

## Assessment of quality-of-life index in chronic urticaria: An observational study conducted at a tertiary care hospital in north India

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### ABSTRACT

**Background:** Chronic urticaria is a condition characterized by the appearance of wheals or angioedema or both occurring for more than 6 weeks. In spite of being a common condition in dermatology, its etiopathogenesis still remains debatable. Also, it is difficult to treat and can severely affect the quality of life (QoL).

**Methods:** 150 clinically diagnosed cases of chronic urticaria attending outpatient and inpatient Department of Dermatology of Dayanand Medical College and Hospital, Ludhiana were taken. After an informed consent, detailed history including duration and clinical examination was done. In addition, each patient was asked to fill Dermatology Life Quality Index (DLQI) questionnaire which comprised of 10 questions related to daily activities. The final outcome was assessed in the terms of type of urticaria and the DLQI score.

**Results:** In this study, there was female preponderance with male:female ratio of 1:1.68. Depending on the history and clinical features, 109 patients were diagnosed as chronic spontaneous urticaria (CSU), 25 patients as CSU with symptomatic dermographism, 10 patients as cholinergic urticaria, 3 patients as cholinergic urticaria with symptomatic dermographism, 2 patients as delayed pressure urticaria (DPU) and 1 patient as CSU with DPU. The mean DLQI score was highest for cholinergic urticaria while it was lowest for CSU with DPU.

**Conclusion:** Based on the results, it was found that chronic urticaria has a significant impact on QoL. Therefore, it should be considered while evaluating a patient's response to the treatment.

KEY WORDS: Chronic urticaria, DLQI, Quality of life

### INTRODUCTION

Urticaria is used to describe a disease that may present with short lived itchy wheals, angioedema, or both. It may be spontaneous or inducible. It can be acute (disease resolving in less than 6 weeks) or chronic (continuous disease lasting for 6 weeks or more). The intermittent and the episodic presentations are included in the definition of chronic urticaria.<sup>1,2</sup>

It is estimated that the prevalence of chronic ur-

ticaria in the general population worldwide is up to 1%. Age between 30-50 years is the most commonly affected age group. Prevalence is seen to be twice as more in females than males.<sup>3</sup>

Chronic urticaria is further classified into idiopathic or spontaneous urticaria and inducible or physical urticaria.<sup>3,4</sup> In chronic inducible urticaria, symptoms are caused by external factors such as cold, heat, pressure, vibration, or water, thereby classifying it further into the following

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subtypes:<sup>5,6</sup>

1. Cold urticaria
2. Solar urticaria
3. Heat urticaria
4. Cholinergic urticaria
5. Delayed pressure urticaria
6. Vibratory angioedema
7. Symptomatic dermographism
8. Aquagenic urticaria
9. Contact urticaria

The wheals in acute or chronic urticaria usually last less than 24 hours except for chronic inducible-delayed pressure urticaria where it can last for as long as 48 hours.<sup>7</sup>

Chronic urticaria not only interferes with the subjective well-being and quality of life of an individual, it also causes inconvenience at work place, school, family and negatively impacts leisure activities. In some instances, the health status of the patient suffering from chronic urticaria is comparable to that of patients suffering from coronary artery disease and bronchial asthma.<sup>8,9</sup> Dermatology Life Quality Index is a questionnaire consisting of 10 questions. It is used to determine the QoL in various dermatological conditions including urticaria.<sup>10</sup>

## MATERIALS AND METHODS

This observational study consisted of 150 clinically diagnosed and consenting cases of chronic urticaria who attended the inpatient and outpatient Department of Dermatology of Dayanand Medical College and Hospital, Ludhiana. Patients with disease duration of 6 weeks or more and aged 18 years or more were included. Patients who were not willing to participate, who

were not willing to fill questionnaire, who were not willing to give consent and patients aged less than 18 years were excluded.

After written informed consent, detailed history of the patients including duration of disease, demographic details, history of any previous treatment taken, satisfaction with treatment, aggravating factors (if any) was taken. Cutaneous examination was done and the patient was asked to fill a detailed questionnaire.

The dermatology life quality index (DLQI) is a ten-question questionnaire used to measure the impact of skin disease on the quality of life of an affected person. It is designed for people aged 16 years and above with a recall period of 7 days.

It is a detailed self-explanatory questionnaire and was made available in 3 languages, viz- English, Hindi and Punjabi for the patient's convenience. It was handed over to the patient to be filled by the patient. It was usually completed in 2-3 minutes.

