Research

Assessment of the Effect of Treatment on the Quality of Life of Adult Keloid

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Abstract

Background: Documentations of the effect of treatment on the quality of life of keloid patients are few. This study assessed improvement in quality-of-life following keloid treatment. In addition, to assess which of the offered four modalities of treatment improved quality of life more.

Methods: This quasi-experimental study was conducted on 32 adults who had treatment for keloid disease in the clinic from February 2019 to January 2020. This was part of a comparative study of four different modalities of keloid treatment. The quality of life was assessed before and after treatment using the Dermatology Life Quality Index questionnaire (DLQI). Data was analyzed using SPSS version 23.0

Results: Quality of life significantly improved after treatment with the mean ± SD DLQI score improving from 7.75 ± 6.15 to 4.16 ± 4.93, p=0.001. Quality of life before treatment was impaired in 93.7% and improved to 65.6%. Before treatment, 2 patients had no QOL impairment but this improved to 11 patients after treatment. Prior to treatment, severely impaired QOL was in recorded 28.1% of the patient's and in 9.4% after treatment. Quality of life improved more in patients who had the combined intralesional triamcinolone acetonide and 5-flourouracil treatment. Significant improvement in the DLQI items of symptomatology, embarrassment, social activity and choice of clothing was noted.

Conclusion: Treatment of keloid improves quality of life and this is dependent on the modality of treatment. The items of quality of life improved include; embarrassment, choice of clothing, interference with social activities, symptoms of pain and pruritus.

Keywords: Keloid, treatment, quality of life, dermatology quality of life index, intralesional

Introduction

Keloid disease (KD), a dermal tumour due to inappropriate wound healing following injuries accounts for 0.7 to 1.1% of skin diseases.[1-4] Keloid disease impacts negatively on the quality of life (QOL) of patients causing psychological and physical impairments[5-8]. Quality of life impairment in keloid patients is reported to be comparable to that in psoriasis patients[9]. This is despite KD being a focal lesion and psoriasis being a more generalised disease. The factors that impair the QOL are documented to be symptoms of pain and pruritus,[7,10,11] duration of disease,[6,12] visibility of lesions,[8,10] the number and size of the lesions.[8]

Patients who have keloid complained of being stigmatized and embarrassed by the lesions.[6,7] The quality of life of KD patients is reported to improve following treatment.[13,14]Most of the studies of the QOL conducted on KD patients use the dermatology life quality index instrument (DLQI).[5,7,8,11,14,15] These studies reveal a significant reduction of QOL scores following the treatment of KD.[13,14] Keloids typically do not resolve without treatment[1] and the diverse modalities of treatment that can be employed include; radiotherapy[16] and Lasers[17], cryotherapy[18,19], intralesional triamcinolone acetonide,[20-22] 5-Fluorouracil[23] and their combinations.[1,23]

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Although KD is routinely treated in the clinics and KD is known to impair QOL, documentations of improvement of QOL following treatment and what aspect of QOL is improved is not readily documented. This study aims to assess if there is any improvement in QOL following treatment. In addition, to assess which of the four modalities of treatment (Intralesional TAC only [IL TAC 40mg/ml], IL TAC (0.1ml) plus 5-Fluorouracil (0.9ml), Cryotherapy only and Cryotherapy plus IL TAC (40mg/ml) improves QOL more and what aspect of QOL is improved.

Method

This cross-sectional study was conducted following ethical approval (LREC/06/10/1127) on 32 adult keloid disease patients undergoing treatment at the skin clinic of the Lagos State University Teaching Hospital over a one-year period (February 2019 to January 2020). Only patients being treated for keloid and who consented were recruited into the study**.** This was part of a comparative study of different modalities of keloid treatment. Quality of life was assessed before and after treatment using the Dermatology Life Quality Index questionnaire (DLQI).

