

Magnetic Resonance Imaging (MRI) Analysis Of Patellofemoral Joint Morphology In Malaysian Population

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INTRODUCTION:

Patello femoral joint (PFJ) is one of the three compartments in the knee joint. Although located in the knee, it is described as a 'forgotten joint' and considered as one of the most complex joint in the human body. It is rarely considered in investigation despite accounting 65% of patients with symptomatic knee osteoarthritis. The information regarding PFJ in Malaysia is still at its low. Most of the information received are based from European population. The objective of this study is to evaluate the patellofemoral joint using magnetic resonance imaging (MRI) in asymptomatic Malaysian subjects. The measurement for local population will then be compared to the European-based studies.

MATERIAL AND METHODS:

A retrospective MRI study over 144 patients (144 knees) which were done at Hospital Serdang since 2009 to 2014. The patients include Malay, Chinese and Indian sample aged between 19 to 45 year old. All MRI were independently interpreted by three observers (Orthopedic registrar, Orthopedic Surgeon and Radiologist). The measurement includes Sulcus Angle (SA), Lateral Trochlear inclination (LTI), Trochlear Depth (TD), Patella height (PH), Patella tilt angle (PTA). For the Caucasian population values, it was taken from a few reference papers which provide a normal value or a control subject in their studies.

RESULTS:

There are statistically significant difference in the measurement for SA, PTA, LTI, TD between Malaysian and Caucasian population as shown in Table 1. However for patella height measured using Caton-Deschamp Index there were no difference between the two groups.

Table 1 - showing comparison of measurement in patellofemoral joint between Malaysian and Caucasian population.

Measurement	Malaysian	Caucasian	P Value
SA	131.16'(\pm 2.65)	138.2'(\pm 7.2)	<0.0001
PTA	7.68'(\pm 1.56)	5.3'(\pm 3.8)	<0.0001
LTI	23.83'(\pm 1.89)	16.93'(\pm 4.76)	<0.0001
TD	7.5 mm (\pm 0.51)	3.68 mm (\pm 2.3)	<0.0001
PH	0.99(\pm 0.08)	0.96(\pm 0.1)	0.0759

DISCUSSION:

Isolated Patellofemoral osteoarthritis imposed a significant problem to patient especially if it occur at a younger age. It is important to know the morphology of patellofemoral joint in patient with patellofemoral OA because published study concluded that outcome of patellofemoral arthroplasty is highly dependant on implant design. Studies also showed that improvement in implant design and surgical technique have resulted in a more satisfactory short to medium term outcome. As regards to Patellofemoral instability, trochlear dysplasia is one of its core pathology. Therefore, the normal anatomy and biomechanics of patellofemoral joint is essential in order to evaluate and treat the disease.

CONCLUSION:

The morphology of patellofemoral joint in Malaysian population is different in majority of the measurement and suggesting a possible difference in the term 'normal value' in our population. This information can serve as guidelines for surgeon in their clinical practice in Malaysia.

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