The questions were classified into 6 headings items: symptoms and feelings (questions 1 and 2), daily activities (questions 3 and 4), leisure (questions 5 and 6), work and school (7), personal relationships (8 and 9) and treatment (10).<sup>10</sup>

**Responses to items 1-6 and 8-10 had the options:** "very much", "a lot", "a little" and "not at all" and these were scored as 3, 2, 1 and 0 respectively. Items 3-6 and 8-10 also had an additional option: "not relevant" which was given a score of 0. Item 7 had 2 parts- the first part had the options of "yes" and "no" which were scored as 3 and 0 respectively. The second part had 3 options: "a lot", "a little" and "not at all" which were scored as 2, 1 and 0 respectively.

Thus, the maximum score for each question was 3 and minimum score was 0. Thus, the maximum DLQI score was 30 and minimum was 0.<sup>10</sup> Since the DLQI has copyright, license was obtained to use it in this study. The outcome was evaluated in the view of type of urticaria and DLQI score. Statistical Analysis: Data was described in terms of range; mean  $\pm$  standard deviation ( $\pm$  SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. All statistical calculations were done using SPSS (Statistical Package for the Social Science) SPSS 21 version statistical program for Microsoft Windows.

## RESULTS

Maximum number of patients were in the age group of 31-40 years (32.7%). The mean age was  $38.51 \pm 12.81$  years. Out of 150 patients, 94 patients were females while 56 were males indicating that females were predominantly affected. The minimum duration of the disease was 2 months while maximum was 20 years. The mean duration was  $12.49 \pm 22.456$  months. The most common aggravating factor was skin stroking which was present in 18.66% patients followed by sweating which was present in 6% of patients. According to the chief complaints, presence/absence of aggravating factors and local examination findings, 109 patients were diagnosed as chronic spontaneous urticaria (CSU), 25 patients as CSU with symptomatic dermatographism, 10 patients as cholinergic urticaria, 3 patients as cholinergic urticaria with symptomatic dermatographism, 2 patients as delayed pressure urticaria (DPU) and 1 patient as CSU with DPU (Table 1). Female preponderance was seen in CSU, CSU

**Table 1** Distribution of patients according to final diagnosis. N= 150

Final Diagnosis	No. of cases	Percentage
Chronic spontaneous urticaria (CSU)	109	72.7%
Chronic spontaneous urticaria with symptomatic dermatographism	25	16.7%
Cholinergic urticaria	10	6.7%
Cholinergic urticaria with symptomatic dermatographism	3	2.0%
Delayed pressure urticaria (DPU)	2	1.3%
Chronic spontaneous urticaria with delayed pressure urticaria	1	0.7%
Total	150	100.0%

with symptomatic dermatographism, and CSU with DPU while male preponderance was seen in cholinergic urticaria, cholinergic urticaria with symptomatic dermatographism, and DPU. (Fig. 1) Distribution of patients according to age group and the type of urticaria is shown in Fig. 2.

The mean DLQI score for CSU, CSU with symptomatic dermatographism, cholinergic urticaria, cholinergic urticaria with symptomatic dermatographism, DPU, and CSU with DPU were  $12.32 \pm 5.82$ ,  $13.24 \pm 5.27$ ,  $13.60 \pm 4.48$ ,  $12.33 \pm 3.51$ ,  $10.50 \pm 0.71$ , and 6 respectively. This indicated severe impairment of QoL in CSU, CSU with symptomatic dermatographism, Cholinergic urticaria, cholinergic urticaria with symptomatic dermatographism and DPU while moderate impairment of QoL in CSU with DPU. The maximum impairment of QoL was seen in patients of cholinergic urticaria while minimum impairment of QoL was seen in patients of CSU with DPU (Table 2).

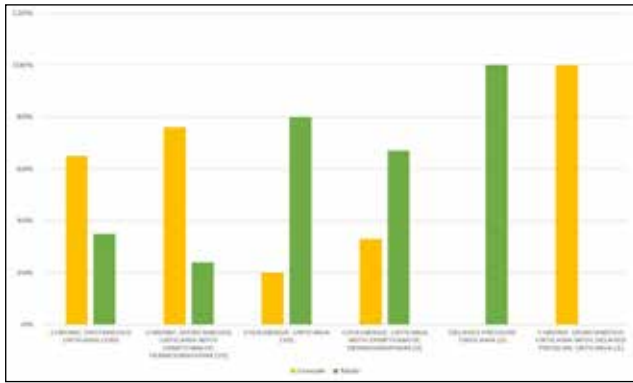


Fig. 1 Co-relation of types of urticaria with gender.

