

Association between Prolong and Frequent Squatting Position with Early Degenerative Changes in Knee Joint

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Abstract:

Degenerative change in knee joint is common for all aged people worldwide. A lot of debate has arisen that whether squatting provoke the degenerative change as well as increase the knee pain. The main objective of this study was to assess association between prolong and frequent squatting position with early degenerative changes in knee joint. This was a descriptive type of cross-sectional study conducted among patients who had knee pain. A total 127 samples were collected purposively to conduct this study. Data were collected through face to face interview. Among the 127 respondents study found that 27.55% (35) were in age group 30 to 40 years, 48.03% (61) were in age group 41 to 50 years and 24.40% (31) were in age group 51 to 60 years. In case of degenerative changes on knee joint study found that 38.58% (49) had maximum change, 54.33% (69) had moderate change and 7.08% (9) had minimum changes of knee joint. In case of pain increase by the duration of squatting study found that 49.60% (63) increasing pain for long duration of squatting, 29.13% (37) increasing pain for medium duration of squatting, 19.68% (25) increasing pain

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for short duration of squatting and 1.57% (2) have no change due to squatting. Study indicated that those who perform frequent squatting among them 40.94% (52) felt moderate pain whereas those who not perform frequent squatting among them 11.02% (14) felt moderate pain.

Key words: Prolong and Frequent Squatting, Early Degeneration

Introduction

Arthritis of the knee is a prominent reason of disability in the world (1). Arthritis means inflammation of one or more joints. Pain, swelling, and stiffness are the primary symptoms of arthritis. Although any joint in the body may be affected by the disease, but it is particularly common in the knee (2). Knee arthritis can make it hard to do many everyday activities, such as walking or climbing stairs. It is a major cause of lost work time and a serious disability for many people. The most common types of arthritis are osteoarthritis and rheumatoid arthritis, but there are more than 100 different forms. In 2012, more than 51 million people reported that they had been diagnosed with some form of arthritis, according to the National Health Interview Survey (2). In January 2010, the OA Research Society International (OARSI) published an update to their evidence-based, consensus recommendations for the treatment of OA of the hip and knee (3). The 2010 guidelines update followed two previous OARSI guidelines statements (1) and included systematic reviews (SRs) of the evidence for relevant therapies and critical appraisals of existing guidelines. Since the publication of the 2010 OARSI guidelines, the evidence base on knee OA treatment has evolved. This guidelines statement aims to incorporate evidence from these recent publications, in addition to the best-available previously published research, to assess where previous treatment recommendations should be modified or expanded to include

new OA treatments. Because clinical considerations and availability of evidence between knee OA and hip OA treatments differ, the present guidelines sought to focus specifically on treatment of primary OA of the knee. For the present guidelines, we endeavored to enhance the applicability of treatment recommendations by stratifying for relevant comorbidities, and for the presence of OA in joints other than the knee(s). But still now there is a doubt about whether frequent squatting causing degeneration in knee joint or increase the knee pain.

Methodology

Study design

This was a descriptive type of cross-sectional study conducted among patients who had knee pain age between 30 to 60 years of age. The study was carried out in Islami Bank Central Hospital Kakrail, Dhaka and The Barakah General Hospital Limited, Dhaka, Bangladesh.

Study Population

The study populations were knee pain patient from different places, who were taking treatment in IBCHK and TheBarakah General Hospital Limited.

Sample size and technique

A total 127 samples were collected purposively to conduct this study.

Data collection Methods

Data were collected through face to face interview by using semi structured questionnaire.

Data analysis

Collected data were coded and entered into the software immediately after the completion of data collection and analyzed in SPSS version 16. The collected data were checked, verified and then entered into the computer. Descriptive statistics were done to present the findings in different tabulation.

Ethical Issues

Prior to the commencement of this study, the research protocol was approved by the research committee (Local Ethical Committee). The aims and objectives of the study along with its procedure, risk and benefits of this study was explained to the respondents in easily understandable local language and then informed consent was taken from each patient. Then it was assured that all information and records will be kept confidential and the procedure will be used only for research purpose and the findings will be helpful for developing policy to increase the knowledge on managing knee pain.

