

Classification of Age and Types of Gender Potential Seed Osteoarthritis Patients

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ABSTRACT

This study aims to classify *osteoarthritis* patients based on age and sex on narrow cracks narrowing. The study was conducted with total samples of 36 diagnosed with knee *osteoarthritis* (knee OA) patients by a specialist in internal medicine. The sample of 36 OA patients was divided into 4 groups, namely group 1 (male aged), group 2 (male young age), group 3 (old woman), and group 4 (young woman). Data on knee joint size were analyzed by age and sex. The results of this study indicate that there is a difference in joint cracks size in the elderly male group (0.98 mm), the younger male group (1.05 mm), the elderly females group (0.84 mm), and the young females group (1.18 mm).

Keywords: Osteoarthritis, joint cleft, knee

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1. INTRODUCTION

Osteoarthritis is a chronic joint disorder that causes the attenuation and disintegration of joint cartilage accompanied by new bone and cartilage growth in joints. This disorder is a degenerative process in the joint that can affect one or more joints [1]. Osteoarthritis is a chronic degenerative joint disorder that generally occurs due to physiological changes of the aging process and due to weight gain and is divided into two types, namely primary osteoarthritis and secondary osteoarthritis [2]. Primary osteoarthritis is an unknown cause of osteoarthritis and the process of joint degeneration is associated with defects in the joint cartilage, whereas secondary osteoarthritis

is a class of osteoarthritis with well-known causes such as trauma, infection, hemarthrosis, osteonecrosis, and several other conditions [3]. From data that collected from the American College of Rheumatology 2012, the most common body parts found in cases of osteoarthritis are hands, pelvis, and knees because these three regions are reported to be the most sustained body weight [4]. Based on data that collected from 7,577 respondents in the United States, the prevalence of knee and pelvic osteoarthritis is higher than the other joints because they are often sustain body weight compared to the other parts. The prevalence of osteoarthritis of the pelvis was 7.4%, occurs on females (8%) which is higher

than males (6.7%). Meanwhile, the prevalence of knee osteoarthritis was 12.2%, occurs on females (14.9%) and males (8.7%) followed by increased age. So it can be concluded that the prevalence of knee OA is higher when compared with pelvic OA [5]. In Indonesia, the prevalence of osteoarthritis by age reaches 5% for under 40 years of age, 30% for 40-60 years of age, and 65% for age over 61 years, whereas the prevalence of osteoarthritis by sex reaches 15.5% on males and 12.7% on females [6].

Based on data research, the most common happened osteoarthritis is knee osteoarthritis or often called genu osteoarthritis. The anamnesis of genu osteoarthritis patients generally tells in detail the complaints that have been felt for a long time, but developed slowly. The complaints such as joint pain, morning stiffness, joint movement resistance, and gait changes [7]. Enforcement of genu osteoarthritis diagnosis is a radiological examination using plain images that shows the form of narrowed joint cracks and changes in the structure of genu anatomy [8]. From the results of radiological examination, it can be analyzed the size differences of the patient's joint cracks based on their sex and age.

2. MATERIALS AND METHODS

This research was conducted in the Radiology Division of Dadi Makassar Regional General Hospital. The research design is

descriptive with cross-sectional approach. The subjects of the study were genu osteoarthritis diagnosed patients then these genu osteoarthritis patients with total 36 samples grouped by age (young and old) and by sex (females and males). Genu osteoarthritis patients get CT-scanned then the result of CT-scan is analyzed about the size of the joint cracks.

A. Sample and Population

The sample consisted of 36 patients who were diagnosed with genu osteoarthritis, then grouped into 4 groups. Group 1 (males aged under 59 years), group 2 (males aged over 60 years), group 3 (females aged under 59 years), and group 4 (females aged over 60 years).

B. Data Analysis

Data analysis started by counting the mean values to see the size differences of joint cracks based on their age (young and old) and sex (males and females).

3. RESULT

This study was conducted with the purpose to group osteoarthritis patients based on their sex and age to the joint cracks of osteoarthritis genu patient. This study compared the size of joint cracks between young patients with the elder one and female patients with male patients.



Fig. 1. Radiological imaging results of osteoarthritis joint cleft

According to a study that Lukum (2011) did, the more apparent of narrowed femorotibial joint cracks in osteoarthritis patients based on conventional photographs of the knee, the higher the degree of its pain [9].

Table 1. Mean value of joint cracks

GENDER	AGE (years)	MEAN
		JOINT CRACKS (mm)
MALE	< 59	1.05
MALE	> 60	0.98
FEMALE	< 59	1.18
FEMALE	> 60	0.84

The results showed that group 1 (old age males) had joint cracks size with mean value 0.98 mm which is narrower than joint cracks size in group 2 (male young age) with 1.05 mm. In group 3 (elderly females) had cracks size of joint with mean value of 0.84 mm which is narrower than the size of group 4 joint

cracks (young females) 1.18 mm. It can be concluded that joint cracks size of group 1 (old age) and group 3 (old age females) are smaller than group 2 joint size (young males) and group 4 (young females). The prevalence of osteoarthritis disease increased sharply among people over 50 years of age. This is due to age-related changes in collagen and proteoglycans that decrease the tension of joint cartilage and also because of the reduced supply of nutrients for cartilage [10]. In line with Arissa (2012) study, the average age of males who received knee osteoarthritis is at age of 59 years with a peak at age 55-64 years. The percentage of patients with osteoarthritis based on their age in dr. Soedarso General Hospital showed that at age 43-48 years (13.30%), age 49-54 years (16.06%), and age 55-60 years (27.98%).

Based on their sex, it can be seen that group 3 (old age females) and group 4 (young

females) experienced greater narrowed joint cracks compared to group 1 (old males) and 2 (young males). Females are also more likely to get osteoarthritis disease than the males, allegedly because of the wide female hips that can cause persistent pressures on the knee joint. Osteoarthritis is also often found in overweight people and those who has occupation that results excessive pressures on the joints of the body [11]. Similar to Arissa (2012) study, the prevalence of osteoarthritis based on sex was higher on females with the percentage of 68,67%, which was 149 patients compared with males who had percentage value of 31,33% or only 68 patients.

4. CONCLUSION

From the results of this study, it can be concluded that there are differences in joint cracks size in the age group of old and young and in groups of females and males. The joint cracks size of young males and females (under 60 years of age) is wider than older one.

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