Acta Derm Venereol 2013; 93: 442–445

CLINICAL REPORT

Treatment Patterns, Treatment Satisfaction, Severity of Disease Problems, and Quality of Life in Patients with Psoriasis in Three Nordic Countries

Gunnel RAGNARSON TENNVALL[1], Catharina HJORTSBERG[1], Anton BJARNASON[2], Robert GNIADECKI[3], Hannele HEIKKILÄ[4], Gregor B. E. JEMEC[5], Knud KRAGBALLE[6], Iben M. MILLER[5] and Åke SVENSSON[7]

[1]IHE, The Swedish Institute for Health Economics, Lund, Departments of [2]Dermatology, Sahlgrenska University Hospital, Gothenburg, Sweden, [3]Bispebjerg Hospital, Copenhagen, Denmark, [4]University Hospital of Helsinki, Helsinki, Finland, [5]Roskilde Hospital, Roskilde, [6]Aarhus University Hospital, Aarhus, Denmark and [7]Skåne University Hospital, Malmö, Sweden

Biological drugs are expensive, but can reduce symptoms and increase quality of life for patients with psoriasis. The aim of this study was to examine quality of life, disease severity and treatment satisfaction in Danish, Finnish and Swedish patients with psoriasis. Based on 12 months' data from patient surveys and chart reviews, 3 treatment groups were identified: topical, systemic and/or biological <12 months, and biological for 12 months. Regression analyses were performed to investigate influence on treatment satisfaction, disease problems and quality of life. Patients treated with biological drugs for 12 months showed the highest treatment satisfaction and the lowest Dermatology Life Quality Index score. A number of patients with topical treatment reported low quality of life, severe or very severe disease problems, and low treatment satisfaction. Some patients with psoriasis may be under-treated and might benefit from a more aggressive treatment strategy. It is important, however, that resource utilization is optimized and patients are not treated with more advanced agents than necessary. ***Key words: psoriasis; quality of life; biological treatment.***

Accepted Aug 22, 2012; Epub ahead of print Nov 7, 2012

Acta Derm Venereol 2013; 93: 442–445.

Gunnel Ragnarson Tennvall, IHE, The Swedish Institute for Health Economics, PO Box 2127, SE-220 02 Lund, Sweden. E-mail: grt@ihe.se

Psoriasis is a chronic immune-mediated disease that appears on the skin. It can occur at any age in both men and women and affects approximately 3% of the populations in the Nordic countries (1). Psoriasis has been shown significantly to influence patients' health-related quality of life (HRQoL) (2). As yet, there is no cure for psoriasis, but a range of topical, systemic and ultraviolet light-based treatments are available that can control and temporarily eliminate the symptoms of the disease. In recent years several new treatment options of systemic agents have been introduced for patients with psoriasis. For example, a number of biological drugs are now available as a complement or a substitute for traditional systemic treatment. The total healthcare costs for treatment of severe psoriasis with biological drugs are significantly greater than with other systemic therapy (3). However, some of these costs are offset by substantial reductions in inpatient care and light-treatment and result in improved patient outcome. It is therefore important that biological drugs are provided only for those patients who really need this type of treatment and who will benefit most. One important issue from a health-economic perspective is how different aspects related to quality of life (QoL) and patient experience are associated with treatment pattern.

According to treatment guidelines, the indications for treatment with biological drugs are similar in Denmark, Finland and Sweden. These drugs should be given to patients with moderate-to-severe psoriasis who have not responded to other systemic treatment or light treatment, or have a contraindication for such treatments (4–6).

The aim of the present study was to examine HRQoL, experience of severity of psoriasis-related problems, and treatment satisfaction in patients with psoriasis in Denmark, Finland and Sweden, and to analyse how these factors vary across different treatment groups.

