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Quality of Life in Patients with Chronic Dermatophytosis

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Abstract

Introduction: The term "chronic dermatophytosis" can be described as patients who have suffered tinea infections for more than 6 months, with or without recurrence. Since last few years we are facing an onslaught of chronic and recurrent dermatophytosis. These infections are increasingly becoming debilitating with severe symptoms like itching and increasingly showing lack of response to traditional treatment, hence it has become utmost important to assess impact of dermatophytosis today on quality of life of patients.

Objectives: To determine quality of life in patients with chronic dermatophytosis using Dermatology Life Quality Index (DLQI).

Materials and Methods: Adult literate patients having chronic dermatophytosis which was confirmed by KOH mount were included in the study. History, clinical features and other relevant details were included in a proforma. All patients were asked to fill DLQI questionnaire in Hindi. Controls having disease for less than six months were also included. Data thus obtained was collected and tabulated. The data was analysed using SPSS software and relevant statistical tests were used.

Results: Total number of cases collected were 263, 137 controls were also included. In gender distribution, cases had 71.86% males and 28.14% female while controls had 63.5% males and 36.5% females. Mean DLQI of cases was 14.28+/-5.16 and controls was 11.56+/-3.60. DLQI distribution of cases -162(61.6%) had very large effect, 64(24.33%) had moderate effect, and 32(12.17%) had extremely large effect on DLQI. Domains of Symptoms and feelings (72.67%), work and school related activities (69%) and treatment related problems (67.67%) posed maximum impairment. Quality of life derangement increased significantly with presence of lesions on both exposed and non exposed sites and increase in body surface area.

Conclusion: While superficial dermatophytosis affects quality of life (QoL) in all patients, chronic dermatophytosis has a significantly more derogatory effect on the QoL of a person with some of the patient also showing extremely large effect on QoL.

Key words: Antifungal Agents; Dermatology; Pruritus; Quality of Life

Introduction

Dermatophytes are the most common cause of superficial fungal infections in Indian subcontinent and other tropical countries.[1,2] Over the past few years, dermatophytic infections have become one of the most common infective dermatoses presenting in dermatology OPD throughout country. Recent studies have documented a high prevalence rate of more than 50%.[3] More cases of chronic, recurrent and/or atypical dermatophytosis are coming forth which are unresponsive to treatment.[4,5]

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Health related QoL measurement assesses burden of illness and allows assessment of the outcomes of medical treatment.[6] Evaluation of disease severity should include clinical, psychological and various social factors. A treatment should be considered ineffective until it improves QoL in patients.[7] Due to its high prevalence, widespread dermatophytosis now constitutes a substantial health issue which can have significant negative social, psychological, and occupational health effects and can compromise the quality of life significantly.

In the present hyperendemic scenario for dermatophytoses, QoL measurements should be an integral part of clinical trials conducted to gauge efficacy of a treatment. Literature regarding QoL in dermatophytosis, barring onychomycosis is scarce and none so ever for chronic dermatophytosis.[8,9] Hence this study was planned to determine the QoL in patients having chronic dermatophytosis with the help of DLQI. This study also compares the effect of chronic and non-chronic dermatophytosis on the quality of life of these patients.

Material and Methods

The present cross sectional, observational, case-controlled study was conducted in department of dermatology of a tertiary level teaching hospital from North India during a six months' time period from 15/11/2017 to 14/05/2018. Clinically diagnosed and KOH positive adult literate (in Hindi) patients were included in study. Patients unwilling to participate in study or to undergo investigations and who suffered from other chronic systemic, psychiatric or dermatological illnesses (that can affect quality of life) were excluded. Patients who had suffered a recent serious adverse life event were also excluded on the basis of a semi structured interview. Patients were further divided in two groups- first having illness for more than 6 months i.e. chronic dermatophytosis (cases) and second having illness for lesser duration i.e. non-chronic dermatophytosis (controls). We used convenience sampling and the data regarding basic demographic characteristics like presenting complaints, history, hygiene practices etc was collected. B.G. Prasad scale (revised in 2016) was used to assess socioeconomic status.[10] Modified version of hygiene score given by Turabelidez et al[11] was used. All patients were asked to fill a validated Hindi DLQI questionnaire, which was used after getting permission and analyzed according to instructions given by Finlay and Khan.[12] Institutional ethical committee/review board clearance was obtained prior to commencement of study.

