

Patient Reported Health and Quality of Life in Uveitis Patients on Systemic Immunosuppression

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Abstract

Introduction: Uveitis is an important cause of morbidity amongst patients seen in the eye clinic due to the disease itself and the drugs used in its management.

Purpose: Our aim was to determine the disease burden of patients with uveitis using patient reported outcome measures.

Methods: This was a single-centre questionnaire study to assess health and vision related quality of life using validated SF36 and VQOL questionnaires. A questionnaire was sent to patients with uveitis treated by systemic immunosuppressants. Response rate was 100%. Data was analysed using Excel.

Results: A total 20 patients (8 male 12 female) were include in the study. The mean age was 49.6 (range 34-80). Ethnicity: 13 Caucasian, 6 Asian, 1 Afro-Caribbean. Average duration of disease: 6.75 years. Patients had a range of diagnoses and were on a range of immunosuppressive agents, mainly mycophenolate mofetil. In the SF-36 health survey, the mean score for the patients' perception of their general health was 4.25, where 1 is excellent and 5 is poor. 65% of respondents reported their health limited their daily activities a lot, 30% a little and 5% not at all. 100% reported systemic problems, most commonly difficulty sleeping and feeling down.

Conclusions: Our questionnaire survey in uveitis patients on systemic immunosuppression indicates a substantial impact of the patients' quality of life. Ophthalmologists managing these patients must bear this in mind and offer support to help relieve the disease burden.

Keywords: Uveitis, quality of life, immunosuppression, ophthalmology, patient reported outcomes.

INTRODUCTION

Uveitis is a sight-threatening inflammation inside the eye that affects the uveal tract, which is composed of the iris, choroid, and ciliary body, and surrounding structures such as the sclera, cornea, vitreous humor, retina and optic nerve head. [1] The disease may involve recurrent intraocular inflammation and cause transient or permanent visual impairment. The prevalence of uveitis is estimated at 38 cases per 100,000 people. [2] It is particularly prevalent in younger people; the mean age of uveitis patients at the onset of the disease is less than 40 years of age. [3,4] Uveitis is the fourth most common cause of blindness among the working-age population in the

developed world, with a significant economical and social impact.[3, 4, 5] Visual acuity is usually the only measure of visual function routinely tested in uveitis clinics.[6] It is becoming increasingly recognised that vision related quality of life (VR-QOL) questionnaires, which measure the global impact of visual impairment on physical, psychological, and social functioning in day to day life, provide an additional and effective means of measuring visual functioning, as has been demonstrated for patients with cataract, glaucoma, macular disease and, more recently, uveitis.[7-11] The impact on patients has been previously reported. Our aim was to determine the disease burden of patients with uveitis using patient reported outcome measures.

METHODS

This was a single-centre questionnaire study to assess health and vision related quality of life using validated SF36 and VQOL questionnaires. A questionnaire was sent to patients with uveitis treated by systemic immunosuppressants. Response rate was 100%. Data was analysed using Excel.

RESULTS

A total of 20 patients were included in the study. 8 were male and 12 female. Mean age was 49.6 years (range 34-80). 13 were Caucasian, 6 Asian and 1 Afro-Caribbean. Average duration of disease was 6.75 years. Patients had a range of diagnoses and were on a range of immunosuppressive agents, mainly mycophenolate mofetil.

In the SF-36 health survey, the mean score for the patients' perception of their general health was 4.25, where 1 is excellent and 5 is poor. In comparison to one year ago, the average rating for patients' general health was "somewhat worse now than one year ago." 65% of patients said that their participation in vigorous activities such as running, lifting heavy objects and participating in strenuous sports was limited a lot by their health, 30% said a little and 5% said not at all. Moderate activities such as moving a table, pushing a vacuum cleaner, bowling or playing golf were limited a lot in 25% of patients, 55% a little and 20% not at all. Lifting or carrying groceries were limited a lot in 20%,

a little in 50% and not at all in 30%. Climbing several flights of stairs was limited a lot in 35%, a little in 45% and not at all in 20%. Climbing one flight of stairs was limited a lot in 15%, a little in 45% and not at all in 40%. Bending, kneeling or stooping was limited a lot in 25%, a little in 45% and not at all in 30%. Walking more than a mile was limited a lot in 50%, a little in 15% and not at all in 35%. Walking half a mile was limited a lot in 40%, a little in 20% and not at all in 40%. Walking one hundred yards was limited a lot in 20%, a little in 25% and not at all in 55%. Bathing or dressing themselves was limited a lot in 20%, a little in 25% and not at all in 55%. 100% reported systemic problems, most commonly difficulty sleeping and feeling down.

