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ORIGINAL ARTICLE

Prevalence of Lateral Epicondylitis Among Computer Users

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A B S T R A C T

Background: Lateral epicondylitis is an overuse injury involving the origin of common extensor tendon at elbow joint. Among computer users there is common complaint in neck, elbow and wrist region pain.

Objective: The objective of this study was to determine the prevalence of Lateral Epicondylitis in those individuals who used computer from last 1 year and duration of computer usage was about at least 4-6 hours per day.

Methodology: This was a cross sectional study. Through convenient sampling data was collected from 296 office workers, bankers and students in Lahore city. Age of respondents between 18-45 years. In this study those students and professionals were included who used computer continuously more than 4 hours/day. No past history of elbow fracture, olecranon bursitis and, neuritis was present. A well-defined questionnaire; Patient-Rated Tennis Elbow Evaluation (PRTEE) was used. Cozen test was performed to confirm the pain on lateral side of elbow.

Results: 26%prevalence of lateral epicondylitis among computer users. It was observed the right elbow was dominantly involved students 93(58%) office workers 20(48.8%) and bankers 44(46 %.). Location of symptom was more prominent in right elbow (103) and in those individuals whose sitting time with computer at least 4-6 hours per day.

Conclusion: The study concluded that prevalence of Lateral Epicondylitis common in computer users. This study showed that pain was more prominent in right elbow.

Introduction

Lateral Epicondylitis is an exaggerated condition of common extensor tendon of the elbow that involves primarily extensor carpi radials brevis.[1] Muscles attached to the lateral epicondyle of humerus are responsible for straightening the fingers, dorsiflexion of the wrist in and rotating the forearm in supination.[2]

Lateral elbow pain is one of the most common musculoskeletal problems reported by computer professionals and has been recognized to several causes. For example, in a detailed examination of injured workers who were predominantly computer users, 7% of patients were identified as having radial tunnel and 33% were identified as having lateral epicondylitis.[3]

Direct tenderness was considered positive if palpation on the lateral epicondyle or the adjacent tissue (up to 4 cm distal to the epicondyle) elicited any degree of palpation tenderness. Indirect tenderness was examined by resisted dorsal flexion of the wrist with the elbow stretched and was considered positive if exacerbation of pain was located in the specified area.[3]

Muscle fatigue plays an important initiating role in musculoskeletal disorders, which progress in stages from mild to severe. During the early stage, pain and fatigue of the affected limb occur during the work shift but disappear at night and during days off. With progression, pain, fatigue, and weakness persist at rest, resulting in severe reduction of work performance.[4]

The diagnostic constraints are illustrated in a study of epicondylitis. Whether blinded or not there was a low inter-examiner reliability of the examination, and palpation tenderness was present in many non-

symptomatic subjects but only in few subjects with at least moderate elbow pain. [5]

The rapidly increasing use of computers among workers has led to an increase in the frequency of musculoskeletal disorders.[4] Among computer users, these disorders are predominantly seen in the neck, shoulders, wrists, hands, and elbows and are less frequently seen in the back and waist.[3]

Based on symptoms Epicondylitis is present now or on minimum 4 days during the last 7 days. Minimum recurrent, dependent on activity pain exact located around the lateral or medial epicondyle.[4] Pain feel on local area with resisted wrist extension.[6]

Chard and Hazelman reported 1-3% of the population is affected with lateral epicondylitis. The injury typically disturbs the leading arm, and most patients are not manual workers. Hamilton establishes a frequency of four cases of humeral epicondylitis per 1000 patients in a common practice that not include majority of manual workers. [7]

Lateral epicondylitis is a main arm complaint through predictable frequency of 0.7 to 4.0% in the general population.[8]

Epicondylitis is a condition described by intermittent pain at the muscle-tendon junction or at insertion points of the wrist extensors (lateral epicondylitis) in the elbow region. The clinical features of epicondylitis are described as patients' complaints of pain as the primary symptom, generally localized around the lateral epicondyle but sometimes radiating distally to the forearm.[9]

Job-related upper extremity complaints are a main reason of illnesses and disability in employed. Elbow pain and related complaints, frequently lateral epicondylitis, are identified to be one of the utmost common conditions of the arm in general public.[10]

The reason and nature of lateral epicondylitis are still matters for assumption there is well-meaning sign that it is not mutual among manual workers and is not obviously linked with any specific working activity. [11]

Miriam et al conducted this study for knowing work related problems, pain and psychological factors associated with the computer use. Important thing of this study was that various factors of subjects such as body mass, head alignment, pelvic tilt, Hip angle etc. and environmental factors such as seated position, back support, typing elbow angle etc. were considered. On the basis of these factors it was concluded that most prevalent area of pain were Low back and neck and 23.1% was prevalence of wrist and 7.7 % prevalence arm pain in computer users .[12]

Methodology

The study was cross sectional in design. Data was collected from students of Riphah College of Rehabilitation Sciences (RCRS) Lahore, office workers of Service Sales Corporation (SSC) and bankers of Allied Bank Limited from Lahore city. Study was completed in three months after the approval of synopsis from January 2014 to June 2014.Convenience sampling technique was used to get the sample.

Sample size of 296 computer users was taken in this study. Sample size calculated by using 26%prevalence of lateral epicondylitis among computer users.(13) Sample size at 95%confidence level and 5% absolute precision obtained by using following formula.

$$n = Z^2\ 1-\alpha/2\ \frac{p(1-p)}{d^2}$$

The inclusion criteria include age 18–45 years, subjects of both gender Students and professionals who use computers more than 4 hours/day.

