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Development of Knee Osteoarthritis in Older Age Women Patients

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ABSTRACT

Background: Knee osteoarthritis is a joint disorder that shows up essentially in elderly persons and is characterized by disintegration in the articular ligament, osteophyte, synovitis inflammation, and subchondral bone firmness. Knee osteoarthritis has numerous reasons, like age, presently solidly settled as a general medical issue. It is the most impairing illness in multiple nations. Knee osteoarthritis is viewed as the more typical type of ailment in a grown-up. Old ladies are seen as increasingly influenced by this ailment. From the accessible confirmations, it is currently sensible to consider this illness as one of the most significant among the interminable non-transferable maladies and examination for the hazard factors related to this issue is substantial.

Aims: To describe the risk factors for developing symptomatic knee osteoarthritis in female Iraqi patients.

Patients and Methods: This investigation incorporates 50 female patients with clinical and radiological highlights of knee osteoarthritis in different age groups.

Result: The evaluated pervasiveness of knee osteoarthritis among women matured 40-49 years or more is 14 % of who had knee osteoarthritis with injury or trauma and 86% of women who had knee Osteoarthritis without injury or trauma. We additionally found that 94% of the ladies who experienced difficulty in doing daily schedule actions had a high increment in the levels of ESR, PLT, and CRP in serum.

Conclusion: The elevation of knee osteoarthritis prevalence in female patients is because of the fact that most female patients develop knee osteoarthritis with aging. So that the quality of life of female patients in society will decline due to multiple factors affecting those women, with some high serum levels indicators.

Keywords: Knee joint, Osteoarthritis, Prevalence KOA, ESR, PLT, CRP.

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INTRODUCTION

Osteoarthritis (OA) and knee osteoarthritis (KOA) are stills incapacitating conditions influencing a great many individuals around the world. The predominance is of the ailment different among populaces and from one city to another [1]. Numerous investigations have demonstrated that OA is common in individuals, females are affected more than males, and this disease affects the knee more than other joints representing about 65%-78%. It has likewise been accounted for those different joint gestures, and inclusion of joints of the extremities are exceptional among Nigerian patients [1]. Knee OA exemplifies a heterogeneous set of conditions bringing about normal histopathologic and radiologic changes. Essential Knee osteoarthritis is a degenerative ailment arising out of the biochemical breakdown of the articular (hyaline) tendon in the synovial joints [2]. Anyway, the predominance of OA is high with increasing age in both genders, yet the knee joint in females is especially powerless to this deceptive sickness. For females aged from 55 to 64 years, the announced alluded pervasiveness of radiographic OA in the knee is 7.5%; for females aged more than 65 years, the predominance expands drastically to 20.3% [3]. Female to male ratio of OA predominance in the knee among people aged more than 65 years' ranges from 2:1 to 3:1 [4]. Reports indicate an increase in the prevalence of KOA in females during pre-menopausal age, and this increase continues throughout the menopause period. Reasons uncovered in numerous studies that loss of estrogen during menopause constructs a woman's peril of getting osteoarthritis [5]. Knee Osteoarthritis is exceptionally basic in females, and about 25.7% of females are between the ages bunch 40 to 80 years. Aside from being a significant contributor to ache, it is additionally connected with diminishing physical movement and may prompt restriction of one's freedom and influence wellbeing related nature of life and furthermore prompts loss of productivity [5-6]. Ladies matured 50 years or more than knee OA can be considered among the interminable non-communicable illnesses, and inquiries through the lifestyle and propensities (for example, from sociological points of view) can be extremely useful in distinguishing more hazard factors that are manageable for anticipation and control of this perilous issue [7-15].

PATIENTS AND METHODS

Patients

Aggregates of 50 females aged from 30 to 70 years old, suffering from knee osteoarthritis, conceded in Iraq, Diyala, Baquba Teaching Hospital & Specialized Clinics for Fractures and Joint Diseases, from February 2019 to December 2019 were involved in the study. This case study comprised 50 female individuals selected Depending on specific criteria.

Methods
Diagnostic methods

All participants are assessed by:
X rays.
Lab. tests include levels of ESR, PLT, and CRP in serum.
Physical examination.

Samples collection and preparation

All study participants had blood collected intravenously, and samples ranged from 3 to 5 millilitres. To every test (ESR, CBC, and gel tube for serum), the samples were placed in clean, specific test tubes and left at room temperature for 15 minutes until coagulation. Test tubes were placed in a centrifuge set at 3000 rpm for 10 minutes to remove the serum. The serum was then separated and placed into fresh, clean test tubes with 500 µl of serum in every test tube. These test tubes were then stored at - 20°C until they were utilized for biochemical analysis. Serum was administered only once to prevent the freezing and melting of tests.

Statistical analysis

By utilizing the Statistical Package for Social Sciences Program No. 21 regarding distinct factors, a Statistical analysis was made. With the aid of X^2 test we compare & depict numbers and percentage formula. Concerning factors with the mathematical equation, mean and standard deviation were utilized to portray them. T-test between two gatherings & ANOVA tests through examination of multiple gatherings. The correlation coefficient was utilized. P value (< 0.05) will consider significant result.