During the past 4 weeks, 75% of respondents reported that they had cut down on the amount of time spent on work and other activities as a result of their physical health. 70% said they had accomplished less than they would have liked. 75% reported that they had difficulty performing work or other activities in the past 4 weeks.

During the past 4 weeks, 60% reported that they had cut down on the amount of time spent on work or other activities due to emotional problems such as feeling depressed or anxious, 60% said they had accomplished less than they would like and 50% said they didn't do work or other activities as carefully as usual.

Appendix 1

Table 1. The following questions were asked to determine how the patient had been feeling over the past 4 weeks

	All of the time (%)	Most of the time (%)	A good bit of the time (%)	Some of the time (%)	A little of the time (%)	None of the time (%)
Did you feel full of life?	5	15	5	35	30	10
Have you been a very nervous person?	10	15	5	20	25	25
Have you felt so down in the dumps that nothing could cheer you up?	20	10	15	15	10	30
Have you felt calm and peaceful?	0	25	10	25	20	20
Did you have a lot of energy?	0	15	0	15	35	35
Have you felt down hearted and low?	15	20	15	15	20	15
Did you feel worn out?	15	30	25	10	15	5
Have you been a happy person?	0	40	10	25	25	0
Did you feel tired?	35	40	5	15	5	0

Patient Reported Health and Quality of Life in Uveitis Patients on Systemic Immunosuppression

When asked to what extent during the past 4 weeks had physical health or emotional problems interfered with normal social activities with family, friends, neighbours or groups, 20% said not at all, 0 said slightly, 15% said moderately, 30% said quite a bit and 35% said extremely. When asked how much bodily pain they had experienced in the past 4 weeks, 15% of respondents said none, 15% very mild, 5% mild, 25% moderate, 25% severe and 15% very severe.

When asked if they believed their health was excellent, 15% said true, 75% said false and 10% said 'don't know'.

QUALITY OF LIFE QUESTIONNAIRE

None of the patients reported that the symptoms experienced had not interfered with their quality of life at all. 15% said they had interfered hardly at all, 5% said they had interfered a little, 45% said they had interfered a fair amount, 15% said they had interfered a lot and 20% said they had interfered an extreme amount.

With regards to whether patients' eyesight has made them feel embarrassed, 30% said not at all, 5% very rarely, 15% a little of the time, 15% a fair amount of the time, 10% a lot of the time and 25% all the time. When asked about whether they had felt frustrated or annoyed because of their eyesight, 10% said not at all, 5% very rarely, 5% a little of the time, 15% a fair amount of the time, 25% a lot of the time and 40% all the time. When asked about whether they had felt lonely or isolated because of their eyesight, 30% said not at all, 10% very rarely, 10% a little of the time, 15% a fair amount of the time, 25% a lot of the time and 10% all the time. When asked if they had felt sad or low because of their eyesight, 10% said not at all, 10% very rarely, 25% a little of the time, 10% a fair amount of the time, 35% a lot of the time and 10% all the time. When asked, "in the past month, how often have you worried about your eyesight getting worse?", none said not at all, 10% very rarely, 15% a little of the time, 20% a fair amount of the time, 25% a lot of the time and 30% said all the time.

SAFETY

General safety was a concern for some patients. This was a concern inside the home in 30% of patients. The remainder were not at all concerned, very rarely concerned or only a little of the time. Regarding general safety outside the home, 55% had concerns. The remainder were not at all concerned, very rarely

concerned or only a little of the time. Coping with everyday life was also a concern for 55% of patients.

