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Assessment of Health-related quality of lifeand predictors of risk factors in Patients with Knee Osteoarthritis

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Abstract : Introduction: Osteoarthritis (OA) is the most common type of arthritis found worldwide especially in the elderly. Most patients with OA are poorly assessed and treated within primary care settings. The main aim of this study was to determine the Health-related quality of life(HRQOL) among knee OA patients. Methods: This prospective study comprising of 74 knee OA patients was carried out in orthopaedic department of a tertiary care hospital for a period of 6 months from December to May 2015. The patients were enrolled based on the inclusion and exclusion criteria. Questionnaire based survey short form 36 (SF-36) was given to patients to determine the HRQOL in those patients. Results: Of the 74 patients55 (74.32%) were women and 19 were (25.67%) men. The average age of patients was 51.7 ± 8.3 years. 50% Of the patients were overweight with average of body mass index (BMI) 29.9±1.9.The mean score of domains- physical functioning (PF), role limitation due to physical health (RP), emotional well-being/mental health (MH), role limitation due to emotional problems (RE), energy/vitality (VT), social functioning (SF), body pain, general health (GH) was assessed. The physical health status showed a lower score when compared to mental health components. Age was found to be a significant predictor that affects quality of life in OA patients. Conclusion: The OA of knee has an impact on quality of life of patients in those patients with decreased pain tolerance and decreased social activity.
Key Words: Knee Osteoarthritis, HRQOL, Questionnaire based survey.

1. Introduction

Osteoarthritis is a major cause of disability in both the developed and developing world. With the population aging, the prevalence of osteoarthritis is increasing and its consequences are impacting significantly on society[1]. Age is the most powerful risk factor for osteoarthritis (OA) in the United States. It is estimated that 68% of individuals older than 55 years have radiographic evidence of OA[2]. Knee OA has a significant negative impact on HRQOL. Identification of therapies that improve HRQOL in patients with knee OA may mitigate the clinical, economic, and social burden of this disease[3]. HRQOL is increasingly acknowledged as a valid health indicator in many diseases. HRQOL is narrowed to aspects of an individual's life that is affected by health, disease and/or its treatment. It encompasses emotional, physical, social and subjective feelings of well-being that reflect an individual's subjective evaluation and reaction to his/her illness[4]. OA and other rheumatic conditions seldom cause death but have a substantial impact on health, HRQOL measures are better indicators of their impact than related mortality rates[5]. Hence we aimed to determine the HRQOL among knee OA patients and to predict the risk factors associated with the Knee OA.

Experimental methods:

A prospective questionnaire based study was carried out in tertiary care hospital to assess the HRQOL in patients with knee OA. 74 patients were selected from the orthopaedic department based on the patient inclusion criteria:1. Patients who were diagnosed with knee OA,2.Patients with other co-morbid conditions such as hypertension**,** diabetes**,** cardiac problems and hyperlipidaemia. The exclusion criteria included the patients below 18 years, patients who did not give informed consent, pregnancy and lactating woman, and the patients of emergency care. Standard proforma was framed to collect the patient demographic details. HRQOL was assessed using SF-36questionnaire which comprises of 8 domains PF, RP,MH, RE, VT, SF, Body pain, GH. Most of these domains of quality of life are scored from 0 to 100 (Except MH 16-92; VT 10-90; GH 6-80). The collected data was analysed using Graph Pad Prism and SPSS version 17. Simple linear regression model analysis was used to estimate the linear relationship between the independent and dependent variables.

Results:

In this prospective study comprising of 74 knee OA patients the HRQOL assessment was done using SF-36 form in an orthopaedic department of a tertiary care hospital. Patient quality of life has been assessed based on age groups and other chronic medical conditions with OA. The demographic details of the study population including the age, gender, BMI, co-morbid disease conditions are depicted in Table 1.

Table 1. Demographic details of the study population

Parameters		No. of Patients (n = 74)	Percentage of Patients (%)
Age	30-39	06	8.10
	40-49	22	29.70
	50-59	32	43
	60-69	12	16
	70-79	02	03
Gender	Male	19	25.67
	Female	55	74.32
BMI	Underweight (<19)	0	-
	Normal (19 – 25)	10	21.70
	Overweight (25 – 30)	26	35.10
	Obese (>30)	38	51.03
Co-morbid disease conditions	Diabetes Mellitus (DM)	19	25.60
	Hypertension (HTN)	14	18.91
	DM and HTN	16	21.62
	IHD/DM/HTN	25	33.87

The prescribing trends in knee OA and the distribution based on Nonsteroidal anti-inflammatory drugs (NSAIDs) used in the study population is shown in Figure 1 and Table 2, respectively.