A previous study by Lakshmanan et al reported that the prevalence of dermatophytosis in Indian population was around 20.8%. [13] By using formula for estimating sample size ($n = z^2*p*q/ e2$) the sample size of the present study was 253.[13]

Data were analyzed by using SPSS software (version 20). Student's t-test and analysis of variance were applied for comparison of means and results are expressed, as mean ± SD. *P* value of less than 0.05 at confidence interval of 95% was considered statistically significant. DLQI and domain scores were correlated with various demographic variables.

Results

As per Fig. 1, final analysis was done on 263 patients of chronic superficial dermatophytosis comprising the cases. One hundred and thirty seven age and sex matched patients of non-chronic superficial dermatophytosis constituted the control group (p=0.43 and p=0.086 respectively).

Among chronic dermatophytosis cases, DLQI was significantly affected by the extent and type of body surface area involved. Higher the body surface area involved, more was the effect on QoL. Also, DLQI scores increased significantly among cases having simultaneous involvement of both exposed and unexposed areas (Table-1).

Similar findings were recorded in the control group comprising patients of non-chronic dermatophytosis. Further, control group had significantly higher DLQI scores among patients giving the family history of similar infections. (Table-2).

As per Table-3, the DLQI scores (total as well as domain-wise) were significantly higher among cases compared to controls. Domain wise analysis as per Table 3 showed that majority of patients reported impairments in the domains of symptoms and feelings; work/school and treatment related problems among both the study groups. QoL was affected in all the patients of the present study including both cases and controls. (Table-4).

Table 1: Details of DLQI scores and various parameters in study group

Parameters	Variables	Number (%) N=263	DLQI score (Mean ± SD)	P value
Age group (in years)	18-40	214 (81.37%)	14.01±5.14	0.537
	41-60	46 (17.49%)	15±5.23	
	>60	3 (1.14%)	13.33±0.58	
Gender	Male	189 (71.86%)	14.37±5.30	0.548
	Female	74 (28.14%)	13.96±4.73	
Body Mass Index	<18.5 (Underweight)	44	13.77±5.66	0.884
	18.5-25 (Normal)	161	14.34±5.06	
	>25-30 (Obese)	11	15.00±5.60	
	>30 (Overweight)	47	14.23±4.91	
Socio economic status (BG Prasad, 2016)	Lower	17	14.82±4.39	0.274
	Lower Middle	70	14.84±5.18	
	Middle	71	13.52±5.29	
	Upper Middle	85	14.65±5.03	
	Upper	20	12.60±5.31	
Educational Status	Till 5th standard	51	14.62± 5.70	0.322
	6th-8th standard	35	14.97± 4.76	
	9th-10th standard	37	14.32± 4.54	
	11th-12th standard	72	14.13± 5.43	
	Graduate	14	14.79± 4.76	
	Post graduate	54	13.80± 4.95	
Employment status	Employed	177	14.47± 5.06	0.312
	Unemployed	86	13.79± 5.29	
Marital status	Single	107	14.01± 5.19	0.529
	Married	156	14.41± 5.11	
Residential status	Rural	143	14.02± 4.80	0.73
	Urban	87	14.51± 5.88	
	Urban slum	33	14.58± 4.49	
Family History	Present	167	14.63±5.08	0.243
	Absent	96	13.54±5.22	
Site of involvement	Exposed	3	9.67± 3.79	0.004
	Unexposed	164	13.58± 5.12	
	Both	96	15.53± 4.94	
Body surface area involvement	<10%	46	9.24± 3.51	0.0001
	10-20%	130	12.88± 3.86	
	>20%	87	18.91± 3.70	
Hygiene score	Very good	26	13.04± 5.31	0.123
	Average	217	14.22± 5.11	
	Poor	20	16.15± 4.92	