55% of patients reported that in the past month, their eyesight stopped them from doing the things they wanted to do either a fair amount of the time, a lot of the time or all the time. In the past month, 65% of patients reported that their eyesight had interfered with their life in general a fair amount, a lot or an extremely large amount.

DISCUSSION

Several studies have shown an association between uveitis and poorer quality of life measures. This study adds to this body of evidence and strongly supports the finding that patients with uveitis on systemic immunosuppression are susceptible to worse quality of life outcome measures.

A cross-sectional study by Arriola-Villalobos et al of 156 patients demonstrated a negative correlation between visual acuity and vision-related quality of life (VR-QoL) in non-infectious uveitis patients.[12] Patients with ocular comorbidities had a 64% worse VR-QoL and worse best corrected visual acuity (BCVA)] was associated with a seven times worse VR-QoL.

A study by Haasnoot et al aimed to establish the impact of uveitis on the Quality of Life (QOL) in adult patients with juvenile idiopathic arthritis (JIA).[13] They used three validated QOL questionnaires (National Eye Institute Visual Functioning Questionnaire (NEI VFQ-25), Medical Outcomes Study 36-Item Short Form Health Survey (SF-36) and EuroQol-5D (EQ-5D)) to compare patients with and without uveitis and found that QOL was worse in patients with uveitis, using the NEI VFQ-25. No significant differences were found between the groups for the SF-36 and the EQ-5D. In the total JIA group, use of systemic medication, independent of uveitis, appeared to negatively influence some general QOL scores.

A study by Hoeksema et al looked at vision-related quality of life (VR-QOL) in patients with HLA-B27 associated anterior uveitis (AU).[14] This study included AU patients who were HLA-B27 positive and/or were diagnosed by a rheumatologist with an HLA-B27 associated systemic disease. Sixty-one of 123 (50%) adult patients participated. All patients filled-out the National Eye Institute Visual Functioning Questionnaire-25 (NEI VFQ-25), Beck Depression Inventory (BDI-II), social support lists

Patient Reported Health and Quality of Life in Uveitis Patients on Systemic Immunosuppression

and an additional questionnaire for gathering general information. They found that the NEI VFQ-25 mean overall composite score was 88.9 ± 8.8 , which is relatively high, but lower than that found in a normal working population. The mean general health score was 47.4 ± 20.8 , which is lower than in patients with other ocular diseases. Patients with a systemic disease scored significantly lower on general health and VR-QOL, compared to patients without a systemic disease. Patients with depression (6/59 (10%)) frequently had ankylosing spondylitis (5/6 patients) and they scored significantly worse on VR-QOL. They concluded that patients with HLA-B27 associated AU have a relatively high VR-QOL. However, the presence of a systemic disease is associated with lower VR-QOL and general health scores. In addition, depression was associated with a lower VR-QOL.

The Multicenter Uveitis Steroid Treatment Trial and Follow-up Study Research Group which compared quality-of-life (QoL) outcomes in 255 patients with fluocinolone acetonide implant versus systemic therapy with corticosteroid and immunosuppression when indicated for intermediate uveitis, posterior uveitis, and panuveitis showed that self-reported QoL measures initially favored implant therapy, but over time the measures converged, with generally favorable QoL in both groups.[15] This is in contrast to our study which did not show favourable QoL outcomes in systemic therapy.

Another prospective cross-sectional study by Tan et al.[16] used an interviewer-administered National Eye Institute visual function questionnaire (VFQ-25) in 117 adult outpatient uveitic patients. Their scores were compared against 48 controls with no ocular history. VFQ-25 composite scores for patients were significantly lower than controls in all domains except driving. In multivariable analysis, lower VFQ-25 composite scores were associated with a chronic course of disease, even after taking into account the influences of visual acuity, treatment regimes and location of disease. Uveitic patients reported poorer visual functioning. A chronic course of disease was associated with poorer functioning.