MATERIALS AND METHODS

The study is based on 12 months' data from patient surveys and retrospective medical chart reviews performed in Denmark, Finland and Sweden. Inclusion criteria were patients with plaque psoriasis, patients with both plaque psoriasis and psoriasis arthritis, a signed informed consent, and age between 18 and 75 years. The only exclusion criterion was patients who participated in a clinical trial at the time of the study. Patients were identified from local registers in each clinic if they had the diagnosis code of psoriasis. All patients who had been treated at the clinic during a specified period were identified and consecutively selected backwards until a specified number of patients for each country had been identified. The patient survey with questions covering a 12-month period was then sent to the identified patients. For those who answered the survey and gave their informed consent to participate, additional data for the same 12-month period were collected from patient records by the participating physicians. Permission to perform the study was obtained from ethics committees in Finland and Sweden, but was not necessary in Denmark because it was classified as a non-biomedicine study.

The patient survey included questions about treatments, present state of health, presence of psoriasis problems, severity of

problems, problems with present treatment, treatment satisfaction and two QoL instruments, the generic EuroQol (EQ-5D) and the dermatology-specific Dermatology Life Quality Index (DLQI). The chart review performed by a physician from each participating centre covered information about patient characteristics and treatment.

The time for the data collection differed between the 3 countries, with the Swedish study performed in the third quarter of 2008, the Finnish study in the first quarter of 2009, and the Danish in the third quarter of 2010. Six dermatology clinics, 3 Danish, 1 Finnish and 2 Swedish centres, participated. Some results from the Finnish and Swedish investigations have been reported previously, as well as details about the methods for data collection (7). The number of included patients was rather few in some treatment groups and the distribution of patients across the interventions differed between the 3 countries. For the present analyses the data from the 3 countries were pooled to provide reasonable subgroup samples and offer possibilities to investigate the potential influence of treatment pattern.

For analysis of treatment patterns, the following 3 groups were identified: topical treatment including emollients and topical corticosteroids; systemic drugs and/or biological drugs for less than 12 months; and biological drugs for the whole 12-month period.

Patients treated with topical corticosteroids could also have been treated with emollients and vitamin D analogues, and patients treated in any of the groups with systemic and/or biological drugs could also have used emollients and topical corticosteroids. Patients could even have been prescribed different types of light treatment and/or climate therapy.

Statistical analyses

In comparisons, Mann-Whitney *U* tests were used for dichotomous or dummy variables, and *t*-tests were used for quantitative variables. To test for a relationship between EQ-5D and DLQI, data were analysed using Pearson's correlation coefficient. Tests were two-sided.

Multiple regression analyses were performed to identify factors that have an influence on, or could best explain, the dependent variables treatment satisfaction and QoL scores measured with DLQI and EQ-5D. A significance level of 5% was used, together with maintaining the adjusted R^2 as criteria for selection of variables that could best explain changes in the dependent variable. Dummy variables were coded 1 where a condition was present and 0 for all other values.

RESULTS

In total, 404 responding patients were included in the analyses, 131 from Denmark, 110 from Finland and 163 from Sweden. The response rate in the patient survey was 57%, varying from 53% in Sweden to 65% in Denmark. Patient characteristics are shown in Table I.

The patient populations from the 3 countries were similar regarding age and sex distribution. Danish patients have had their psoriasis diagnosis slightly longer than both Finnish and Swedish patients. In addition, the proportion of Danish patients with both plaque psoriasis and psoriasis arthritis was significantly higher (33%) than in Finland (18%) and Sweden (11%). The reported frequency of other chronic diseases was significantly lower among Swedish than among Finnish or Danish patients. Cardiovascular disease was the most common chronic comorbidity in all 3 countries.

Patients in Denmark were, to a higher degree, treated with biological drugs compared with Finnish and Swedish patients, while topical treatment was the most common treatment among Finnish and Swedish patients. The distribution of the different treatment groups is shown in Table II. In Denmark only 1% of patients were treated with emollients only, while 10% in Finland and 23% in Sweden had received this single drug treatment (data not shown). In Denmark 45% had received biological drugs during the whole 12-month period, while in Finland and Sweden 4% and 6% had received such treatment, respectively.

Patients who had received light treatment were less frequent in Denmark, where only 11% had received such treatment during the last 12 months in comparison with 44% in Finland and 45% in Sweden. Climate therapy was slightly more common in Denmark, where 8% had received this type of treatment compared with 3% in Finland and 1% in Sweden (data not shown).