Table 2. Distribution based on NSAIDs used in OA patients

NSAIDS in OA patients	No. of patients (n = 54)	Percentage of patients(%)
NSAIDS injections	23	42.59
Topical NSAIDS +Physiotherapy	05	09.26
Oral NSAIDS +Physiotherapy	26	48.15

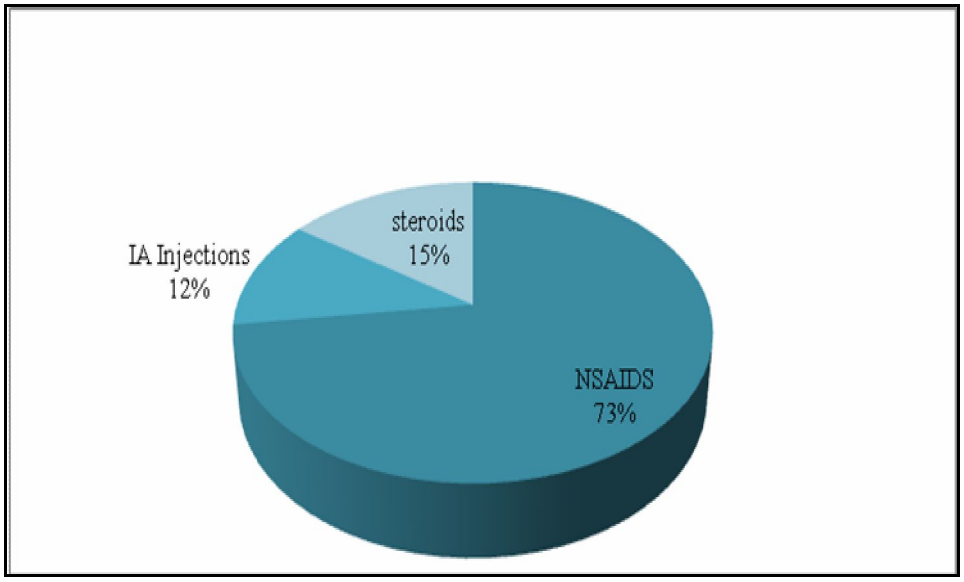

Fig 1.Prescribing trends in Knee OA patients

Table 3 depicts the HRQOL assessment in knee OA patients using SF-36 Questionnaire. The parameters such as physical health components and the mental health components were measured.

Predictors of risk factors causing OA were assessed by using the simple logistic linear regression model analysis (Table 4). The risk factor included the independent variable such as age, gender, BMI and co-morbid disease conditions. The dependant variables included the PF, RP, MH, RE,VT, SF, Body pain and GH.

Table 3.HRQOL assessment in OA patients

HRQOL Domains of SF-36	HRQOL score (Mean±Standard Deviation)
Physical functioning	30.47±16
Role of limitations due to physical health	31.0819±35.07
Role of limitations due to emotional health	69.819±45.24
Energy/vitality	51.925±13.51
Emotional well-being/Mental health	55.567±22.7
Social functioning	54.729±10
Pain	50.135±18.63
General health	27.837±11.53

Table 4. Predictors of risk factors causing OA by the logistic linear regression model analysis

Model	**HRQOL domains**	**Coefficients (beta)**	**T**	**Sig**	**R square**
1	Physical Functioning	-0.527	-5.261	0.000	0.278
2	Limitations due to Emotional Health	-0.235	-2.048	0.044	0.055
3	Role of Limitation due to Physical Health	-0.244	-2.136	0.036	0.060
4.	Energy/vitality	-0.486	-4.716	0.000	0.236
5.	Emotional well-Being/Mental health	-0.384	-3.533	0.001	0.148
6.	Social Functioning	-0.449	-4.262	0.000	0.201
7.	Pain	-0.416	-3.876	0.000	0.173
8.	General Health	-0.386	-3.549	0.001	0.149

Sa. Predictors: (Constant), AGE, Gender, BMI, Comorbidity

Discussion:

Age is the most powerful risk-factor for OA. The prevalence of knee OA increases with age[6]; therefore, the impact of this disease will become even more substantial with the aging of the population. Studies have shown that knee OA greatly diminishes health status in the elderly[7,8]. In our study more number of patients were in the age group of 50-59 years and Women are more commonly affected with OA compared to men in concordance with the previous studies[6-10].Most of the patients in the study group were prescribed with NSAIDS followed by steroids and intraarticular injections as compared to the previous prescribing pattern studies[11]. The average BMI of the study group was 29.9±1.9.

In the present study there was increased HRQOL scores for RE (69.819±45.24), Energy/vitality (51.925±13.51), MH (55.567±22.7),SF (54.729±10)and Pain (50.135±18.63). PF, RP and GH were having lesser QOL scores of30.47±16, 31.0819±35.07 and 27.837±11.53, respectively. In general, mental health domains and mental health component (MH, RE, SF &Energy/vitality) were better and less affected than physical health domains (PH, RP and GH) in accordance to the previous studies[12-14]. From the logistic linear regression model analysis, age was found to be a significant predictor that affects quality of life in OA patients. Quality of life was found to be worsened in elderly patients with osteoarthritis than the non-elderly. Body mass index (BMI) was also found to be a significant predictor of quality of life in osteoarthritis patients. Patients with higher BMI were found to have decreased quality of life when compared to patients with normal BMI.

Conclusion:

From our study using SF-36 form to assess the OA of the knee patients, we conclude that patients with knee OA have relatively poor quality of life pertaining to the physical health components but less impact was seen on the mental health components of the patients. The quality of life is negatively affected by increasing levels of joint pain and old age. Thus the present study suggests that the perception and the HRQOL is affected in the knee OA patients. Further studies are required to perform the patient counselling session and to assess the improvement in HRQOL in a larger population.

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