Assessment of Quality of Life in Rheumatoid Arthritis Patients

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Abstract

Introduction: Rheumatoid arthritis is a chronic systemic autoimmune inflammatory disease that has a significant negative impact on quality of life.

Objective: To assess the quality of life in Rheumatoid Arthritis patients and to identity the factors associated with Quality of life in Rheumatoid arthritis patients

Methods: A Prospective Observational Study was conducted in an outpatient department of Rheumatology clinic. 300 patients consisting of 56 male and 254 female with a history of Rheumatoid Arthritis for more than 1 year were included in the study. Data was obtained by self-reporting questionnaire, which included generic and disease related instruments.

Results: Among 300 subjects, 77 % patient's Quality of Life was severely affected. 57.30 % of patients were affected by sleeplessness. 71.3 % of patients were not doing any type of physical exercises. 31.40 % of patients had non-compliance. 28.70 % of subjects had early morning stiffness.

Conclusion: Rheumatoid arthritis tends to have a profound impact on the health-related quality of life. Factors such as Fatigue, early morning stiffness, deformities, number of joints, sleep disturbance are positively correlated and patient compliance and exercise are negatively correlated with Quality of life. Adherence to RA therapy is essential to decrease disease progression and increase chance to achieve remission. Clinical pharmacist plays a vital role in improving QOL by providing necessary information about disease and life style modifications.

Keywords: Quality of Life, Compliance, Rheumatoid arthritis

Introduction

Rheumatoid arthritis (RA) is a chronic systemic autoimmune inflammatory disease that affects mainly the small joints of the hands and feet. RA is one of the most common inflammatory joint diseases and causes premature mortality, disability and compromised quality of life. RA has a significant negative impact on the ability to perform daily activities. Hence, there has been an increasing interest in incorporating the concept of Quality of Life (QOL) in the evaluation of clinical and medical interventions. [1,2]

According to World Health Organization (WHO) QOL is an "individual's perception of their position in life in the context of the culture and value systems in which they live

and in relation to their goals, expectations, standards and concerns". [3]

It is a broad-ranging concept affected by an individual's physical health, psychological state, and level of independence, social relationships and their relationship to salient features of their environment which may be impacted overtime by any disorder, disease or disability.[4]

Although the importance of QOL is broadly acknowledged, there is no consensus about how it should be measured.

Chronic diseases often have a relapsing and remitting course with substantial impact on function and QOL. Thus, measurement of QOL provides a meaningful and important way to determine the impact of health care.

HRQOL is the extent to which one's usual or expected physical, emotional and social well-being is affected by a medical condition or its treatment. The HRQOL measurement therefore attempts to capture QOL in the context of one's health and illness. [5]

Different factors that affect the QOL of RA patients include:

Deformities: Patients developed at least one hand deformity. More than half of the patients in had developed hand deformities after 10 years. Presence of hand deformities had an impact on daily life function and added useful prognostic information, being an early sign of a more severe disease. [6]

EMS: This maybe because of a circadian pattern and the rhythm of pro-inflammatory cytokines, such as interleukin-6 (IL-6). The increase in nocturnal anti-inflammatory cortisol seen in patients with RA is generally insufficient to suppress the ongoing joint inflammation, often resulting in joint stiffness in the morning. [7]

Exercise: Both aerobic and strengthening exercises can reduce pain; improve functional status, walking ability, flexion and extension ROMs of the knee joints in patients with knee RA.[8]

Fatigue: Fatigue seems to be more related to the emotional and social aspects of the disease that is affecting the quality of life of patients. [9]

Compliance: Poor compliance is associated with poorer QOL, lacking vitality and poor physical, emotional and social functioning. Quality of life in adolescents may relate more to psychosocial coping mechanisms rather than physical deformity and its consequences. It is important to establish remedial programmes that are capable of addressing personal, group and family issues for promoting compliance and improving QOL.[10]

Sleep: Poor sleep quality and sleep latency were among the most affected sleep components among RA patients. A linear relationship is observed between poor sleeps quality and general/ mental fatigue can be observed [11]

Questionnaire for QOL

HAQ has been modified for standard care over the years as a multidimensional HAQ (MDHAQ), both to save time for the rheumatologist and to improve the Quality of Life of patients with the help of this questionnaire Patients can be evaluated by clinician in 5 to 10 seconds and scored in 10 seconds or less, using scoring templates on the questionnaire for individual measures and on RAPID indices based on self-report data.