The DLQI questionnaire has ten (10) questions focusing on symptomatology, emotions, social and physical functioning and treatment. Each question is scored on a Linkert scale from "0"- no effect to 3-severely affected. This leads to a total minimum score of 0 and a maximum score of 30. The end point of the treatment study was either flattening of the keloid or a maximum of 5 sessions of treatment. Each patient was assessed before and after the keloid had flattened out or after the 5th session of treatment (whichever happened first).

Data was analyzed using SPSS version 23.0 Univariate descriptive statistics such as means, median, frequencies and were presented. Associations between variables were assessed using the chi-square test while differences in means were tested using the t-test or Analysis of variance. The differences in quality of life scores was tested. The two groups were compared (pre and post intervention), the paired t-test, McNamar chi-square and ANOVA were used to identify predictors of QOL impairment. Level of significance of all tests was set at 5%. Two patients who did not complete the post treatment QOL questionnaire were excluded from the final analysis.

Results

Thirty-two adult patients with a mean (± SD) age of 32.47 ± 13.93years were assessed. The patient population was 53.1% female and 46.9% male. Age was < 20 years in 18.8%, 21-30 years in 37.5%, 31-40 years in 12.5%, 41-50 years in 18.8% and >50 years in 12.6%. Pain was reported by 50% and pruritus by 81.2%. The size of keloid was <1cm in 9.4% and 1-5 cm in 90.6%. The mean (± SD) volume of keloid reduced from 3.53±1.56cm^3 to 0.29± 0.15cm^3. Keloids were in visible body parts in 81.2%. The reason for seeking treatment was dislike of the lesions in 68.8%, pain 59.1%, pruritus in 59.4 % and the size of keloid in 43.8%

The mean ± SD quality of life score was noted to improve from a base line of 7.75 ± 6.15 (range of 1-25) to 4.16 ± 4.93 (range of 0-21) following treatment. Quality of life before treatment was impaired in 93.7% and following treatment, QOL improved with impairment in 65.6%. Before treatment, 2 patients had no QOL impairment but this improved to 11 patients after treatment. Prior to treatment, 28.1% of the patient's QOL was severely impaired by keloid. Following treatment, there was a significant reduction in the severely affected to 9.4%. Table 1

Table 1: Comparison of DLQI Scores before and after Treatment

Variable	Pre-DLQI N(%)	Post-DLQI N(%)
0 – 1 = no effect at all on patient's life	2 (6.3)	11 (34.4)
2 – 5 = small effect on patient's life	14 (43.8)	12 (37.5)
6 – 10 = moderate effect on patient's life	7 (21.9)	6 (18.8)
11 – 20 = very large effect on patient's life	8 (25.0)	2 (6.3)
21 – 30 = extremely large effect on patient's life	1 (3.1)	1 (3.1)

The modality of treatment given was found to influence the level of QOL improvement with QOL improving more in those who had IL triamcinolone acetonide (Kenalog) + 5-FU and no change in those who had only IL Kenalog injection. Figure 1.

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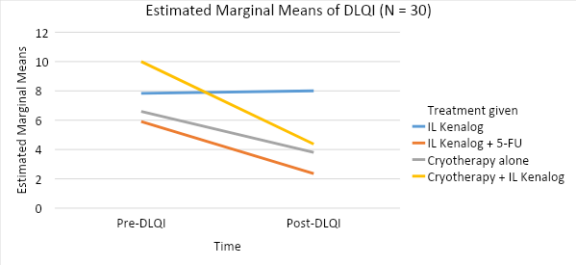

Figure 1: Different Modalities of Treatment and Mean DLQI

Following treatment there was a significant improvement in the DLQI items of symptomatology, embarrassment, social activity and choice of clothing. Table 2 and Figure 2