Result:

Socio-demographic characteristics of the respondents:

Among the 127 respondents study found that 27.55% (35) were in age group 30 to 40 years, 48.03% (61) were in age group 41 to 50 years and 24.40% (31) were in age group 51 to 60 years. In case of occupation of the respondents, study revealed that 46.45% (59) were house wife and rest of 16.53% (21), 29.13% (37) and 7.87% (10) were Govt. service holder, Private holder and Business man respectively. In case of type of knee pain study found that 21.25% (27) have Aching pain, 15.74% (20) have Pricking pain, 32.28% (41) have burning pain and 30.70% (39) have cramping pain. In the side of pain felling on knee joint, patient complaints that 11.81% (15) faced anterior knee pain and rest of 19.68% (25), 35.43% (45), 18.11% (23) and 14.96%

(19) have posterior, medial, lateral and whole knee pain respectively. In case of degenerative changes on knee joint study found that 38.58% (49) have maximum change, 54.33% (69) have moderate change and 7.08% (9) have minimum changes of knee joint (**Table 1**).

Table 1: Socio-demographic information (n=127)

Characteristics	Frequency	Percentage
Age range (year)		
30-40	35	27.55
41-50	61	48.03
51-60	31	24.40
Occupation		
House wife	59	46.45
Govt. Service	21	16.53
Private Service	37	29.13
Business	10	7.87
Type of Knee pain		
Aching	27	21.25
Pricking	20	15.74
Burning	41	32.28
Cramping	39	30.70
Location of knee pain		
Anterior knee	15	11.81
Posterior knee	25	19.68
Medial knee	45	35.43
Lateral knee	23	18.11
Whole knee	19	14.96
Radiological Change of the Knee joint		
Maximum changes	49	38.58
Moderate changes	69	54.33
Minimum changes	9	7.08

Nature of pain during squatting:

In case of pain increase by the duration of squatting study found that 49.60% (63) increasing pain for long duration of squatting, 29.13% (37) increasing pain for medium duration of squatting, 19.68% (25) increasing pain for short duration of squatting and 1.57% (2) have no change due to squatting. In case of pain developed by the squatting frequency study found that 51.18% (65) increase pain by greater squatting frequency

and rest of 25.98% (33) and 22.83% (29) develop pain due to Moderate and low squatting respectively (**Table 2**).

Table 2: Nature of Pain during squatting

Characteristics	Frequency	Percentage
Pain increase by the duration of squatting		
Long duration of squatting	63	49.60
Medium duration of squatting	37	29.13
Short duration of squatting	25	19.68
No changes by duration of squatting	2	1.57
Pain developed by the squatting frequency		
Greater squatting frequency	65	51.18
Moderate squatting frequency	33	25.98
Lower squatting frequency	29	22.83

Comparison of pain among those who do frequent squatting or those who not:

Study indicated that those who perform frequent squatting among them 37.79% (48) felt severe pain, 40.94% (52) felt moderate pain, 18.89% (24) felt low pain and 2.36% (3) felt no pain where age those who not perform frequent squatting among them 1.57% (2) felt severe pain, 11.02% (14) felt moderate pain, 17.32% (22) felt low pain and 70.07% (89) felt no pain. (**Table 3**).

Table 3: Comparison of pain among who squatting and not-squatting:

Characteristics	Squatting		Not squatting	
	Frequency	Percentage	Frequency	Percentage
Severe Pain	48	37.79	2	1.57
Moderate Pain	52	40.94	14	11.02
Low Pain	24	18.89	22	17.32
No Pain	3	2.36	89	70.07
Total	127	99.98	127	99.98

Discussion

Knee osteoarthritis is one of several frequent and functionally impairing disorders of the musculoskeletal system. This study

shows a borderline relation between prolong and frequent knee squatting and knee osteoarthritis. Similar to the results of other studies, we demonstrated that squatting is associated with knee osteoarthritis (5,6). In this study there was correlation between the incidence of knee OA in women and daily hours of squatting. The correlation was found between the incidence of knee OA and duration and number of squatting in both exposed and unexposed women. Data suggest that the presence or absence of a definite osteophyte read on a weight-bearing radiograph is the best method of definite knee OA for epidemiologic studies. Assessment of joint space narrowing might be better used in evaluating the disease severity. In this study osteophyte formation is the most typical feature of knee OA is developed before joint space narrowing and is the most common finding in patients suffering from early stages of osteoarthritis (7). Study also found that the incidence of knee OA in women is more than who don't perform prolong and frequent squatting one of the contributing factors in the patients suffering from knee OA. Since the incidence of knee OA in women is more than men, therefore more attention to diagnosis of the disease leads to providing the health level of women and protecting them from early degenerative change of knee (8).

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