a better quality of life. Weighted combinations of the scores on the eight scales can be used to calculate two summary scores: the Physical Component Summary (PCS) and the Mental Component Summary (MCS). The summary scores are converted to standardised T scores with an overall mean of 50 and a standard deviation of 10. A summary score of 50 (SD 10) reflects the average quality life in the general population. Accordingly, the SF-36 has proven useful in surveys of general and specific populations, comparing the relative burden of diseases, and in differentiating the health benefits produced by a wide range of different treatments.

Skindex-17, a reduced version of Skindex-29, is a dermatology-specific HRQOL instrument. It retains the excellent properties of the original Skindex-29 and has been psychometrically validated in heterogeneous groups of dermatology patients (16). It consists of both psychology- and symptom-related items, which are used to calculate separate psychosocial and symptom scores. The psychosocial score (range 0–24) is categorised as "little impairment" (0–4), "moderate impairment" (5–9) and "high impairment" (10–24), whereas the symptom subscale (range 0–10) categorises patients according to number of symptoms: "few" (0–4) or "a lot" (5–10). Skindex-17 is considered to be a promising new instrument in the field of dermatology (17).

Hypnotherapeutic approach

After one introductory session aimed at explaining the rationale of the treatment, patients received 10 different individual sessions of hypnotherapy. Each session lasted one hour and included a short discussion on patient-specific topics, such as family or work stress, quality of sleep, and the psychological consequences of the disease, such as feeling ashamed, having low self-esteem, being anxious in public places ... Next, a 40-minute manual-based hypnosis session was performed, each time following a standardised protocol. The first two sessions focused on learning hypnotic relaxation and on the learning of self-hypnosis. From the third session onwards, patients received a variety of suggestions during hypnosis to improve their self-esteem. Suggestions were also aimed at decreasing the negative psychological consequences of the disease, such as feeling ashamed and being anxious in public places.

Patients received a self-hypnosis CD (lasting approximately 20 min) and were asked to perform exercises on a daily base.

For more details on this manual-based treatment, please refer to Willemsen & Vanderlinden (18).

Statistical analysis

Statistical analyses were conducted using SPSS version 16.0 for Windows (SPSS Inc., Chicago, IL).

Our basic aim was to explore the effects of "time" (prolonged follow-up duration) on all potentially relevant outcomes, measured and reported in our previous preliminary study (9). We did not focus on one single primary outcome.

On this basis, we first conducted a single overall multivariate analysis of variance (MANOVA) with repeated measurements using all outcomes ("total rating scale scores" for TAS-20, SCL-90, SF-36 Physical Quality of Life, SF-36 Mental Quality of Life, and Skindex-17 dermatologic quality of life), measured together at the three different time points. Differences between two individual time points were identified in post-hoc analyses (Bonferroni-adjusted pair-wise comparisons).

We next assessed the effects of "time" for each outcome separately using ANOVA for repeated measures, with "time" as the independent variable and each "total rating scale score" as the dependent variable. Whenever an ANOVA identified a significant effect of "time" ($p < 0.05$), we further tested differences between two individual time points in post-hoc analyses (Bonferroni-adjusted pair-wise comparisons).

To assess the importance of our findings, we separately calculated partial eta squared (ANOVA) and Cohen's d (post-hoc pair-wise comparisons) effect size statistics for each dependent variable. Partial eta squared effect size statistics indicate the proportion of variance in the dependent variable that is explained by the independent variable. Values can range from 0 to 100%. Cohen's d effect size statistics present differences between groups in terms of standard deviation units. To interpret the strength of the different effect size statistics, the following guidelines have been proposed (19, 20): 1% = small, 6% = moderate and 14% = large for partial eta squared (% of variance explained); and 0.2 = small, 0.5 = moderate and 0.8 = large for Cohen's d (standard deviation units).

RESULTS

Twenty-four patients were included in the study. Three patients dropped out after 2–4 sessions, one because of lack of motivation and the other two due to failure to concentrate while listening to the audiotape for self-hypnosis. Twenty-one patients completed the follow-up assessments performed at the end of treatment (T2) and 6 months later (T3) and were included in our analyses. Their demographic and clinical characteristics are summarised in Table I. The mean age of these patients was 41.95 years (SD 13.79) and mean duration of illness

46.6 months (SD 51.2). The majority of patients presented severe, longstanding AA. Before treatment, the mean score for anxiety and depression fell in the high pathological range (Table II legend), while the mean score for quality of life was lower than the standard score for a normal population. The mean baseline (T1) score for motivation was 8.3 (SD 1.2).