RESULTS

In our study, the mean age of the participants was between 30 to 70 years; the 50-59 years old group represented the majority of cases, followed by the 40-49 years old group, while the 60-69 years old group represented the third group. This study shows a significant $p < 0.05$, High incidence in older age groups, as in figure (1).
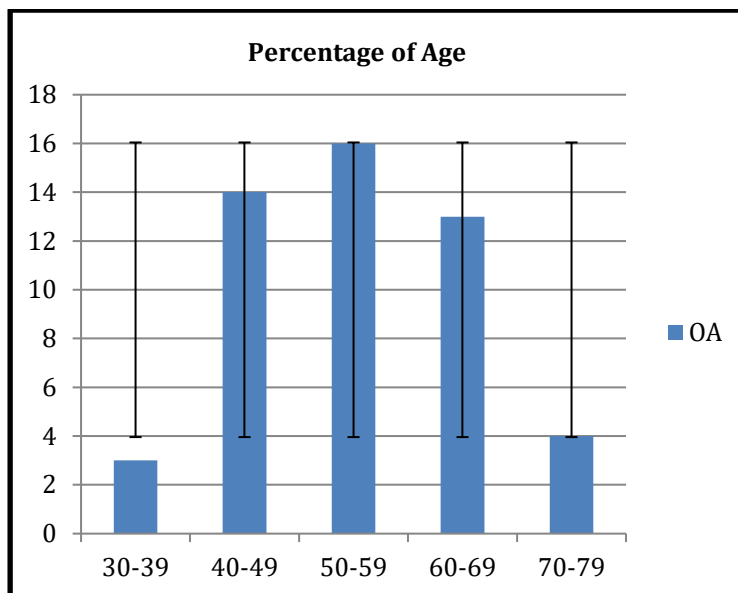

FIGURE 1: Prevalence of KOA according to age groups

TABLE 1: The relation between Osteoarthritis and knee trauma

Knee Trauma	Total
Presence of trauma	7 (14%)
Absence of trauma	43 (86%)
Total	50(100%)

*Data presentation as Mean ± SD, P-value < 0.05 significant result.

In the table (1) of our study, we found that among women who had osteoarthritis knee with trauma, the study showed five women diagnosed with present trauma in the percentage of 70% and two women in 30% of all patients. Still, more women were their results without trauma.

TABLE 2: Relation between the Osteoarthritis and the daily routine work

Daily routine work	Number and percentage	P < 0.05
Presence of effect	47(94%)	
Absence of effect	3(6%)	
Total	50(100%)	

*Data presentation as Mean ± SD, P value < 0.05 significant result

In the table (2), this study shows the relation between the Osteoarthritis and the daily routine work, female patients with the presence of effect were 47(94%) and female patients who did not have effect 3(6%), the result was insignificant at *a* P-value < 0.05.

TABLE 3: Measurement of platelets count (PLT), Erythrocytes sedimentation rate (ESR), C-reactive protein level (C-RP) in the serum of females with KOA classified according to age

Groups/Age	Parameters (Units)		
	PLT 1000/mm³	ESR mm/h	CRP mg/l
30-39	154169.1±165295.2	24.1±24.5	16.7±18.4
40-49	253167.9±162876.3	33.1±22.3	31±17
50-59	240901.7±114320.3	29.9±20.2	25.4±16.5
60-69	(294352.9±65682.8)*	(45±25.9)*	(43.7±31.9)*
70-79	(351666.6±123143.5)*	(50±21)*	(36.3±11.2)*

* Data presentation as (Mean±SD), (P value < 0.05) significant result

Table (3) shows the measurement of platelets count, Erythrocytes sedimentation rate, C-Reactive Protein levels in serum of females with KOA classified according to age groups; the results were significant at the (60-69 years old, 70-79 years old) groups.

TABLE 4: Platelets count (PLT), Erythrocytes sedimentation rate (ESR), C-reactive protein level (C-RP) measurement in serum of females with KOA classified according to occupation

Groups / Occupation	Parameters (Units)		
	PLT1000/mm³	ESR mm/h	CRP mg/l
Housekeeper	(225306.2±148068.3)*	(33.8±22.9)*	(28.4±22.7)*
Officer	84728.4±159739.3	21±16.5	12.8±22.7
Teacher	62224±151758.6	16±7.4	4.07±2.06
Worker	(195237±126346.8)*	(32.8±28.4)*	(28.3±19.5)*

*Data presentation as Mean ± SD, P-value < 0.05 significant result.

Table (4) displays the measurement of platelets count, Erythrocytes sedimentation rate, C - reactive protein levels in serum of females with KOA classified according to occupation and the results were significant in housekeeper & worker groups compared with other occupation also compared with healthy persons.

DISCUSSION

Results in Figure (1) of this study which showed an estimated prevalence of OA among women 40 years and above was 55% are consistent with the studies conducted by Salve, et al. [8] that which showed the prevalence of OA among female patients older than 40 was 47.3%. Moreover, the results in a table (1) of this present study show an agreement with Kristiann, et al. [9]. Zhang Y, et al 10 demonstrate that even symptoms of knee OA will be more severe in women and showed the relation between OA and trauma to the knee in percentage (presence of trauma 80% and 20% without trauma). Results from the table (2) there is an agreement with Fransen, et al. [11] that exhibit the relation between the Osteoarthritis and the daily routine work. The results in a table (3) in our study show an agreement with Riboh, et al. [12] that shows up the high level of platelet count in older patients with OA and an agreement in accord with lane et al. [13] which shown a rise in ESR level with ageing, especially in patients suffering from knee OA. Our study showed the measurement of the levels of platelets count, Erythrocytes sedimentation rate, and C-reactive protein levels in serum of patients with Osteoarthritis depending on the occupation, and there was an agreement with the study of Zaid et al. [14] that exhibit an increase in markers (ESR, PLT, & C-RP) in housekeeper and worker respectively.

CONCLUSION

The high prevalence of OA in the knee is due to the fact that the majority of women develop OA at an older age. This leads to a decrease in the quality of life of women in the younger age group in society due to previous factors affecting those women, with some high serum indicators.

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