Table 2: Table Comparing Pre and Post DLQI Scores on the DLQI Questionnaire

DLQI Questions	Pre-DLQI (N=32) Mean(± SD)	Post-DLQI (N=30) Mean(± SD)	Mean difference	Paired sample t-test(N=30)	P-value
1.Itchy, sore, painful or stinging skin	1.44 (0.80)	0.80 (0.81)	0.67	4.55	
2. Embarrassed or self-conscious	1.72 (1.08)	0.93 (0.91)	0.70	3.53	*0.001
3. Interfered with market, home activities or farming	0.69 (1.18)	0.37 (0.72)	0.27	1.49	0.147
4. Influenced choice of clothes	1.13 (1.16)	0.57 (1.01)	0.53	3.12	*0.004
5. Affected any social or leisure activities?	0.84 (0.85)	0.37 (0.85)	0.47	2.38	*0.024
6. Impact on sporting activities	0.56 (1.05)	0.33 (0.80)	0.23	1.13	0.269
7. Prevented you from working or studying	0.41 (0.87)	0.20 (0.76)	0.17	1.00	0.326
8. Problems with your partner, close friends or relatives?	0.44 (0.80)	0.13 (0.43)	0.27	1.98	0.058
9. Sexual difficulties	0.16 (0.45)	0.07 (0.37)	0.07	0.81	0.423
10. Treatment problems	0.44 (0,76)	0.40 (0.77)	0.03	0.20	0.845

* = significant at p-level <0.05

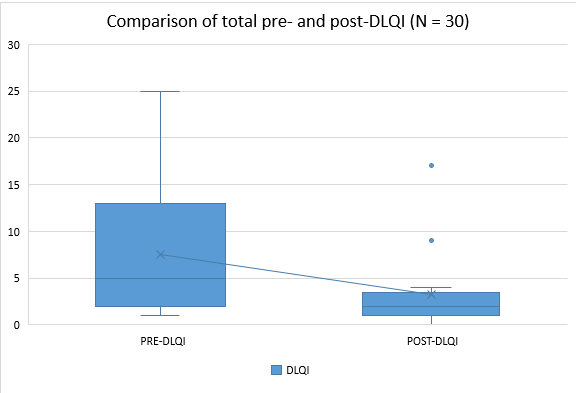

Figure 2: Comparison of Pre and Post DLQI Scores

None of the assessed sociodemographic (age, age at onset, gender, marital status) nor clinical factors (pruritus, pain, duration, visibility and size of keloid) were significantly associated with a change in QOL. Table 3

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Table 3: Association between Pre and Post DQLI Scores and Clinical Factors

Clinical Variables	Freq N (%) N = 32	Pre-DLQI N = 32			Post-DLQI N = 30			Pre- and Post-DLQI Diff. N = 30
		Test Used	Test Value (MD)	P-Value	Test Used	Test Value (MD)	P-Value	P-Value
Duration of keloids (years):		ANOVA[c]	1.860	0.159	ANOVA[c]	2.006	0.138	0.054
Less than 1	6 (18.8)							
1-5	14 (43.8)							
6-10	7 (21.9)							
11 and above	5 (15.6)							
Does it itch?				0.540	t-test[d]	0.967	0.679	0.417
No	6 (18.8)	t-test[d]	0.428 (1.744)			(4.000)		
Yes	26 (81.3)							
Does it pain you?		t-test	1.156 (2.500)	0.257	t-test	1.891	0.075	0.159
No	16 (50.0)					(3.333)		
Yes	16 (50.0)							
No. of keloids:		ANOVA[c]	2.715	0.083	ANOVA[c]	1.380	0.269	0.171
1-5	23 (71.9)							
≥6	9 (28.2)							
Keloid size:		ANOVA[c]	0.985	0.385	ANOVA[c]	0.561	0.577	
<1 cm	3 (9.4)							0.286
1-5cm	25 (78.1)							
≥6cm	4 (12.5)							
Are keloids on visible area:		t-test	0.036 (0.103)		t-test	0.303 (0.708)	0.764	0.813
No	6 (18.8)							
Yes	26 (81.3)			0.971				

MD = mean difference; available only for T-tests, as a difference between means of the two compared groups in the test

Discussion

There are not many studies on the QOL of KD patients and even fewer studies of QOL following treatment. This dearth in literature limits discussions even though keloid disease is reported to negatively impact the QOL of patients and treatment improves QOL.[5,6,12,13] This study demonstrates that QOL of KD patients improves with treatment.