The rating scale scores observed at baseline (T1), at the end of hypnosis treatment (T2), and at 6 months follow up (T3) are presented in Table II.

The overall MANOVA with repeated measures using all outcomes ("total rating scale scores" for TAS-20, SCL-90, SF-36 Physical Quality of Life, SF-36 Mental Quality of Life, and Skindex-17 dermatologic quality of life), measured together at the three different time points, showed a highly significant effect of time when considering all 3 time points. No difference was observed when comparing T2 with T3, however, indicating that the improvements obtained at the end of hypnotic treatment (time point T2) were maintained 6 months later (time point T3).

ANOVA with repeated measures conducted separately for each outcome confirmed these findings. Analyses of the SCL-90 scores (11) showed improved scores for many of the parameters at both T2 and T3 compared to T1 (Table II). The patients recorded – besides a significant decrease in the total SCL-90 Total score – significant decreases in scores on the subscales measuring anxiety, depression and sensitivity (Table II). These results indicate that the improvements in psychological well-being persisted until 6 months after treatment. Moreover, four additional SF-36-HRQOL parameters, one for the physical HRQOL (General Health) and three for the mental HRQOL (Vitality, Role emotion and Mental Health), corroborated the scores in the SCL-90 and showed that the patients continued to report a better quality of life 6 months after the end of their treatment (T3). Equally interesting, scores in the TAS questionnaire improved significantly from baseline (T1 versus T3), suggesting a significant decrease in alexithymic characteristics in this patient group at T3. We found no statistically significant differences between T2 and T3 for any of the scores, indicating that all improvements persisted to the 6-month follow-up appointment.

Table II also presents assessments of the importance of our findings, formally quantified by partial eta squared and Cohen's d effect size statistics. Using the commonly applied guidelines proposed by Cohen for interpreting the partial eta squared statistic (1% = small, 6% = moderate and 14% = large (% of variance explained)), our results suggest a large-to-very large effect for the TAS-20, all but two items in the SCL-90, all items in the SF-36 Mental Quality of Life, and all items in the Skindex-17 (Table II). For the SF-36 Physical Quality of Life, on the other hand, only General Health showed a large effect. Post-hoc pair-wise comparisons using Cohen's d effect size statistic showed a moderate-to-large effect (0.2 = small, 0.5 = moderate and 0.8 = large) for TAS-20, SCL-90 (depression), and for most SF-36 Mental Quality of Life scores at T2 and T3 compared to T1 (see Table II).

The mean frequency of self-hypnosis, scored by patients, was 4.5 times a week (SD 1.6).

Table I. *Baseline (T1) patient characteristics (*n = *21)*

Variable	
Age, years, mean ± SD	41.95 ± 13.79
Gender, *n* (%)	
Female	16 (76)
Male	5 (24)
Alopecia areata type, *n* (%)	
Patchy alopecia areata	7 (33)
Ophiasis	3 (14)
Alopecia totalis	6 (29)
Alopecia universalis	5 (24)
Hair loss, *n* (%)	
30–49%	3 (14)
50–74%	3 (14)
75–99%	7 (33)
100%	8 (39)
Duration of actual outbreak, *n* (%)	
3–12 months	6 (29)
13–24 months	3 (14)
2–5 years	3 (14)
>5 years	9 (43)

SD: standard deviation.

DISCUSSION

In our previously published prospective cohort study, we compared the psychological and clinical evolution of patients with longstanding AA treated with hypnosis, to those of control patients with the same characteristics (9). Our data showed that patients with refractory and/or longstanding AA demonstrated an important psychiatric comorbidity, a finding in line with other observations (3–5). Secondly, we demonstrated that a manualised hypnotherapeutic approach, comprising 10 individual sessions and lasting for about 6 months, can significantly improve the psychological well-being of AA patients (9).

In the current study, we evaluated all patients treated with hypnosis 6 months post-treatment to assess whether the psychological improvements were maintained. The strength of the current study lies in the fact that it consists of a 6-month follow-up and involves the use of several representative questionnaires measuring specific psychological outcomes including alexithymia, as well as the most appropriate generic instruments, and Skindex-17, a promising new dermatology-specific HRQOL instrument (17). The results obtained at the 6-month follow-up are consistent with our preliminary data (9). Most importantly, our follow-up data clearly show that the positive changes in global psychological functioning and quality of life are maintained at 6 months post-treatment.