The highest treatment satisfaction, 8.2 on a scale on which 0 represented not at all satisfied and 10 very satisfied, was found in patients who had been treated with biological drugs for 12 months. In this group the highest frequency (75%) of experience of no or mild psoriasis problems was found (Fig. 1). Moderate disease-related problems were most common in patients who had received topical treatment only (36%) and in patients who had been treated with non-biological systemic agents and/or biological drugs for less than 12 months (37%). Both these groups reported severe or very severe problems in 19% compared with 4% of patients treated with biological drugs for 12 months.

Table I. *Patient characteristics and baseline information*

Variables	Denmark ($n=131$)	Finland ($n=110$)	Sweden ($n=163$)	All patients ($n=404$)	p-value
Male, *n* (%)	85 (65)	65 (59)	108 (66)	258 (64)	n.s.[a,b,c]
Age, years, mean (range)	50 (19–77)	53 (26–75)	51 (22–76)	51 (19–77)	n.s.[a,b,c]
Time since diagnosis, years, mean (range)	23 (1–70)	20 (2–65)	18 (2–71)	20 (1–71)	$p<0.05$[a,b], n.s.[c]
Plaque psoriasis, *n* (%)	87 (66)	89 (82)	145 (89)	321 (79)	
Plaque psoriasis+psoriasis arthritis, *n* (%)	43 (33)	19 (18)	18 (11)	80 (20)	$p<0.05$[a,b], n.s.[c]
Other chronic diseases, *n* (%)[d]	60 (46)	61 (55)	58 (36)	179 (44)	n.s.[a,b], $p<0.05$[c]
Cardiovascular disease, *n* (%)	29 (22)	42 (38)	22 (13)	93 (23)	$p<0.05$[a,c], n.s.[b]

[a]Difference between Denmark and Finland; [b]Difference between Denmark and Sweden; [c]Difference between Finland and Sweden. [d]Other chronic diseases were cardiovascular disease, malignant disease, collagenosis or other joint disease, asthma or chronic obstructive lung disease, diabetes, kidney disease, or other chronic disease (not specified). Difference between groups: n.s.: non-significant.

Table II. *Treatment pattern of psoriasis for 12-month period*

Treatment group	Denmark (*n*=131) *n* (%)	Finland (*n*=110) *n* (%)	Sweden (*n*=163) *n* (%)	All patients (*n*=404) *n* (%)
Topical treatment	21 (16)	60 (54)	104 (64)	185 (46)
Systemic (not biological), systemic & biological <12 months, or biological <12 months	51 (38)	46 (42)	49 (31)	146 (36)
Biological 12 months	59 (45)	4 (4)	10 (6)	73 (18)

The lowest mean score, 0.74 measured with EQ-5D, was found in patients treated with non-biological systemic agents and/or biological drugs for less than 12 months (Fig. 2). However, there was no statistically significant difference in EQ-5D scores between the 3 treatment groups. For patients treated with biological drugs during the whole 12-month period the mean DLQI score was 3.2 (Fig. 2). This figure was statistically significant in comparison with the other 2 groups ($p<0.000$).

There was a statistically significant negative correlation (–0.503; $p=0.01$) between the EQ-5D score and the DLQI score; thus, the higher impact the disease has on the patient's life (DLQI), the lower the EQ-5D value (Fig. 3).

The results from the regression analyses or identification of variables that have an influence on or can explain treatment satisfaction and QoL scores measured by DLQI and EQ-5D are shown in Table SI (available from http://www.medicaljournals.se/acta/content/?doi=10.2340/00015555-1485). In the 3 regression models, severe or very severe disease was a statistically significant factor. Treatment with biological drugs for 12 months was statistically significant regarding changes in values for treatment satisfaction and DLQI scores, but not for changes in EQ-5D scores. Disease severity and presence of co-morbidity were factors that had a statistically significant influence on EQ-5D scores as well as treatment satisfaction and presence of psoriasis arthritis.