Table 2: Details of DLQI scores with various parameters in control group

Parameters	Variables	Number (%) N=137	DLQI score (Mean ± SD)	P value
Age group (in years)	18-40	106 (77.4%)	11.70 +/- 3.49	0.63
	41-60	24 (17.50%)	10.92 +/- 3.27	
	>60	7(5.1%)	11.71±6.16	
Gender	Male	87 (63.50%)	11.92±3.64	0.13
	Female	50(36.50%)	10.94±3.49	
Body Mass Index	<18.5 (Underweight)	15 (10.9%)	11.00±4.17	0.65
	18.5-25 (Normal)	83(60.6%)	11.48±3.43	
	>25-30 (Obese)	33(22.1%)	11.73±3.71	
	>30 (Overweight)	6(4.4%)	13.17±4.31	

Socio economic status (BG Prasad, 2016)	Lower	6(4.4)	11.00±3.35	0.99
	Lower Middle	30(21.9%)	11.60±3.72	
	Middle	34(24.8)	11.65±3.32	
	Upper Middle	42 (30.7%)	11.67±3.60	
	Upper	25 (18.2)	11.36±4.15	
Educational Status	Till 5th standard	38 (27.7%)	11.24± 3.64	0.73
	6th-8th standard	27 (19.7%)	11.67± 4.07	
	9th-10th standard	19 (13.9%)	10.74± 3.41	
	11th-12th standard	27 (19.7%)	11.96± 3.29	
	Graduate	21 (15.3%)	12.38± 3.79	
	Post graduate	5 (3.6%)	11.00± 2.65	
Employment status	Employed	90 (65.7%)	12.00± 3.64	0.048
	Unemployed	47 (34.3%)	10.72± 3.42	
Marital status	Single	57 (41.6%)	11.45± 3.66	0.67
	Married	80 (58.4%)	11.72± 3.59	
Residential status	Rural	59 (43.1%)	12.13± 3.61	0.06
	Urban	53 (38.7%)	10.64± 3.53	
	Urban slum	25 (18.2%)	12.16± 3.45	
Family History	Present	78 (56.9%)	12.21±3.53	0.016
	Absent	59 (43.1%)	10.71±3.54	
Site of involvement	Exposed	2 (1.5%)	10.5± 0.71	<0.001
	Unexposed	95 (69.3)	10.81± 3.31	
	Both	40 (29.2%)	13.40± 3.73	
Body surface area involvement	<10%	33 (24.1%)	8.82± 2.51	<0.001
	10-20%	84 (64.3)	11.57± 2.90	
	>20%	20 (14.6%)	16.05± 3.63	
Hygiene score	Very good	29 (21.2%)	11.10± 3.05	0.16
	Average	88 (64.2%)	11.40± 3.54	
	Poor	20 (14.6%)	12.95± 3.35	

Table 3: DLQI scores in study group and control groups

DLQI domains (minimum-maximum scores)	**DLQI scores**				**P value**
	Cases (chronic dermatophytosis)		**Controls (non-chronic dermatophytosis)**		
	Mean±SD	**Percentage (n=263)**	**Mean±SD**	**Percentage (n=137)**	
Symptoms and feelings (0-6)	4.36 +/- 1.34	72.67	4.07+/-1.38	67.83	<0.001
Daily activity (0-6)	2.45 +/- 1.61	40.83	1.93+/- 11.13	32.17	<0.001
Leisure (0-6)	0.99 +/- 1.28	16.50	0.63+/-0.92	10.5	<0.001
Work and school (0-3)	2.07 +/- 1.052	69.00	1.73+/-1.25	57.67	<0.001
Personal relationships (0-6)	2.28 +/- 1.68	38.00	1.59 +/- 1.25	26.5	<0.001
Treatment (0-3)	2.03 +/- 1.1	67.67	1.61 +/- 0.80	53.67	<0.001
Total	14.28±5.16	100	11.56 +/- 3.60	100	<0.001

Table 4: Details of DLQI scores as per banding

	Case		**Control**	
DLQI	**n**	**%**	**n**	**%**
Small effect	5	1.9	3	2.19
Moderate effect	64	24.33	58	42.34
Very large effect	162	61.6	76	55.47
Extremely large effect	32	12.17	0	0
P<0.0001				