Table II. *Effects of treatment on scores for the different parameters at the three time points (*n = *21)*

	Rating scale scores			ANOVA			T1 vs. T2*		T1 vs. T3*	
Parameter	T1: Start Mean (SD)	T2: End of treatment Mean (SD)	T3: 6-month follow-up Mean (SD)	ANOVA F	*p*-value	Partial Eta squared (%)	*p*-value	Cohen's d	*p*-value	Cohen's d
TAS-20: alexithymia[a]										
TAS-20	**50.10 (11.28)**	**43.76 (11.41)**	**41.52 (9.28)**	**9.17**	**0.002**	**49**	**NS**	**0.56**	**0.001**	**0.83**
SCL-90: Psychological well-being[b]										
SCL-90 Total	**145.19 (40.05)**	**124.57 (49.39)**	**125.48 (34.51)**	**10.21**	**0.001**	**52**	**0.001**	**0.46**	**0.01**	**0.53**
SCL-90:										
Depression	28.33 (8.33)	22.62 (6.96)	22.86 (6.25)	7.54	0.01	44	0.001	0.74	0.01	0.74
Anxiety	16.10 (5.66)	14.00 (5.40)	13.95 (5.53)	8.14	0.01	46	0.01	0.38	0.01	0.38
Agoraphobia	8.81 (3.01)	7.95 (1.96)	7.90 (1.55)	2.28	NS	19	NS	0.34	NS	0.38
Somatisation	18.57 (6.51)	16.10 (6.07)	16.57 (5.25)	3.55	0.05	27	0.05	0.39	NS	0.34
Insuffic T B	16.00 (4.95)	13.76 (5.63)	14.33 (5.01)	4.19	0.05	31	0.05	0.42	NS	0.34
Sensitivity	30.38 (10.01)	26.48 (9.91)	25.52 (9.38)	11.58	0.001	55	0.001	0.39	0.001	0.50
Hostility	7.95 (2.06)	7.76 (2.57)	7.95 (9.94)	0.11	NS	1	NS	0.03	NS	0.00
Sleep	5.29 (2.19)	4.81 (2.29)	5.05 (1.99)	0.92	NS	9	NS	0.22	NS	0.12
SF-36: Physical Quality of Life[c]										
SF-36 Physical Sum	**52.16 (7.30)**	**51.30 (8.23)**	**51.52 (11.01)**	**0.27**	**NS**	**3**	**NS**	**0.11**	**NS**	**0.07**
SF-36:										
Phys Funct	51.12 (6.64)	51.82 (7.28)	51.32 (8.60)	0.30	NS	3	NS	0.10	NS	0.03
Role Phys	47.76 (6.64)	48.81 (6.39)	48.46 (10.02)	0.23	NS	2	NS	0.16	NS	0.08
Bodily Pain	49.56 (11.51)	52.04 (10.11)	52.58 (10.51)	1.03	NS	10	NS	0.23	NS	0.27
Gen Health	44.53 (10.14)	49.54 (9.39)	51.19 (7.27)	8.09	0.01	46	0.01	0.51	0.01	0.75
SF-36: Mental Quality of Life[c]										
SF-36 Mental Sum	**39.74 (9.63)**	**50.50 (10.43)**	**49.41 (7.72)**	**18.47**	**0.001**	**66**	**0.001**	**1.07**	**0.001**	**1.11**
SF-36:										
Vitality	48.51 (7.6)	56.55 (6.81)	53.28 (9.23)	13.26	0.001	58	0.001	1.11	NS	0.56
Soc Funct	45.69 (9.84)	49.84 (10.37)	48.54 (10.86)	3.29	NS	26	NS	0.41	NS	0.28
Role Emot	39.41 (10.65)	49. 26 (7.92)	49.22 (7.98)	10.31	0.001	52	0.001	1.05	0.001	1.04
Mental Health	41.17 (7.96)	49.60 (8.65)	49.47 (5.74)	23.08	0.001	71	0.001	1.01	0.001	1.20
Dermatology-specific quality of life[d]										
Skindex-17 Total	**11.19 (8.24)**	**7.81 (6.06)**	**5.90 (5.07)**	**4.96**	**0.05**	**34**	**0.05**	**0.47**	**0.01**	**0.77**
Skindex-17										
Symptom	2.33 (2.50)	1.33 (1.62)	1.05 (1.36)	3.73	0.05	28	0.05	0.47	NS	0.64
Psychosoc	8.86 (6.71)	6.48 (5.48)	4.81 (4.39)	4.81	0.05	34	NS	0.39	0.05	0.71

[a]TAS-20: Toronto Alexithymia score, as described by Taylor et al. (10), with TAS-20 scores of less than 51, between 51 and 61, and greater than 61 corresponding to no alexithymia, borderline alexithymia, and alexithymia, respectively.

