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Research Article

IMPACT OF CLINICAL PHARMACY SERVICES IN IMPROVING QUALITY OF LIFE AND ASSESSMENT OF DRUG RELATED PROBLEMS OF NSAIDS IN KNEE OSTEOARTHRITIS PATIENTS

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ABSTRACT

Aim: To find out the impact of clinical pharmacy services in improving quality of life and assessment of drug related problems of NSAIDs in knee osteoarthritis patients.

Objective: The objectives of the study are

- To assess the quality of life of knee osteoarthritis patients using Knee Injury and Osteoarthritis Outcome Score (KOOS).
- To improve the quality of life in knee osteoarthritis (OA) patients by providing clinical pharmacy services (Patient Counselling, Providing Pamphlet).
- To assess the drug related problems due to NSAIDs.

Materials and methods: A retrospective and prospective study was carried out in total 170 post OA patients aged >40 years with history of chronic pain on knees. A specially designed data entry form was used to collect demographic details and KOOS score was used to assess the quality of life of knee osteoarthritis patients by taking, patient's opinion about their knee and associated problems. Patient information leaflet was prepared and assessed.

Results: The study result showed that patients had an improved quality of life after patient counseling. Drug related problems of NSAIDs were monitored in about 100 patients. Cardiovascular and gastrointestinal risks are the most common drug related problems that are reported after the administration of NSAIDs.

Conclusion: Modified KOOS score was found to be greater for patients after they were given counseling based on their medication and lifestyle. An informative patient counseling helped the patients to lead a better life thus brought out a better health related quality of life. Gastro intestinal risk and cardiovascular risk are the most common drug related problems caused due to NSAIDs. Due to the co-prescription of PPI drugs to all most all the patients who were prescribed with NSAIDs, incidence of ulcer had not been reported. Those patients who were on long term use of NSAIDs had been found to have elevated blood pressure. Patient information leaflet was prepared and distributed through orthopedic department to improve patients understanding of disease management and the developed leaflet was found to be very useful to the patients.

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INTRODUCTION

Knee osteoarthritis is highly prevalent, especially in elderly.¹ Knee osteoarthritis is usually a progressive disease that develops from failed repair of joint damage resulting from stresses that originate from an abnormality in any of the synovial joint tissues.² Nowadays, knee osteoarthritis is more common and this study will provide more information

regarding the drug related problems of NSAIDs and quality of life in osteoarthritis patients. In this study we have assessed the impact of clinical pharmacy services such as patient counseling with the help of pamphlets and the patients quality of life was assessed with the help of Knee Injury and Osteoarthritis Outcome Score (KOOS) questionnaire. So it is an attempt to improve the quality of life of patients who are suffering from osteoarthritis. The KOOS questionnaire was developed as an

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instrument to assess the patient's opinion about their knee and associated problems. An advantage of the KOOS is the inclusion of two different subscales of physical functions relating to daily life, sport and recreation. This enhances the instruments validity for patients with a wide range of current and expected physical activity levels.

KOOS consists of subscales such as pain, symptoms and knee related quality of life (QOL). A normalized score (100, indicating no symptoms and 0, indicating extreme symptoms) is calculated for each subscales.³

MATERIALS AND METHODS

A retrospective and prospective study was carried out in total 170 post OA patients aged >40 years with history of chronic pain on knees. A specially designed data entry form (ANNEXURE IV) was used to collect demographic details and KOOS score was used to assess the quality of life of knee osteoarthritis patients by taking, patient's opinion about their knee and associated problems. Patients were provided counseling to create and awareness about the disease and non-pharmacological treatments that will help them to improve their quality of life. Patient information leaflet was prepared and assessed. Newly diagnosed OA patients, hemophilic patients, patients below 40 yrs of age, pregnant and lactating women were excluded from the study.

RESULTS

The study comprised of 140 patients diagnosed as post osteoarthritis. Among them 4.28% comprises of those within the age group 40-50 years, 30% comprises of those within 51-60 years, 41.42% comprises of those within 61-70 years and 24.28% comprises of those within 71-80 years. Males were accounted for 46.42% and 53.57% accounts for the females. 47.14% had a normal BMI, 1.42% was underweight, 37.85% was overweight and 13.57% was found to be obese. Patients under overweight and obese category are more prone to develop knee osteoarthritis. Age distribution of knee osteoarthritis patients are shown in Table 1. Gender categorization of knee osteoarthritis patients are shown in Table 2. Body Mass Index of knee osteoarthritis patients are shown in Table 3. KOOS pain level and KOOS pain score index are shown in Table 4 & 5. KOOS symptom level and symptom score index are shown in Table 6 & 7. KOOS QOL level and QOL score index are shown in Table 8 & 9.

Table 1 Age Distribution of Knee Osteoarthritis Patients

Sl.no	Age (years)	Male	Female	No. of Patients (n=140)	Percentage (%)
1	40-50	3	3	6	4.28
2	51-60	11	31	42	30
3	61-70	28	30	58	41.42
4	71-80	23	11	34	24.28

Table 2 Gender Categorization of Knee Osteoarthritis Patients

Gender	No. of patients (n = 140)	Percentage (%)
Male	65	46.42
Female	75	53.57

Table 3 Body Mass Index of Knee Osteoarthritis Patients

Sl.no	Bmi category	No. of patients (n=140)	Percentage (%)
1	Underweight	2	1.42
2	Normal	66	47.14
3	Overweight	53	37.85
4	Obese	19	13.57

