



STUDY OF INFLAMMATORY MARKERS IN IDIOPATHIC OSTEOARTHRITIS OF KNEE AT TERTIARY CARE HOSPITAL BIKANER RAJASTHAN

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Conflicts of Interest: Nil

ABSTRACT:

Background: Osteoarthritis is the most common rheumatologic disease of old age. It is a slowly progressive degenerative disease leading to major restriction of activities of daily living in the elderly.

Methods: Hospital based Observational study conducted at Trauma center Sardar Patel Medical College, Bikaner. 50 patients were included according to criteria of American Rheumatism Association.

Results: ESR was more than 20 mm/hour in 84.00% cases. Serum RF was positive in 2 (4.00%) patients and negative in 48 (96.00%) patients. CRP was found positive (>3 µg/ml) in 18.00% patients while negative in 82.00% patients. ANA and RF were positive in 2 patients.

Conclusions: The study indicates that ESR, CRP and RF collectively can serve as markers in idiopathic osteoarthritis of knee.

Keywords: Osteoarthritis, Erythrocyte sedimentation rate, C-reactive protein, Rheumatoid factor

Introduction

Osteoarthritis is the most common rheumatologic disease of old age. It is a slowly progressive degenerative disease leading to major restriction of activities of daily living in the elderly. Symptoms of osteoarthritis include pain, stiffness and restriction of joint movement and deformity of joint.¹

Osteoarthritis usually affects knee, hip, hands, Spine rarely ankle. Radiographic evidence of OA outnumbers the clinically evident osteoarthritis. There is no definite cure for OA. Wide variety treatment measures include weight reduction, modification of activities to reduce stress and load on the joint, Pharmacotherapy such as analgesics, judicious, use of NSAIDS or intraarticular steroid injection. Total joint replacement is the treatment of choice but could not be done in all patients.²

OA is of multifactorial etiology and it can be primary or secondary to some other disorder. Arthritic conditions can be classified as low-inflammatory or high-inflammatory types. Patients with the low-inflammatory type have low

leukocyte counts in the synovial fluid and laboratory findings are consistent with low-level inflammatory activity. The affected joint often shows focal degeneration. Those with the high-inflammatory type have high leukocyte counts in the synovial fluid, laboratory findings consistent with high-level inflammatory activity, and usually show a more diffuse degeneration of the involved joints. OA is a chronic degenerative cartilaginous joint disorder with variable etiopathogenesis. OA is thought to be derived from defective chondrocyte metabolism thus lack large-scale systemic response. The inflammatory surrogate markers may be produced directly during disease process or indirectly as biological end points of cytokines produced during cartilage degradation and joint destruction. OA has been classically defined as an age related degenerative wear-and-tear disease, but recent work indicated that it has as an immunological component on a spectrum between healthy condition and rheumatoid arthritis.³ Although OA is classified as non-inflammatory synovitis, recent studies indicate osteoarthritis may have mild to moderate inflammation. The immune system plays a significant role in OA and RA, but

DMARDs, tumor necrosis factor α (TNF α) and interleukin-1 (IL-1) inhibitors, effective in the treatment of RA, are unsuccessful in treating OA. On the basis of this background, the present study was conducted to find out the inflammatory basis of OA.

MATERIALS AND METHODS

Study design: Observational

Study centre: Trauma center sardar patel medical college, Bikaner.

Duration of the study: 6 Months

Study Sample size: 50 patients and 50 healthy control.

Inclusion criteria- The patients were included according to criteria of American Rheumatism Association (ARA, 1986).⁴

Exclusion criteria

- Patients with inflammatory rheumatologic disorders RA, SLE, Crystal arthropathies, Reactive arthritis
- Cardiovascular disease, COPD, Ulcerative colitis.
- Chronic Liver Disease
- Chronic Kidney Diseases
- Previous history of local intraarticular steroid injection

Data collection- The detailed history was taken and general physical examination was done. The anteroposterior (weight bearing and non-weight bearing) and lateral radiographs of knee were performed. The serum levels of ESR, CRP, RF and ANA were measured in 50 patients.

Statistical analysis

Continuous variables were summarised as Mean and Standard Deviation whereas nominal / categorical variables as proportion (%).

OBSERVATIONS

TABLE 1: SOCIO-DEMOGRAPHIC VARIABLE

Variable	Cases	Control
Gender		
Male	18	17
Female	32	33
Age(Yrs)		
≤45	10	8
>45	40	42

Among 50 patients 36% were males and 64% were females. The disease prevalence and severity was more common in perimenopausal or postmenopausal women than in men.

TABLE 2: INFLAMMATORY MARKER

Marker	Cases	Control
CRP		
Negative	41	49
Positive	9	1
ESR(mm/hr)		
<20	8	47
20-40	30	3
>40	12	0
RF		
Negative	48	50
Positive	2	0
ANA		
Negative	48	50
Positive	2	0

ESR was more than 20 mm/hour in 84.00% cases. Serum RF was positive in 2 (4.00%) patients and negative in 48 (96.00%) patients. CRP was found positive (>3 µg/ml) in 18.00% patients while negative in 82.00% patients. ANA and RF were positive in 2 patients.

DISCUSSION

ESR was more than 20 mm/hour in 84.00% cases. Serum RF was positive in 2 (4.00%) patients and negative in 48 (96.00%) patients. CRP was found positive (>3 µg/ml) in 18.00% patients while negative in 82.00% patients. These findings correlate well with suggestion by Sipe that there is a modest rise in ESR and the concentration of CRP are elevated in osteoarthritis but to a lesser extent than rheumatoid arthritis.⁵ CRP is raised in OA compared to normal population, and is correlated with rheumatic disease signs and symptoms, including HAQ (health assessment questionnaire) disability, joint count, and pain. ESR was not associated with clinical signs or symptoms except for a weak association with functional disability. An inflammatory component associated with OA can be detected in the serum.⁶ ESR and high-sensitivity CRP were raised in patients with knee osteoarthritis and were correlated with clinical features.⁷ Moreover it correlates well with the study of deOliveira et al that concentration of acute phase protein (APP) and CRP were raised in osteoarthritis when compared with normal population.⁸

Antinuclear antibody (ANA) was positive in 4.00% patients. The present study correlates with the study of Robitaille et al suggesting incidence of ANA positivity was similar to that of normal population.⁹ The results were comparable with the study of Cooke that four of 59 were RF positive; five (10%) of 48 cases were ANA positive.¹⁰ In addition to the ability of inflammatory cytokines to induce cartilage catabolism, many cytokines can also promote OA progression by inhibiting anabolic processes critical to cartilage homeostasis.¹¹

CONCLUSIONS

The study indicates that ESR, CRP and RF collectively can serve as markers in idiopathic osteoarthritis of knee. Further studies need to be

done to formulate reliable disease markers in idiopathic osteoarthritis of knee.

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