MDHAQ has 10 activities

Questions such as

1. a-j = FN = FUNCTIONAL STATUS: Ten Daily activities, eight from the HAQ and two more complex activities – "Are you able to walk 2 miles or 3 kilometers?" and "Are you able to participate in recreation and sports as you would like?" were asked. Answers are

scored 0-3, 0 = "without any difficulty," 1 = "with some difficulty," 2 = "with much difficulty," and 3 = "unable to do." The sum of a-j is totalled by counting the number of 3s, 2s, 1s and 0s, for a raw score of 0-30. This raw 0-30 score is divided by 3 to provide a 0-10 score, using a scoring template in the "For Office Use Only" section at the right and is entered in the "FN" box.

2. k, l, m constitute a Psychological Status (PS) scale to query Sleep, Anxiety and Depression which is informative to the clinician. The simple total of the 3 items. 0-9.9 can be calculated as a score, which is not entered in the right side box.

3. PN = PAIN VAS is presented as 21 circles, to facilitate scoring without a ruler. An arithmetic scale of 0-10 in 0.5 unit increments is printed below the circles. The 0-10 score is entered in the "PN" box in the "For Office Use Only" section at the right.

4. PTJT = RADAI, the Rheumatoid Arthritis Disease Activity Index self-report joint count includes eight joints or joint groups, scored 0, 1, 2 or 3. The number of 0, 1, 2 and 3 responses for items a-p is scored 0-48. Neck and back (items q and r) are informative to the rheumatologist, but are not included in the total score. The raw 0-48 total is adjusted to 0-10, using the scoring template in the "For Office Use Only" section at the right and entered in the "PTJT" box.

5. PTGL = Patient global also is scored on a 21 circle VAS, and the 0-10 score is entered in the "PTGL" box in the "For Office Use Only" section at the right.

6. MDGLOBAL = a Physician/Assessor estimate of global status on a scale of 0-10. The score may be entered in the "MDGLOBAL" box in the "For Office Use Only"section at the right.

The score is entered in increments of 0.5 units, as with the PN and PTGL VAS, according to an "imaginary" VAS.

FN, PN, and PTGL and preferably score these scale combined to form RAPID scoring which is estimated as QOL.

The remaining activities includes a review of systems (ROS) in the form of a 60-symptom checklist, change in status (CHG), exercise (EX), 0-10 VAS for fatigue (FT) and recent medical history (HX), as well as demographic data. [12]

Methods

A Prospective Observational Study was conducted in an outpatient department of Rheumatology clinic in Warangal city for a period of 6 months. The study included 300 participants consisting of 56 male and 254 female suffering with Chronic Rheumatoid arthritis along with or without other comorbidities, over a period of 1 year and all ages above 15 years. The patients who were not willing to participate in the study and the patients with history of Rheumatoid Arthritis less than 1 year were excluded from the study. The patients were interviewed by using a Multi- Dimensional Health Assessment Questionnaire

Results

Table 1:- Socio Demographic characteristics of Patients: -

FACTORS	PERCENTAGE
Gender	
Male	15.30
Female	84.60
Age	
20-30 Years	10
31-40 Years	26.6
41-50 Years	32.3
51-60 Years	21.6
61-70 Years	9.6
70-80 Years	0.66
Area wise	
Rural	81.33
Urban	18.67
Occupation	
Housewife	46.33
Agriculture	34.33
Others	19.33
Smoking	
Yes	10
No	90

Among 300 patients, female were more affected (84.60 %) than male (15.30 %). The average age group of 41-50 years (32.3 %) were more affected followed by 31-40 years (26.6 %) and 51-60 years (21.6 %). 90% of patients were possess social history of smoking. 244 patients were from rural background and 46 were from urban background. 46.3 % of housewives were most affected followed by agriculture.