The exclusion criteria were Carpal Tunnel Syndrome, Fractures of elbow, Olecranon bursitis, Diabetes Mellitus, Rheumatoid Arthritis, and Neuritis.

Total 296 computer users, who fulfil the selection criteria with complain of elbow pain on lateral side when using computer more than 4 hours, was enrolled in. Informed consent from each subject which contains information about demographic details (name, age and sex), profession, working hours, and posture was obtained. Cozens test performed to confirm the pain on lateral side of elbow which is due to computer use. A valid Questionnaire Patient Rated Tennis Elbow Evaluation (PRTEE) was fulfilled from computer users. Data entry and analysis was done by using SPSS 18.

Results

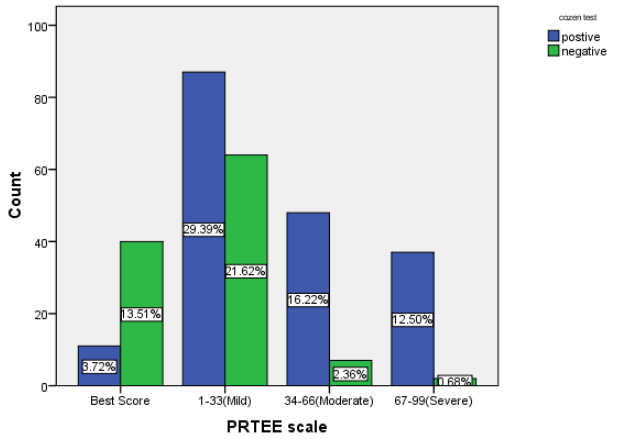
Total 296 participants were included in this study with age .Female were 201 and male 95.

Occupation - Location of symptoms					
Occupation	Location of symptoms				Total
	Right Elbow	Left elbow	Both elbow	No pain	
Student	93(58%)	20(12.5%)	6(3.8%)	41(25.6%)	160
Office Workers	20(48.8%)	4(9.8%)	7(17%)	10(24.4%)	41
Bankers	44(46.3%)	15(15.8%)	12(12.6%)	24(25.3%)	95

Among 160 students 93(58%) 41 office workers 20(48.8%) and 95 bankers 44(46.3%) were complain of pain is more dominant on the right elbow.

Location of symptoms - sitting time with computer hours/day							
Location of symptoms	Sitting time with computer hours/day					Total	P value
	04-06	07-09	10-12	13-15	>15		
Right Elbow	103	35	16	2	1	157	
Left elbow	15	16	4	4	0	39	0.02
both elbow	9	8	2	5	1	25	
no pain	46	17	9	3	0	75	

Respondents having sitting time with computer 4-6 hours were complain more prevalence of symptom on right elbow. Left elbow and both elbow symptoms were less compared to it. 46 respondents were those who had no pain on any side of elbow when they sit for shorter or longer duration on computer.



This graph show that percentages of PRTEE scale and Cozen test. It clearly represent that moderate and severe PRTEE score was clear relate with positive cozen test.

Discussion

The result of this study shows that prevalence of Lateral Epicondylitis is more in those individuals whose sitting time with computer at least 4-6 hours per day. Right elbow was dominantly involved in all respondents. P value is less than 0.02 shows significant result.

Current study showed that female respondents (67.9%) were more as compared to male (32.1%). Age group of computer users was 18-45 years. Among respondents' students, office workers and bankers were included. More respondents use computer from last 4-6(33.11%) and 7-9 (23.65%) hours. Students (54.05 %) response was more as compared to office workers (13.85%) and bankers (32.09%). These findings were similar with previous studies which showed that location of symptoms was more prominent (58.45%) in those individual who use computer 4-6 hours/day. Previous study stated that keyboard use for more than 4 h per day augmented the hazard of wrist/hand and shoulder symptoms.[9]

A retrospective study for knowing musculoskeletal pain among computer users. They concluded that persistent work for more than sixty minutes is the cause of musculoskeletal pain, pain was of dull aching ,radiating ,pins and needles type and lumber pain is more common due to prolonged sitting posture[14] Symptoms in right elbow were more prominent in students (58%)office workers (48.8%)bankers 44(46.3%) as compared to left The injury typically disturbs the leading arm, and most patients are not manual workers.

Hamilton establishes a frequency of four cases of humeral epicondylitis per 1000 patients in a common practice that not include majority of manual workers.[15] Percentages of Cozen test was positive (61.82%) and negative (38.18%) in 296 respondents. High percentage of positive Cozen test (41.55%) in right elbow users. PRTEE scale best score (no symptom) (17.23%), mild (51.01%), moderate (18.58%) and severe (13.18%) symptoms.

A study concluded that important relationship between the upper body musculoskeletal distresses and some of the potential risk factors. The major causes were: computer work time, sitting time, chair cushioned with padded front edge, posture of shoulders whilst keyboarding, gender and unsupported hands/wrists.[14] It was interesting that in moderate (34-66) and severe (67-99) score of PRTEE, Cozen was positively associated. It was similar to case study that was conducted in 2018 in which there is positive association seen in PRTEE Scale and Cozen

test. Pretreatment score on PRTEE was 67, with reported Pain as 32 and Functional Disability as 35.[16]

Conclusion

Prevalence of Lateral Epicondylitis is common in computer users. This study showed that pain is more prominent in right elbow.

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