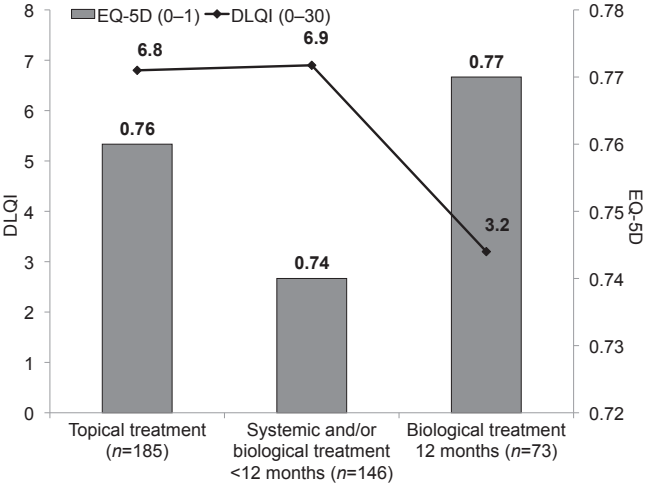

Fig. 2. Mean health-related quality of life scores in different treatment groups (*n*=404). DLQI: Dermatology Life Quality Index; EQ-5D: EuroQol.

DISCUSSION

The most important findings from the present study are that patient satisfaction and QoL measured with the dermatology-specific instrument DLQI are related to the type of treatment the patients have received.

The results also show that treatment patterns differed between the 3 Nordic patient populations. A possible explanation for the more frequent use of biological drugs in the Danish study population is that psoriasis arthritis was more common than in the Finnish and Swedish populations. Another possible explanation for the different treatment patterns in the 3 countries could be related to the organization of psoriasis treatment, drug financing and local budget restrictions that limit the actual choice of treatments.

The strength of the present study is that the data collection, with patient questionnaires and review of patient records, was performed in a similar way in 3 Nordic

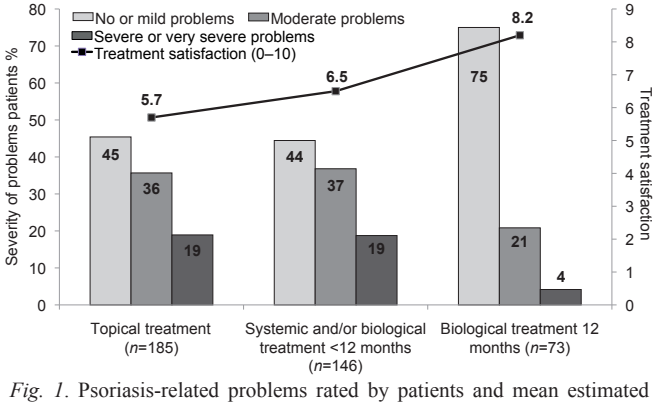

Fig. 1. Psoriasis-related problems rated by patients and mean estimated treatment satisfaction values in different treatment groups (*n*=404).

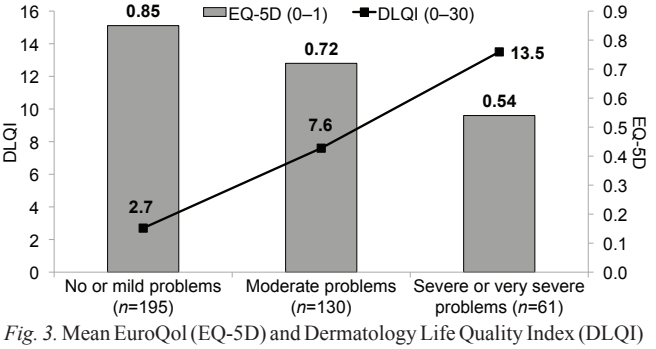

Fig. 3. Mean EuroQol (EQ-5D) and Dermatology Life Quality Index (DLQI) scores in relation to disease problems rated by patients (*n*=386). Missing values from 18 patients.

countries. A limitation might be that the data collection was not completed at the same time in all countries.

In all 3 participating countries a majority of men were included. This corresponds to both the Danish and the Swedish annual register reports, which show that more men were treated with biological drugs and by specialists in dermatology (4, 8). It also corresponds with previous studies, which have reported similar patterns (9, 10). In addition, the age distribution in the present study corresponds with the reports from the registers. We therefore believe that the included patients are representative for psoriasis patients treated in specialist centres in Nordic countries.