The purpose of a study by Jalil et al was to explore the quality of life and employment status of patients with chronic uveitis using oral immunosuppression. [17] Forty-six patients in this prospective questionnaire-based study had a mean Vision Core

Module 1 (VCM1) score of 1.4. The 41 patients with binocular acuity better than or equal to $+0.3$ logMAR (able to drive) achieved a mean score of 1.2. The 5 patients worse than $+0.3$ logMAR scored 2.6. This difference was highly significant. Six were unemployed (4 having lost their job because of uveitis-related problems); 3 felt at risk of losing their job; 13 believed their employers had concerns about their sick leave, and 7 used annual leave for hospital visits. They concluded that chronic uveitis, even if well controlled, could have substantial effects on a patient's social and psychological health, and may lead to significant work disability.

Qian et al characterized the level of depression in patients with ocular inflammatory disease and performed a prospective cross-sectional survey and medical record review to determine predictors of depression.[18] Participants were consecutive patients with noninfectious ocular inflammatory disease in a university-based tertiary referral center. Subjects were given the self-administered Beck Depression Inventory-II (BDI-II), National Eye Institute Visual Function Questionnaire-25 (NEI VFQ-25), and additional supplemental questions. Of 104 participants, 26.9% screened positive for depression with the BDI-II. Of these subjects, only 39.3% had been previously diagnosed with depression. NEI VFQ-25 scores were significantly lower in depressed patients in all subscales except driving and color vision. Predictors of depression were a lack of emotional support, lower visual functioning, a history of changing immunomodulatory treatment and current oral corticosteroid use. Worse visual function was associated with depression. The authors recommend increased awareness of potential depression in patients with ocular inflammatory disease.

Miserocchi et al performed a study to assess health-related quality of life with SF-36 in 100 consecutive Italian patients with uveitis on long-term systemic immunosuppressants.[19] Health status was evaluated in 8 dimensions: physical functioning, physical disability, body pain, general health, vitality, social functioning, emotional disability, mental health. The SF-36 physical and mental component summary scores were lower among uveitis patients than those of the general population; the most statistically significant differences found in subgroups were older age, female sex, low visual acuity ($<20/40$), and long-standing duration of the disease (>6 years). In this

study, patients with uveitis on long-term systemic immunosuppressants reported markedly poorer general health status than normal matched population subjects. Quality of life was related to visual acuity and disease duration.

Murphy et al studied the VR-QOL and HR-QOL in 42 consecutive patients with intermediate uveitis using the VCM1 and SF-36 questionnaires, respectively.[20]

9.5% of patients had a VCM1 score of more than 2.0, indicating “more than a little” concern over vision. Worse eye VA ($p = 0.045$) and CS ($p = 0.042$) were predictive of a VCM1 score of more than 2.0 independently of age, sex, uveitis duration, laterality and activity, systemic uveitis therapy, and medical co-morbidity. The physical and mental component summary scores of the SF-36 were significantly worse in those who reported significant impairment of vision on the VCM1 than those who did not.

Finally, another study by Shamdas et al measured health-related quality of life (HRQOL) in patients with uveitis using time trade-off (TTO) and standard gamble (SG) methods of direct utility analysis.[21] 200 consecutive patients attending a tertiary referral uveitis clinic were administered standardised, interview-delivered TTO and SG questionnaires and completed the European Quality of Life Five Dimensions Five Level (EQ5D-5L) questionnaire. Clinical data recorded included best-corrected visual acuity, uveitis anatomical and clinical classifications, duration since diagnosis, disease activity, current medication and any ocular or systemic comorbidities. Poor vision in the better-seeing eye ($p=0.004$), bilateral disease ($p=0.047$) and concurrent glaucomatous optic neuropathy ($p=0.005$) were predictors of poor TTO HRQOL. No correlation was found between HRQOL and duration of diagnosis, a flare of uveitis or being on systemic therapy. The authors stated that patients with uveitis and poor vision have a TTO value worse than patients with end-stage renal failure on haemodialysis and AIDS.

CONCLUSIONS

Our questionnaire study in uveitis patients on systemic immunosuppression indicates a substantial impact of the patients' quality of life. Depression may be a significant but underrecognized comorbid condition in patients with uveitis. Ophthalmologists managing these patients must bear this in mind and seek to offer support to help relieve the disease burden.

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Patient Reported Health and Quality of Life in Uveitis Patients on Systemic Immunosuppression

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