Treatment of KD resulted in a significant improvement of QOL in most of the patients with an improvement in all the parameters of QOL assessed. The mean QOL score in the patients significantly reduced. In addition, the number of patients whose QOL was not impaired by KD increased from 6% to over 34%. Furthermore, the number of patients whose QOL was severely impaired by KD reduced from 28% to less than 10%. The reason for the improvement in the QOL of these patients is multifactorial. Treatment of KD results in a flattening of the lesions with less embarrassment. In addition, treatment results in improvement of symptoms. Furthermore, majority of the patients in this study sort treatment due to a dislike of the KD lesions. This improvement in QOL following treatment is in consonance with findings from similar studies of QOL improvement following treatment.[13,14]

Quality of life improvement was dependent on the modality of treatment with QOL improving more in those who were treated with IL TAC +5-FU. This study is a fall out of another study. The patients who had cryotherapy alone treatment had a faster reduction in the volume of keloid but had residual hypopigmentation. The IL TAC only treatment modality did not have an improvement in their QOL contrary to the report by Wallinczek et al.[13] Quality of life is a subjective phenomenon and depends on the expectation of the affected individual. The authors opine that it is this subjectivity that is responsible for the difference in the QOL of the patients following the different modalities

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of treatment. There are so far no comparative studies of QOL improvement following the use of different modalities of treatment. This makes it difficult to compare this aspect of the study with other studies.

The items of QOL improvement on the DLQI instrument were symptoms of pruritus and pain, embarrassment, choice of clothing and social activities. Pruritus and pain were complaints in a large number of the patients. Treatment usually results in the relief of these symptoms and the flattening of KD lesions[13,22]. This resolution of symptom is the reason for the improvement in this QOL item similar to that reported in a study from Germany.[13]

Most of the patients in this study had their lesions in visible anatomic sites. One of the main reasons proffered for seeking treatment was a dislike of the KD lesion. The improvement on the QOL items of embarrassment, choice of clothing, social activity are interrelated. Majority of the patients had their lesion in visible anatomic sites and this would have been embarrassing with a need to choose items of clothing to cover up the lesions. Also, this visibility of lesions had a negative effect on social interactions. The improvement in the QOL items of embarrassment, choice of clothing and interference with social activities following treatment is explained by the resolution of the lesion and the lesion being no longer visible.

Keloid disease had no impact on work or study. Keloid is not a disease that affects physical functioning and so its lack of effect on the ability of patients to do their jobs is not unexpected. Similar to this study, Olaitan et al did not find keloid in their study to have a negative impact on the patient's job.[6]

There were no significant associations between sociodemographic and clinical parameters with the improvement in QOL. Although these parameters do influence QOL of KD patients, they do not appear to be the influencers of QOL change following treatment. Thus, treatment was the only influencer of the QOL change.

Limitation: The study was limited by the dearth of literature on QOL following treatment for KD. In addition, this was a one center study with a limited number of patients available for study.

Recommendation: The authors recommend active treatment of keloid as this significantly improves the quality of life of patients. Also, a combination of IL TAC and 5-FU should routinely be offered to patients as this modality of treatment is best for quality of life improvement.

Conclusion

Keloid impairs the quality of life of patients. Treatment results in quality of life improvement and the items of quality of life improved include; embarrassment, choice of clothing, interference with social activities, symptoms of pain and pruritus. Quality of life improvement is dependent on the modality of treatment.

Authors' contributions: EL Anaba: Conceptualization. Literature review, Data collection, manuscript write up, manuscript review; O Cole-Adeife: Data collection, manuscript write up, manuscript review; IR Oaku: Data collection, manuscript write up, manuscript review

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