In the present study patients with more extensive psoriasis problems had lower QoL, measured as lower EQ-5D values and higher DLQI scores. Treatment satisfaction varied across treatment groups. Patients treated with biological drugs during the whole 12-month period were more satisfied with their treatment, experienced fewer psoriasis-related problems and experienced less severe problems.

The dermatology-specific instrument DLQI appears to be more appropriate than the generic instrument EQ-5D to detect differences in QoL between psoriasis patients in different treatment groups. However, DLQI scores cannot be used for calculation of quality adjusted life years (QALYs), which is an essential outcome measure in health-economic evaluations. It is therefore suggested that both instruments are included in clinical studies to evaluate the cost-effectiveness of different treatment options, especially when new treatment alternatives are introduced.

In addition, QoL measurements may be a useful tool in clinical practice to be able to improve treatment for individual patients and to optimize resource utilization.

In conclusion, some patients treated with topical treatment reported low QoL, were dissatisfied with their treatments, and experienced severe problems due to their psoriasis. For selected patients in this group the condition could probably be improved by more effective treatment. The future challenge of financing healthcare and the introduction of new more expensive drugs may increase demands for more cost-effective treatment options. This could optimize individual treatment choice and contribute to improved QoL, especially among those patients who are currently not treated efficiently due to under-treatment, or might reduce costs among patients who are currently treated with unnecessary advanced therapies.

ACKNOWLEDGEMENTS

Financial support: The study was funded by Janssen-Cilag.

Conflicts of interest: CH was at the time of conducting this study an employee of IHE and is currently an employee of Janssen-Cilag; RG, Investigator/speaker and/or consultant for Abbott, Almirall, Amgen, Janssen-Cilag, MSD, Pfizer; KK, Investigator/speaker and/or consultant for Abbott, Almirall, Amgen, Janssen-Cilag, LEO Pharma, MSD, Pfizer; IMM, PhD student partly financed by LEO Pharma.

REFERENCES

1. Naldi L. Epidemiology of psoriasis. Curr Drug Targets Inflamm Allergy 2004; 3: 121–128.
2. de Korte J, Sprangers M, Mombers F, Bos J. Quality of life in patients with psoriasis: a systematic literature review. J Invest Dermatol 2004; 9: 140–147.
3. Fonia A, Jackson K, LeReun C, Grant DM, Barker JNWN, Smith CH. A retrospective cohort study of the impact of biologic therapy initiation on medical resource use and costs in patients with moderate to severe psoriasis. Br J Dermatol 2010; 163: 807–816.
4. Dermbio. Årsrapport 2008. Annual report for the Danish database initiative for biological treatment of psoriasis in Denmark. 2008 [accessed 29 December, 2011]. Available from: https://dermbio.dk/formidling/Dermbio%20Aarsrapport%202008%20Final.pdf/view.
5. Läkemedelsverket [Medical Products Agency]. [Treatment of psoriasis – treatment guidelines]. Information from Läkemedelsverket 2006; 5: 5–16 (in Swedish).
6. The Finnish Medical Society Duodecim. [Current care guideline on psoriasis and psoriatic arthritis.] Duodecim 2008; 124: 324–346 (in Finnish).
7. Hjortsberg C, Bergman A, Bjarnason A, Heikkilä H, Hjelmgren J, Svensson A, Tennvall GR. Are treatment satisfaction, quality of life, and self-assessed disease severity relevant parameters for patient registries? Experiences from Finnish and Swedish patients with psoriasis. Acta Derm Venereol 2011; 91: 409–414.
8. Schmitt-Egenolf M. (PsoReg, Register for systemic treatment of psoriasis. Annual report for September 2007 – August 2008]. PsoReg, Umeå University, 2008 (in Swedish).
9. Flytström I, Stenberg B, Svensson Å, Bergbrant I-M. Methotrexate vs. ciclosporin in psoriasis: effectiveness, quality of life and safety. A randomized controlled trial. Br J Dermatol 2007; 158: 116–121.
10. Nyberg F, Osika I, Evengård B. "The laundry bag project" – unequal distribution of dermatological healthcare resources for male and female psoriatic patients in Sweden. Int J Dermatol 2008; 47: 144–149.