[b]SCL-90: Symptom Check List-90 (11). Dutch norm scores: mean total: 108–115 (m), 117–129 (w); agoraphobia: 7 (m and w); anxiety: 11 (m), 13 (w); depression: 18–20 (m), 21–22 (w); somatisation: 15 (m), 16–18 (w); insufficiency T B: 12 (m), 13–14 (w); interpersonal sensitivity: 23–24 (m), 23–26 (w); hostility: 6 (m and w); and sleep problems: 3 (m), 4 (w).

[c]SF-36: Short-form general health survey (14). PCS: Physical Component Summary. MCS: Mental Component Summary. A summary score of < 50 reflects a lower average quality life than the general population.

[d]Skindex-17: dermatology-specific HRQOL instrument (16). Psychosocial scores (range 0–24) is categorised as "little impairment" (0–4), "moderate impairment "(5–9) and "high impairment" (10–24). Scores on the symptom subscale (range 0–10) are categorised as "few" (0–4) and "a lot" (5–10). Sum scores are indicated in bold.

*P values for post-hoc Bonferroni- adjusted pair-wise comparisons as implemented for ANOVA in SPSS version 16.0 for Windows (SPSS Inc., Chicago, IL). T: time; NS: non significant; S: significant; m: men; w: women; insuffic T B: insufficiency in thinking and behaving; SD: standard deviation.

Nevertheless, this study has some important limitations. First, our sample comprised only 21 patients. Second, it may not be representative of all AA patients. Almost all the patients in this study had longstanding, refractory AA. Hence, this group may, as a whole, experience more psychological complaints such as anxiety and depression than other groups of AA patients. Moreover, patients recruited to this study were referred by their dermatologist and were highly-motivated to receive psychotherapy. They showed good compliance and performed their self-hypnosis efficiently. Hence, our patient sample may not be fully representative of the AA population in general. It would therefore be inappropriate to generalise our findings to all AA patients. Third, our prospective study lacked a control group, meaning that we can not exclude the possibility that other factors, including non-specific therapeutic factors such as... may have influenced the outcome. And finally, since no other studies have investigated the impact of psychotherapy on AA, we cannot compare the effectiveness of hypnosis and self-hypnosis with other mind-body techniques such as relaxation or meditation.

The limitations of this study dictate the need for a repeat study involving a larger sample group and a randomised controlled trial design.

Although HRQOL has become a standard in assessing the results of health care interventions and clinical trials, HRQOL in AA is in its early stages. Almost no data are available for HRQOL in AA (21). Gulec et al. (22) obtained lower scores for two of the SF-36 Mental Quality of Life subscales in patients with AA compared to controls. Nijsten et al. (16), meanwhile, tested Skindex-17 in AA patients. Although we observed, in this study, a global improvement in Skindex-17 parameters, including symptom-related items, no changes were observed in most SF-36 Physical Quality of Life subscale scores.

It is surprising that the mean alexithymia score decreased significantly between T1 and T3. In 3 and 4 patients, respectively, we observed a shift from high (> 61) or borderline (> 51) pathological scores to normal values at T3 (individual data not shown). In general, alexithymic patients respond poorly to insight-oriented forms of psychotherapy (10). Also the use of hypnosis in alexithymia is a challenge. On the one hand, alexithymia is characterised by reduced capacity for imagery activity, while on the other hand, the therapeutic potential of eliciting mental images might be an interesting approach to treating people who are alexithymic. Recently, a randomised controlled study demonstrated the effectiveness of intervention involving hypnotic imagery in alexithymic subjects (23), supporting the findings of our study.

Overall, the results of this study suggest that longstanding and/or severe forms of AA have important psychological consequences and lead to significant reductions in quality of life. For this reason, it seems useful to combine conventional treatment with psychotherapy. Future studies must focus on comparing different treatments for AA, for example the combination of antidepressant drugs and hypnosis with hypnosis alone. Their ultimate goal should be to identify the "treatment of choice" for tackling the severe psychological consequences of longstanding AA.

The authors declare no conflict of interest.

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