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Original Research Article

To evaluate the co-relation of histo-pathological changes with clinical disability and the radiographic picture in osteoarthritis knee

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Abstract:
Background & Method: The aim of the study is to evaluate the co-relation of histo-pathological changes with clinical disability and the radiographic picture in osteoarthritis knee. All consecutive patients who attended our out-patient, who satisfied the inclusion criteria enumerated below, who had primary osteoarthritis of knee of varying severity, were considered eligible for the enrolment in the study
Conclusion: The association between radiographic feature of OA and pain, the main problem for the patients, is notoriously disparate. Furthermore, majority of epidemiological studies have focused on structural features of OA, with pain and disability occasionally included in composite definition of disease, but, are not often used as main outcome of the disease. Many studies have attempted to close the gap between radiological features and pain, with varying degrees of success.

Keywords: co-relation, histo-pathological, and radiographic.

Study Designed: Observational Study.

1. INTRODUCTION

Osteoarthritis is one of the most prevalent conditions resulting to disability, particularly in elderly[1]. OA is the most common articular disease and a leading cause of chronic disability, mostly as a consequence of the OA knee/hip. In India 5.3% males and 4.8% females are aged more than 65 years old. The economic costs of OA are high, including those related to the treatment, for those individuals and their families who must adapt their lives and homes to the disease, and those due to lost work productivity[2]. The estimates for the global burden of disease 2000 study published in world health report 2002, OA is the 4th leading cause of YLD at global level[3].
In the advanced stage, fragmentation of the osteochondral surface occurs leading to loose body formation. In the long standing cases, destruction and distortion of the capsular ligaments can lead to deformity and mal-alignment.
Microscopically, in early stages there are surface irregularities or fibrillaton with small clefts not extending beyond the superficial zone, slight hyper-cellularity, minimum loss of mucopolysaccharides[4]. In advanced stages the clefts extend down to the subchondral bone and the thickness of the articular cartilage is reduced or in some areas completely lost to expose the eburnated subchondral bone[5].
In about 40% cases synovial biopsy of OA patients cannot be differentiated from RA and 50% of all OA synovia have moderate to marked inflammation. Synovial ulceration and markedly hyperplastic, hydropic synovial villae are not common features of OA.bone shards i.e, small bony masses within the synovium is more suggestive of OA than RA[6].

2. MATERIAL & METHOD

All consecutive patients who attended our out-patient, who satisfied the inclusion criteria enumerated below, who had primary osteoarthritis of knee of varying severity, were considered eligible for the enrolment in the study.

INCLUSION CRITERIA:

- Both sexes
- Patients with primary osteoarthritis

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EXCLUSION CRITERIA:

- All cases of clinical and radiological features of suggestive of inflammatory arthritis like RA.
- All cases of secondary OA.

Clinical criteria:

The presence of the following were regarded as signs of osteoarthritis-

- Joint line tenderness
- Crepitus on active or passive knee motion
- Limitation of range of motion
- Varus or valgus deformity of any degree
- These patient later underwent total knee replacement

3. RESULTS

Table 1: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
K-L x-ray grade (0-4)	25	2.88	1.536	.307
Fca	25	3.32	1.464	.293
Fcm	25	3.60	1.500	.300
Fcp	25	3.12	1.641	.328
Tca	25	3.04	1.513	.303
Tcm	25	3.20	1.443	.289
Tcp	25	3.12	1.616	.323

Table 2: One-Sample Test

	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
K-L x-ray grade (0-4)	9.374	24	.000	2.880	2.25	3.51
Fca	11.339	24	.000	3.320	2.72	3.92
Fcm	12.000	24	.000	3.600	2.98	4.22
Fcp	9.506	24	.000	3.120	2.44	3.80
Tca	10.044	24	.000	3.040	2.42	3.66
Tcm	11.085	24	.000	3.200	2.60	3.80
Tcp	9.656	24	.000	3.120	2.45	3.79

Table 3: Oxford knee score

	N	Mean	Std. Deviation	Std. Error Mean
Oxford knee score (0-48)	25	24.28	13.170	2.634

4. DISCUSSION

A bio-marker is defined as a structural or physical measure (here, degradation products of the articular cartilage) by which alterations in a biologic process can be measured or monitored. Examples of potential uses include: exploring disease mechanisms and dynamics, identifying molecular targets of treatment, identifying patients at risk for rapid progression of disease, monitoring therapy and to tailor treatment response. A bio-marker may thereby have a diagnostic or prognostic utility[7].

OARSI histo-pathology initiative- recommendations for histological assessment of OA in –horse, sheep, goat, dog, rabbit, and guinea pig. There are specific guidelines and recommendations laid down by the society for the use of pre-clinical models in the study and treatment of OA[8].

Other studies addressing radiographic and painful OA discordance have suggested that either the type of imaging used or the views selected for imaging may be at fault. Again Duncan and colleagues have shown that only 38% painful knees were identified when AP view alone was used[9].

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Another key 2009 study, addressed this discordance by conducting a cross sectional analysis of two large cohorts (MOST OA study and Framingham OA study). Important findings included a positive co-relation between the severity of Radiographic OA and severity of pain.

5. CONCLUSION

The association between radiographic feature of OA and pain, the main problem for the patients, is notoriously disparate. Furthermore, majority of epidemiological studies have focused on structural features of OA, with pain and disability occasionally included in composite definition of disease, but, are not often used as main outcome of the disease. Many studies have attempted to close the gap between radiological features and pain, with varying degrees of success.

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