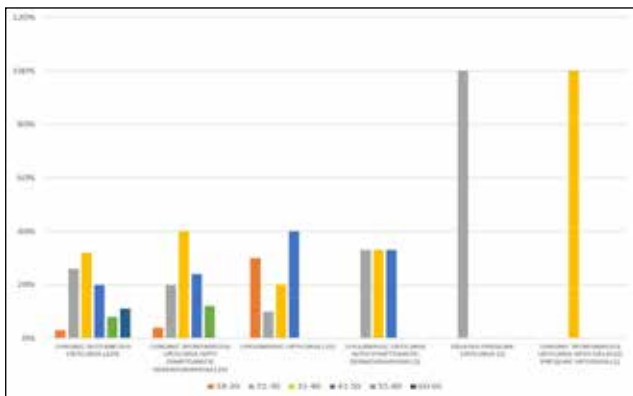


Fig. 2 Co-relation of types of urticaria with age group



Fig. 3 Weals present on hand



Fig. 4 Weals present on back



Fig. 5 Dermographism seen on abdomen



Fig. 6 Dermographism seen on arm

Table 2 Comparison of Mean DLQI Score among different types of urticaria. N=150

TOTAL DLQI SCORE	Chronic spontaneous urticaria (109)	Chronic spontaneous urticaria with symptomatic dermographism (25)	Cholinergic urticaria (10)	Cholinergic urticaria with symptomatic dermographism (3)	Delayed pressure urticaria (2)	Chronic spontaneous urticaria with delayed pressure urticaria (1)
Minimum score	2	3	7	9	10	6
Maximum score	24	20	23	16	11	6
Mean DLQI score± S.D.	12.32 ± 5.82	13.24 ± 5.27	13.60 ± 4.48	12.33 ± 3.51	10.50±0.71	6.00 ± 0



**Fig. 7** Angioedema of upper lip

**Table 3** Comparison of Mean DLQI Score between males and females

	Female (94)		Male (56)		P-value
	Mean	SD	Mean	SD	
<b>Age (Years)</b>	39.71	13.14	36.48	12.09	0.136
<b>Duration (Months)</b>	12.45	25.30	12.55	16.83	0.979
<b>Q1</b>	2.35	0.73	2.34	0.58	0.918
<b>Q2</b>	1.61	1.14	1.05	1.02	0.003
<b>Q3</b>	1.66	1.10	1.21	0.99	0.014
<b>Q4</b>	1.35	1.02	1.43	0.93	0.644
<b>Q5</b>	1.38	0.83	1.27	0.90	0.428
<b>Q6</b>	0.29	0.71	0.41	0.87	0.347
<b>Q7</b>	1.93	1.07	1.93	0.91	0.986
<b>Q8</b>	0.76	0.76	0.68	0.64	0.526
<b>Q9</b>	0.55	0.70	0.59	0.73	0.764
<b>Q10</b>	1.01	1.09	1.00	1.13	0.955
<b>DLQI Score</b>	12.84	5.74	11.91	5.24	0.324

The mean DLQI score was higher in females ( $12.84 \pm 5.74$ ) as compared to males ( $11.91 \pm 5.24$ ), though it was statistically insignificant ( $p$  value = 0.324). Out of all the 10 questions in DLQI questionnaire, the difference in mean scores between males and females for question 2 and 3 was statistically significant,  $p$  value being

0.003 and 0.014 respectively (Table 3).

## DISCUSSION

Urticaria is one of the most common presenting complaints in dermatology while few patients present in emergency. Characterized by pruritic wheals or angioedema or both lasting for 6 weeks or longer, chronic urticaria is a debilitating skin condition that has a profound effect on the patient's quality of life.

This study comprised of 150 clinically diagnosed patients of chronic urticaria, who were further sub-classified into spontaneous or inducible types and their QoL was determined by using the dermatology life quality index (DLQI) score.

The mean age of incidence was  $38.51 \pm 12.81$  years in our study, which was comparable with the studies carried out by Poon *et al.*,<sup>11</sup> Kang *et al.*<sup>12</sup> and Ue *et al.*<sup>13</sup> While, Liu *et al.*<sup>14</sup> and Paudel *et al.*<sup>15</sup> noticed the mean age of  $32.94 \pm 0.70$  and  $32.86 \pm 1.05$  years respectively. This indicates that chronic urticaria is more common in middle age group.

In this study, females (62.7%) were predominantly affected as compared to males (37.3%) with male to female ratio being 1:1.68. This was comparable with the studies carried out by Liu *et al.*,<sup>14</sup> Itakura *et al.*<sup>16</sup> and Paudel *et al.*<sup>15</sup> while Godse<sup>17</sup> found male predominance with the male to female ratio of 1.94:1 in his study.

The most common urticaria in the present study was CSU followed by CSU with symptomatic dermographism which was comparable with the study conducted by Kang *et al.*<sup>12</sup> where the most common urticaria seen was chronic idiopathic urticaria (CIU) followed by CIU with delayed

pressure urticaria.

Poon et al<sup>11</sup> noticed chronic idiopathic urticaria with or without angioedema (CIU/A) to be the most common type followed by symptomatic dermographism. Dias et al<sup>18</sup> also found CSU alone to be the most common type of urticaria in his study. Liu et al<sup>14</sup> and Paudel et al<sup>15</sup> did not sub-classify chronic urticaria in their studies.