Table 2:- Clinical characteristics of patients

FACTORS	Percentage
ESR	
Normal	10
Abnormal	90
Anemia	
Normal	40
Abnormal	60
Deformities	
Yes	23.33
No	76.67
Sero	
Positive	89
Negative	11
Sleep disturbances	
Yes	57.33
No	42.67
Compliance	
Yes	68.67
No	31.33
Comorbidities	

Secondary OA knees	14
Osteoporosis	
Fatigue	
0-2 Points	5
2-4 Points	15.67
4-6 Points	45.67
6-8 Points	33.33
8-10 Points	0.33
Pain	
0-2 Points	4.3
2-4 Points	11
4-6 Points	39.6
6-8 Points	40
8-10 Points	5

Among 300 patients The percentage of Sero-positive patients was more (89 %) than Sero-negative patients (11 %). 31.40 % of patients had poor compliance. 28.70 % of patients had EMS. 60% of patients have anemia. 90 % are having abnormal ESR. 23.33 % were having deformities. 57.30 % were affected by sleeplessness. 14 % were with secondary OA . 45.6 % had fatigue.40 % of patients were having severe pain.

Table-3: Classification based on Quality of Life

QUALITY OF LIFE	PERCENTAGE
Rarely Affected	0.30
Less Severe	2.30
Moderately Severe	20.30
Highly Severe	77

Among 300 patients, 77 % patient's QOL was highly severely affected and then 20.30 % were moderately severely affected.

Table-4: Correlation between different factors

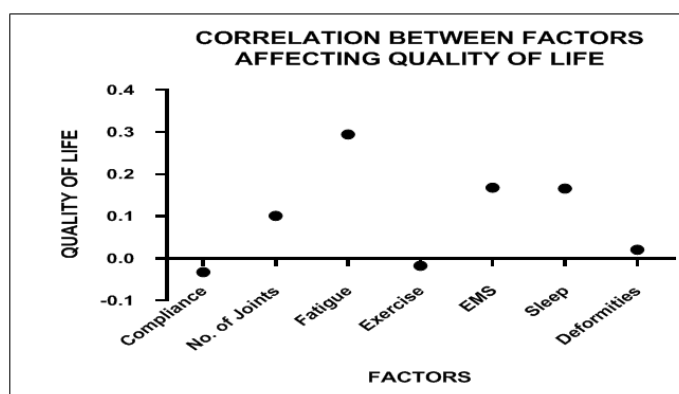| Factors	r value	Interpretation
Compliance	-0.03265	Negative
No. of Joints	0.10100	Positive
Fatigue	0.29430	Positive
Exercise	-0.01724	Negative
EMS	0.16800	Positive
Sleep	0.16600	Positive
Deformities	0.02062	Positive

Fig.1: Correlation between different factors

Factors such as fatigue, duration of EMS, deformities, no. of joints, sleep disturbance are positively correlated with QOL in RA patients. Patient compliance and exercise are negatively correlated with QOL in RA

Discussion

In our study, we found that patients with age group of 41-50 years were mostly affected by RA and this is similar to a study conducted by *Kvien et.al.,* in which patients with the age group of 50 years were mostly affected. Thus it may be observed that with an increase in age, balance between absorption and formation gets decreased leading to bone loss. Thus bones become less dense and more fragile. There is less water content in cartilage with an increase in age, reducing its ability to cushion and absorb shock. [13]

In the present study, 84.6 % of study population were female and 15.3% were male. The results were similar to the study conducted by Alimohammed *et.al.,* wherein 853 [82.09 %] female patients and 186 [17.9 %] male patients. Various theories have been proposed to explain the possible role of Oestrogen in disease pathogenesis. Oestrogen may enhance the immune response and can stimulate production of tumour necrosis factor alpha, a major cytokine in the pathogenesis of RA. [14]

Among our study population, 10 % were found to have social history of smoking which is similar to a study conducted by JianYin *et.al.,* in which 13.23 %were found to have social history of smoking. Smoking can interact with HLA-DRB1 and increases citrullation and causes increase in levels of anti-cyclic citrullinated peptide antibody and can trigger for RA. [15]

Among the study population, 23.3 % were found to have deformities where as in a study conducted by Pia .M. Johnsson *et.al.,* 59% patients developed at least one hand deformity during the study time. More than half of the patients had developed hand deformities after 10 years. Presence of hand deformities had an impact on daily life function and added useful prognostic information, being an early sign of a more severe disease.[16]