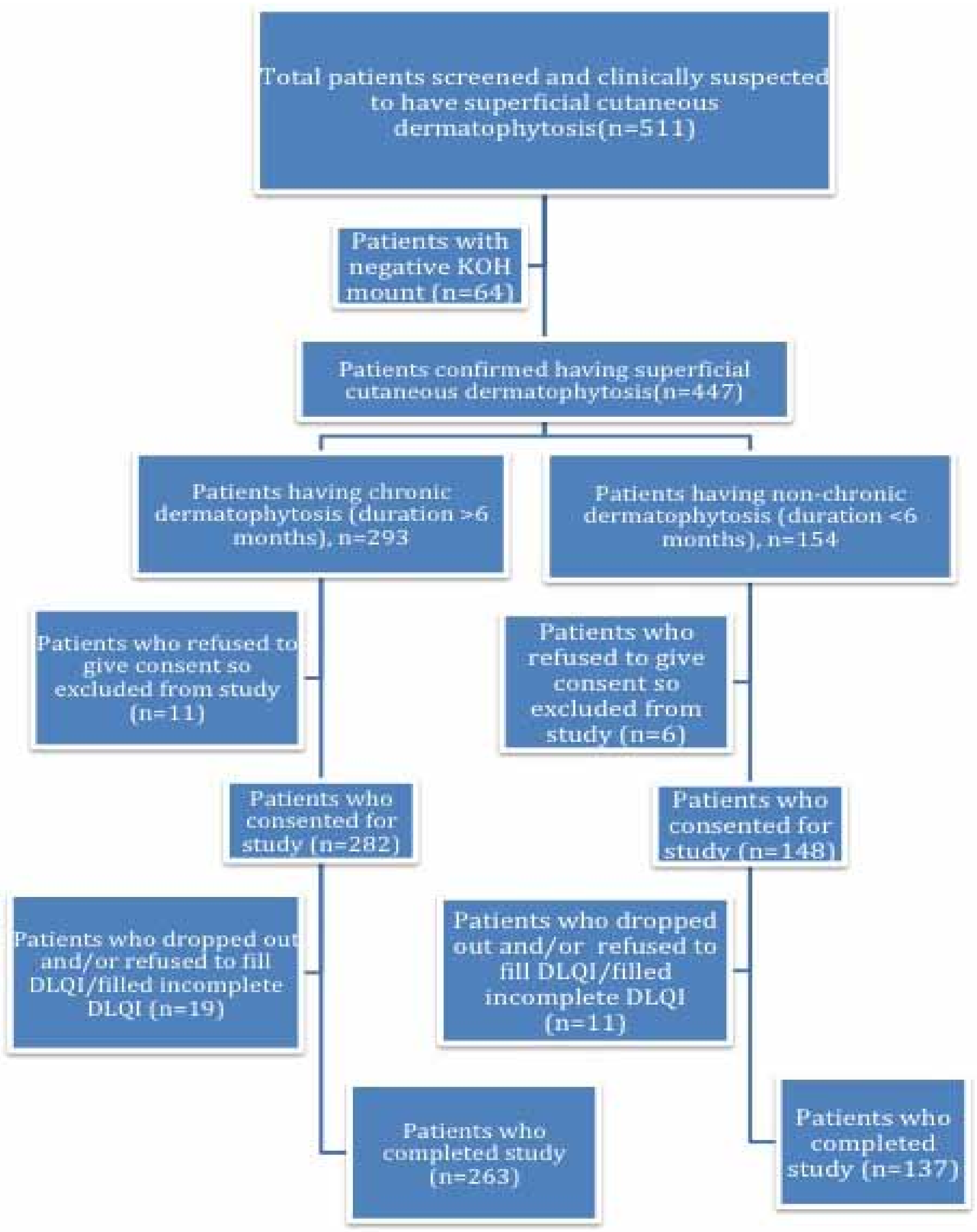

Figure 1: Study design

Discussion

QoL includes physical, sexual, social, psychological, educational, occupational and financial aspects in the general well being of a person. Mere presence of any dermatological disease can have an impact on various aspects of QoL. QoL measures in patients with skin lesions are an important area of future research because they can supplement measures of clinical severity for comprehensively assessing disease and treatment outcomes.[15] DLQI is the most frequently used QoL instrument in randomized controlled trials or epidemiological studies for various dermatological diseases. Though Basra et al[16] reported extensive use of DLQI from developing countries, the QoL for patients with skin disease in developing countries has continued to be a major problem because related issues have not been adequately addressed.

