

## Hubungan antara kesegaran patela dengan derajat keparahan osteoarthritis lutut = Relationship between patellar alignment and degree of knee osteoarthritis severity

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### Abstrak

Latar Belakang: Diagnosis dan tatalaksana osteoarthritis lutut sementara ini lebih berfokus pada sendi tibiofemoral dan kesegaran di bidang tersebut, yang hanya memberikan asosiasi lemah dengan nyeri dan disabilitas. Sementara itu, masih sangat minim studi yang mempelajari kesegaran patela pada osteoarthritis lutut, terutama hubungannya dengan derajat keparahan penyakit secara radiografis, defek kartilago, dan juga nyeri dan disabilitas.

Metode: Penelitian ini merupakan studi potong lintang yang diikuti oleh pasien RSUPN Cipto Mangunkusumo yang terdiagnosis osteoarthritis lutut. Subjek menjalani pemeriksaan radiografis dan magnetic resonance, dari situ dievaluasi kesegaran patela, grade Kellgren-Lawrence (KL), dan defek kartilago yang dinilai dengan grade International Cartilage Regeneration and Joint Preservation Society (ICRS). Kesegaran patela dinilai dari sulcus angle (SA), congruence angle (CA), trochlear angle (TA), lateral trochlear inclination (LTI), trochlear depth (TD), bisect offset (BO), patellar displacement (PD), lateral patellar tilt angle (LPTA), dan lateral patellofemoral angle (LPFA). Pasien juga diukur skor WOMAC yang menilai nyeri dan disabilitas.

Hasil: Ditemukan korelasi antara TA ( $r = -0,397$ ;  $p < 0,001$ ), LTI ( $r = -0,333$ ;  $p = 0,004$ ), BO ( $r = 0,268$ ;  $p = 0,020$ ), dan PD ( $r = 0,299$ ;  $p = 0,009$ ) dengan grade KL patellofemoral. TA juga berkorelasi juga dengan grade KL tibiofemoral ( $r = -0,246$ ;  $p = 0,033$ ). TA ( $r = -0,246$ ;  $p = 0,033$ ) juga berkorelasi dengan grade KL tibiofemoral. Tidak ditemukan parameter kesegaran patela yang berkorelasi dengan grade ICRS.

Sementara itu SA ( $r = 0,238$ ;  $p = 0,039$ ), LTI ( $r = -0,235$ ;  $p = 0,042$ ), TD ( $r = -0,374$ ;  $p = 0,001$ ), BO ( $r = 0,257$ ;  $p = 0,026$ ) dan LPTA ( $r = 0,267$ ;  $p = 0,021$ ) berkorelasi dengan nyeri. LTI ( $r = -0,229$ ;  $p = 0,048$ ), TD ( $r = -0,251$ ;  $p = 0,030$ ) dan LPTA ( $r = 0,314$ ;  $p = 0,006$ ) berkorelasi terhadap disabilitas.

Kesimpulan: Kesegaran patela axial berkorelasi dengan keparahan radiografis osteoarthritis lutut, tidak hanya pada kompartemen patellofemoral tetapi juga tibiofemoral. Kesegaran patela juga berkorelasi dengan nyeri dan disabilitas.

.....Background: Diagnosis and treatment of knee osteoarthritis has been focused on the tibiofemoral joint and its alignment, even though they provide little contribution to pain and disability. The aim of this study is to evaluate the axial patellar alignment in patients with knee osteoarthritis, especially its association with the radiographic findings, cartilage defect on magnetic resonance, as well as pain and disability.

Methods: Patients with knee osteoarthritis underwent radiographic and magnetic resonance examinations. Patellar alignment was represented by sulcus angle (SA), congruence angle (CA), trochlear angle (TA), lateral trochlear inclination (LTI), trochlear depth (TD), bisect offset (BO), patellar displacement (PD), lateral patellar tilt angle (LPTA), dan lateral patellofemoral angle (LPFA). We evaluated the association between patellar alignment and Kellgren-Lawrence (KL) grade of the radiographs, International Cartilage Regeneration and Joint Preservation Society (ICRS) grade of the cartilage defect on magnetic resonance

images, and the Western Ontario and McMaster Universities Arthritis Index (WOMAC) score.

Results: Radiographically, TA ( $r = -0,397$ ;  $p < 0,001$ ), LTI ( $r = -0,333$ ;  $p = 0,004$ ), BO ( $r = 0,268$ ;  $p = 0,020$ ), and PD ( $r = 0,299$ ;  $p = 0,009$ ) were correlated with patellofemoral KL grade. TA was also correlated with tibiofemoral KL grade ( $r = -0,246$ ;  $p = 0,033$ ). However, no patellar alignment index was found to be correlated with ICRS grade. Furthermore SA ( $r = 0,238$ ;  $p = 0,039$ ), LTI ( $r = -0,235$ ;  $p = 0,042$ ), TD ( $r = -0,374$ ;  $p = 0,001$ ), BO ( $r = 0,257$ ;  $p = 0,026$ ) and LPTA ( $r = 0,267$ ;  $p = 0,021$ ) were correlated with pain score in WOMAC. Meanwhile, LTI ( $r = -0,229$ ;  $p = 0,048$ ), TD ( $r = -0,251$ ;  $p = 0,030$ ) and LPTA ( $r = 0,314$ ;  $p = 0,006$ ) were correlated with disability score in WOMAC.

Conclusion: Axial patellar alignment was correlated with radiographic severity of knee osteoarthritis, not only in patellofemoral compartment but also in tibiofemoral compartment. Patellar alignment was also associated with pain and disability.