Among our study population, 267(89 %) were found to be seropositive and 33(11 %) were found to be seronegative. The results were similar to a study conducted by Seth D Seegobin *et.al.,* in which 310 (72 %) were seropositive and 121 (28 %) were seronegative. These results suggest that ACPA is an important biomarker for guiding treatment decisions in early RA. [17]

Among study population, 60 % of patients were anaemic whereas in a study conducted by Alan N. Baer, 28 % patients were anemic. Anemia may be because of impairment of erythropoiesis by inflammatory mediators, particularly the cytokines. It acts by inhibiting the erythropoietin-induced proliferation of murine erythroid progenitor cells. [18]

In our study, we found out that 86 % of the population did not exercise on regular basis. Whereas Nader Rahnama et. al., shows that both aerobic and strengthening exercises can reduce pain, improve functional status, walking ability, and flexion and extension ROMs of the knee joints in patients with knee RA. [8]

In our study, 90 % population have increased ESR levels where as in a study conducted by Ghulam Hossein Alighieri found that by obtaining ESR in a patient with active RA increases the yield of identifying an elevated disease activity and concludes that among patients with RA, disease severity indices are associated with physical, but not mental Health related quality of life. [19]

Among the present study population, 57 % were found to have poor quality of sleep which is similar to a study conducted by Loppenthin *et.al.,* in which 61 % of study population have shown several sleep components negatively affected in patients with RA. Poor sleep quality and sleep latency were among the most affected sleep components among RA patients. A linear relationship

between poor sleeps quality and general and mental fatigue can be observed. [10]

In our study, we found that 28.6 % of study population had early morning stiffness which is similar to a study conducted by Serena Halls *et. al.* in which 42 % of patients had experienced early morning stiffness. Stiffness is a recognized symptom that has a major impact on QOL of patient. [19]

Among the study population 45.6 % of them were found to have fatigue where as in a study conducted by Claudio Carneiro *et.al.,* showed that prevalence of fatigue was observed in 25 % study of population. Fatigue seems to be more related to the emotional and social aspects of the disease that affects the quality of life of patients. [9]

In our study, we found that 68 % of study population were showing compliance which is similar to a study conducted *by* LouAnnRivett *et.al.,* in which compliance was 64 % and suggests that poor compliance is associated with poorer QOL, lacking vitality and poor physical, emotional and social functioning. [8]

Conclusion

The prevalence of Rheumatoid Arthritis is more in female than in male. The overall prevalence of RA was highest in the age group of 41-50 years. The majority of the patients in the study population had disease since 3 years. Chronic diseases like RA have detrimental impact on many areas of an individual's life and tend to have a profound impact on the health-related quality of life physical, psychological and social functioning may be impairred in RA patients. Quality of life was highly severely affected in 77% of study population. Disease indices like Anemia and ESR can form the basis for presence and progression of disease. Factors such as fatigue, duration of EMS, deformities, no. of joints, sleep disturbance are positively correlated with QOL in RA patients. Patient compliance

and exercise are negatively correlated with QOL in RA. Patients from rural areas with agriculture as profession were severely affected with RA due to micro-trauma to musculoskeletal tissues so there is an immediate need to create awareness and educate such patients to improve disease status.

Adherence to RA therapy is essential to decrease disease progression and increase chance to achieve remission. Clinical pharmacist plays a critical role in obtaining medication history information, identification, resolving drug related problems, counsel patients to understand, adhere to the medications and refers patients to RA support groups. Clinical pharmacist can also assist physician in evaluation of questionnaire for diagnosing the patient condition more efficiently.

Abbreviations

ACPA- Anti-citrullinated protein antibody

ESR-Erythrocyte sedimentation rate

FN-Functional status

MDHAQ - Multi-dimensional health assessment questionnaire

OA-Osteoarthritis

QOL-Quality of Life

RA-Rheumatoid arthritis

RAPID - Routine assessment of patient index data

VAS - Visual analogue scale

ROM- Range of motion

HLA-DRB1- Histocompatibility antigen gene

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