In the last couple of years, a lot of literature has appeared from Indian subcontinent regarding clinical presentations and magnitude of chronic dermatophytosis. However, there is paucity of data studying QoL in Indian patients of chronic dermatophytosis.[8,9,17]

In the present study, majority of patients were young (<40 years of age) and males. This may be due to increased physical activity and increased exposure to people and environment among young males as proposed in past studies.[17,18]

QoL was affected among all the study patients irrespective of having chronic (cases) or non-chronic dermatophytosis (controls). Both the study and control group patients (mean DLQI 14.28 vs 11.56) showed a very large effect on quality of life when DLQI scores were studied as per banding of Hangbo et al.[19] The total DLQI was significantly more among cases compared to the control group ($p<0.001$). A fraction of patients having chronic dermatopohytosis also showed extremely large effect on the QoL. The present study clearly demarcates the two groups of superficial cutaneous dermatophytosis: chronic v/s non-chronic, based on the QoL measurements. These two groups had significantly different DLQI scores with chronic dermatophytosis showing statistically higher scores in every domain of DLQI. The absolute DLQI scores in present study are much more than the few recent studies for psoriasis, acne and vitiligo from India.[20,21,22] This delineates the alarming severity of hitherto thought 'benign' dermatophytic infection. Chronic dermatophytosis has a substantial effect on quality of life. These results are similar to the recently published studies regarding dermatophytosis as a whole from Indian subcontinent.[8,9,17] Among these only Patro et al[8] demonstrated significantly higher DLQI scores in patients having more than months' duration of lesions and patients with more than 10% BSA affected. Past studies have raised concerns about non-responsiveness to the routine dosage and duration of antifungals for chronic dermatophytosis.[23]

In the present study, maximum impairment was seen among the patients having lesions in both exposed and unexposed parts of the body. Also, patients having lesions only in unexposed sites showed a larger effect on QoL compared to patients having lesions in only exposed sites. This association has not yet been reported in earlier studies. Contrary to popular belief, this finding reiterates the fact that skin diseases bring about the same feeling of embarrassment, no matter whether exposed or unexposed sites of the body are involved.[24] In fact, lesions on exposed parts of the body may cause much more discomfort or psychological distress to a patient during intimacy with the partner.

Site of involvement and body surface area were the two parameters having significant impact on QoL ($p<0.05$) in the present study. The study shows a direct proportional increasing effect on QoL as the body surface increased among patients of chronic dermatophytosis. Again these findings are similar to the study by Patro et al.[8] However, Drake et al stated that severity and quality of life are two separate and different measurements that often do not overlap.[25]

There are no other studies presently to assess the QoL in patients having chronic dermatophytosis but in a study by Mushtaq et al,[26] it has been reported that increase in duration of tinea infection increases DLQI score. Worldwide there are studies describing DLQI in cutaneous fungal infections, mainly onychomycosis, but none for chronic dermatophytosis.[25,27] The DLQI scores in these past studies were far less than the present study for chronic dermatophytosis. The reason for this difference may be due to the geographical and cultural differences between the study subjects of the above mentioned studies. Also compared to the present study, past studies included patients having a small body part involvement or shorter duration of disease. The present study shows that chronic dermatophytoses has a very large effect on the study patients. Presence of chronic dermatophytosis becomes very distressing for a patient. Such patients should be given adequate time for health education and proper counselling.

This study uses only literate patients as DLQI is self administered instrument. Researches have raised doubts regarding the scientific limitations of DLQI outweighing the practicalities of its use.[28]

Conclusion

While superficial dermatophytosis affects QoL in all patients, chronic dermatophytosis has a significantly more derogatory effect on the quality of life of a person with some of the patient also showing extremely large effect on QoL. This derangement increases with increasing body surface area involvement. Quality of life is also more affected in chronic infections and involvement of both exposed and unexposed body sites.

Though a large number of studies are being undertaken presently to figure out the epidemiological burden of the disease, future studies should incorporate QoL issues for managing these patients. It would be interesting to study psychological disturbances arising due to chronic dermatophytosis. Also, Chronic dermatophytosis should be considered a separate entity, as this group requires different or additional therapy with more cautious, humane and empathic approach along with regular antifungal therapy. Adequate management should include effective health education and counselling while dealing with chronic dermatophytosis

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