In this study, the mean DLQI score of CSU was  $12.32 \pm 5.82$ , indicating severe impairment of QoL. This was in contrast to the study carried out by Poon et al<sup>11</sup> where the mean DLQI score for CIU/A was  $25\% \pm 24\%$  ( $\approx 7.5 \pm 7.2$ ) indicating moderately impaired QoL. In our study, the mean DLQI score for CSU with symptomatic dermographism was  $13.24 \pm 5.27$  which indicated that the QoL was severely impaired in this category. This was in contrast to the study conducted by Poon et al<sup>11</sup> where the mean DLQI score for CIU/A with concurrent symptomatic dermographism was  $25\% \pm 15\%$  ( $\approx 7.5 \pm 4.5$ ) which indicated that the QoL was moderately impaired.

In the present study, the mean DLQI for cholinergic urticaria was  $13.60 \pm 4.48$  which was comparable with the study conducted by Poon et al<sup>11</sup> where the mean DLQI score for cholinergic urticaria was  $50\% \pm 34\%$  ( $\approx 15 \pm 10.2$ ), indicating severe impairment in QoL of these patients. In both the studies, cholinergic urticaria had the highest mean DLQI score suggesting that the QoL was impaired to a greater extent in cholinergic urticaria than the other subtypes.

The mean DLQI score for cholinergic urticaria with symptomatic dermographism in this study was  $12.33 \pm 3.51$  which indicated severe impairment of QoL. This was not studied in other simi-

lar studies.

In this study, the mean DLQI score for delayed pressure urticaria was  $10.50 \pm 0.71$  which indicated severe impairment of QoL. This was comparable with the study conducted by Godse<sup>17</sup> wherein 3 patients of delayed pressure urticaria had DLQI score of more than 16 indicating severe impairment of QoL.

In our study, the mean DLQI score for CSU with delayed pressure urticaria was  $6 \pm 0$ , indicating moderate impairment of QoL. This was in contrast to the study conducted by Poon et al<sup>11</sup> where the mean DLQI score for CIU/A with delayed pressure urticaria was  $43\% \pm 23\%$  ( $\approx 12.9 \pm 6.9$ ) indicating severe impairment of QoL.

The average DLQI score in this study was  $12.49 \pm 5.56$  which was comparable to the study conducted by Ue et al<sup>13</sup> where the average score was  $10.4 \pm 7.7$ , indicating severe impairment in QoL. On the other hand, the studies conducted by Poon et al,<sup>11</sup> Godse,<sup>17</sup> Liu et al<sup>14</sup> and Paudel et al<sup>15</sup> showed moderate impairment of QoL.

The average DLQI score in females ( $12.84 \pm 5.74$ ) in this study was higher as compared to males ( $11.91 \pm 5.24$ ). Although it was statistically insignificant ( $p$  value=0.324), but was comparable to the study carried out by Liu et al<sup>14</sup> ( $p$  value=0.08). On the contrary, Poon et al<sup>11</sup> and Paudel et al,<sup>15</sup> concluded that the average DLQI score was higher in males as compared to females.

In our study, the QoL was severely impaired in both males and females which was in contrast to the study carried out by Liu et al<sup>14</sup> where the QoL was moderately impaired in males and severely impaired in females. In the study conducted by

Poon et al,<sup>11</sup> both males and females had moderate impairment of QoL while Paudel et al<sup>15</sup> concluded severe impairment of QoL in males and moderate impairment of QoL in females.

On further detailed analysis of questions, it was seen that in our study, the difference in mean scores of DLQI between males and females for question 2 and 3 was statistically significant, p value being 0.003 and 0.014 respectively. This was in contrast to the study carried out by Paudel et al,<sup>15</sup> in which statistically significant difference in mean scores between males and females was seen for question 6 to 10, p value being 0.001, 0.001, 0.003, 0.019 and 0.033 respectively.

## CONCLUSION

In the era of modern medicine, stress is laid upon patient's perception of his/ her disease. To understand this, various tools have been formulated to determine the effect of a disease on patient's QoL.

In this study, we used Dermatology Life Quality Index to determine the QoL of patients suffering from chronic urticaria. It helps to give the treating physician an overview of how much the patient had been suffering apart from what he can see in the clinic and therefore tailor the treatment according to the patient. Not only this, it also indicates the efficacy of the treatment being given. In this study, we found that both spontaneous and inducible urticaria significantly alter the QoL. Therefore, these patients require better physician understanding and aggressive treatment modalities.

Furthermore, in future, better understanding of pathogenesis is needed so that better treatment

modalities can be developed to improve the QoL in patients with chronic urticaria.

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