Table 4 KOOS Pain Level

KOOS PAIN		
Baseline Mean ± sd	1 st follow up Mean ± sd	2 nd follow up Mean ± sd
21.53 ± 14.97	36.94 ± 13.48***	50.20 ± 15.27**

Table 5 KOOS Pain Score Index

Score	No. of patients (n=40) Base line	No. of patients (n=40) 1 st follow up	No. of patients (n=40) 2 nd follow up
0-20	20	5	2
21-40	15	20	12
41-60	5	13	17
61-80	0	2	7
81-100	0	0	2

Table 6 KOOS Symptoms Level

KOOS SYMPTOMS		
Base line Mean ± sd	1 st follow up Mean ± sd	2 nd follow up Mean ± sd
23.39 ± 12.15	45.89 ± 12.06	54.82 ± 14.79

Table 7 KOOS Symptoms Score Index

Sl.no	Score	No. of patients (n=40) Base line	No. of patients (n=40) 1 st follow up	No. of patients (n=40) 2 nd follow up
1	0-20	16	1	0
2	21-40	21	11	5
3	41-60	3	25	25
4	61-80	0	3	6
5	81-100	0	0	4

Table 8 KOOS Qol Level

KOOS QOL		
Base line Mean ± sd	Follow up 1 Mean ± sd	Follow up 2 Mean ± sd
14.68 ± 9.96	27.5 ± 7.32	53.75 ± 11.21

Table 9 KOOS Qol Score Index

Sl.no	Score	No. of patients (n=40) Base line	No. of patients (n=40) Follow up 1	No. of patients (n=40) Follow up 2
1	0-20	29	8	0
2	21-40	11	32	0
3	41-60	0	0	28
4	61-80	0	0	11
5	81-100	0	0	1

RESULTS AND DISCUSSION

Knee osteoarthritis is highly prevalent, especially in elderly. Knee osteoarthritis is usually a progressive disease that develops from failed repair of joint damage resulting from stresses that originate from an abnormality in any of the synovial joint tissues.

The study aims to promote clinical pharmacy services such as patient counseling, distribution of pamphlets and thus to improve the quality of life of patients.

The study tried to create awareness in patients about the drug related problems caused by the consumption of NSAIDs. We

also took care of the patients who were on regular NSAIDs treatment and asked them to undergo their regular check up of their vital signs and organ function test.

The study included 140 patients with knee osteoarthritis in which 46.42% accounts for the males and 53.57% accounts for the females. This proved that females are more prone to knee osteoarthritis (Ashraf Ramadan *et al*).

Among the 140 patients 4.28% comprises of those within the age group 40-50 years, 30% comprises of those within 51-60 years, 41.42% comprises of those within 61-70 years and 24.28% comprises of those within 71-80 years. As per the study of Nishit Palo *et al* suggest, elderly people above 61 years of age are more likely to suffer from knee osteoarthritis.

We had selected patients having history of (2 years, 4 years and upto 10 years) knee osteoarthritis and then analyzed their vital signs, laboratory values and KOOS.

In this study among 140 patients, 47.14% had a normal BMI, 1.42% was underweight, 37.85% was overweight and 13.57% was found to be obese. Patients under overweight and obese category are more prone to develop knee osteoarthritis (Stephen P. *et al*).

The patients were enquired about the severity of their pain and their quality of life (Marcio Massao Kawano *et al*) based on the 3 subscales of KOOS (Pain, Symptoms and Quality Of Life). Comparing the score of the pre-counseled and post-counseled it was found that patients who gained KOOS minimal score was more in pre-counseled group than that of post-counseled group. At the same time, the patients who scored maximum KOOS were more in post-counseled group than that in pre-counseled group.

In the 0-100 scale, 0 indicates perceived extreme knee problems and 100 indicate no knee problems. When analyzing the KOOS score of both the groups, it is noticed that most of the patients in the pre-counseled group scored below 40, whereas most of the patients in the post-counseled group scored above 40. These findings are supported by the study conducted by Ewa M Roos *et al*. The study stated that, KOOS is a valid, reliable and responsive self administered instrument that can be used for short term and long term follow up of several types of knee injury osteoarthritis. In KOOS scoring scale, lower the score higher the physical and functional impairment caused by knee and leg injury.

Non-steroidal anti-inflammatory drugs (NSAIDs) have an established place in the management of osteoarthritis.

While unable to modify the disease of osteoarthritis (OA), NSAIDs are frequently used to manage symptoms. However, the gastrointestinal and cardiovascular risks associated with nonselective NSAIDs presents challenges because OA predominantly affects older patients, who are inherently at greater risk for this events.

In this study 100 patients were taken to assess the drug related problems of NSAIDs. Among them 20% of the population showed an elevation in blood pressure which is supported by the study conducted by Laura A. Perry *et al*. The study stated that an increased risk of cardiovascular events has been associated with the use of NSAIDs. A complete analysis of our study showed that PPI drugs are quite often co-prescribed along with most of the NSAIDs which subsequently reduces the incidence of gastrointestinal disturbances.

CONCLUSION

Modified KOOS score was found to be greater for patients after they were given counseling based on their medication and lifestyle. An informative patient counseling helped the patients to lead a better life thus brought out a better health related quality of life. An effective counseling is also known to be a type of education where the patient gets a more clear view about the diet, exercises, nutritional supplements and lifestyle modifications to be followed by an osteoarthritis patient.

Gastro intestinal risk and cardiovascular risk are the most common drug related problems caused due to NSAIDs. Due to the co-prescription of PPI drugs to all most all the patients who were prescribed with NSAIDs, incidence of ulcer had not been reported. Those patients who were on long term use of NSAIDs had been found to have elevated blood pressure.

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