

# KORELASI ANTARA PARAMETER SUDUT SPINOPELVIS TERHADAP DERAJAT OSTEOARTHRITIS *FACET JOINT* LUMBAL BERDASARKAN *WEISHAUP* CLASSIFICATION DAN OSTEOARTHRITIS *HIP JOINT* BERDASARKAN SHOMRI PADA MRI

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## ABSTRAK

**Latar Belakang.** *Spine Hip Syndrome (SHS)* menggambarkan keterkaitan antara kelainan pada *facet joint* dan *hip joint* yang berperan penting dalam timbulnya nyeri pinggang bawah kronis. Perubahan parameter spinopelvic, seperti *Lumbar Lordosis (LL)*, *Pelvic Incidence (PI)*, *Pelvic Tilt (PT)*, dan *Sacral Slope (SS)*, dapat memengaruhi distribusi beban biomekanik serta mempercepat progresivitas osteoarthritis pada kedua sendi. Penilaian derajat osteoarthritis dengan MRI, menggunakan *Weishaupt Classification* untuk *facet joint* dan SHOMRI untuk *hip joint*, memungkinkan analisis yang lebih akurat terhadap hubungan antara kelainan struktural dan perubahan biomekanik pada SHS.

**Tujuan.** Penelitian ini bertujuan menganalisis korelasi antara parameter sudut spinopelvis (LL, PI, PT, dan SS) terhadap derajat osteoarthritis *facet joint* lumbal berdasarkan *Weishaupt Classification* serta osteoarthritis *hip joint* berdasarkan SHOMRI pada MRI.

**Metode.** Penelitian ini merupakan studi analitik observasional dengan desain cross-sectional. Variabel bebas meliputi parameter spinopelvis (LL, PI, PT, SS), sedangkan variabel tergantung adalah derajat osteoarthritis *facet joint* dan *hip joint*. Data dikumpulkan secara prospektif dan dianalisis menggunakan uji Spearman dan ANOVA.

**Hasil** Sebanyak 40 subjek memenuhi kriteria penelitian. Ditemukan hubungan signifikan antara LL, PI, dan SS terhadap derajat osteoarthritis *facet joint* pada segmen L4–L5 ( $p=0.003$ ;  $p=0.014$ ;  $p=0.000$ ) serta LL dan SS terhadap osteoarthritis *facet joint* pada segmen L5–S1 ( $p=0.002$ ;  $p=0.002$ ). Tidak terdapat hubungan bermakna antara LL, PI, SS, dan PT terhadap osteoarthritis *hip joint* berdasarkan total skor SHOMRI ( $p=0.731$ ;  $p=0.784$ ;  $p=0.931$ ;  $p=0.671$ ). Selain itu, ditemukan hubungan signifikan antara derajat osteoarthritis *facet joint* pada L4–L5 dan L5–S1 terhadap osteoarthritis *hip joint* ( $p=0.014$ ;  $p=0.017$ )

**Kesimpulan.** Terdapat hubungan antara LL, PI, dan SS terhadap osteoarthritis *facet joint* L4–L5, serta LL dan SS terhadap osteoarthritis *facet joint* L5–S1. Tidak terdapat hubungan langsung antara LL, PI, SS, dan PT terhadap osteoarthritis *hip joint* berdasarkan total SHOMRI. Terdapat hubungan signifikan antara derajat osteoarthritis *facet joint* pada L4–L5 dan L5–S1 terhadap osteoarthritis *hip joint*.

**Kata kunci:** Osteoarthritis *facet joint*, Osteoarthritis *hip joint*, Parameter spinopelvis, *Weishaupt Classification*, SHOMRI

**CORRELATION BETWEEN SPINOPELVIC ANGLE PARAMETERS AND THE  
DEGREE OF LUMBAR FACET JOINT OSTEOARTHRITIS BASED ON  
WEISHAAPT CLASSIFICATION AND HIP JOINT OSTEOARTHRITIS BASED ON  
SHOMRI ON MRI**

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**ABSTRACT**

**Background:** Spine Hip Syndrome (SHS) describes the interrelationship between abnormalities in the facet joint and the hip joint, which play a crucial role in the development of chronic low back pain. Alterations in spinopelvic parameters, such as Lumbar Lordosis (LL), Pelvic Incidence (PI), Pelvic Tilt (PT), and Sacral Slope (SS), can affect the distribution of biomechanical loads and accelerate the progression of osteoarthritis in both joints. The assessment of osteoarthritis severity using MRI, through the Weishaupt Classification for the facet joint and SHOMRI for the hip joint, allows for a more accurate analysis of the relationship between structural abnormalities and biomechanical changes in SHS

**Objective:** This study aimed to analyze the correlation between spinopelvic angle parameters (LL, PI, PT, and SS) and the degree of lumbar facet joint osteoarthritis based on Weishaupt Classification, as well as hip joint osteoarthritis based on SHOMRI using MRI.

**Methods:** This observational analytical study used a cross-sectional design. Independent variables included spinopelvic parameters (LL, PI, PT, SS), while dependent variables were the degree of osteoarthritis in the facet and hip joints. Data were collected prospectively and analyzed using Spearman's correlation and ANOVA tests.

**Results:** Forty subjects met the study criteria. Significant correlations were found between LL, PI, and SS with facet joint osteoarthritis at L4–L5 ( $p=0.003$ ;  $p=0.014$ ;  $p=0.000$ ) and between LL and SS with facet joint osteoarthritis at L5–S1 ( $p=0.002$ ;  $p=0.002$ ). No significant correlation was observed between LL, PI, SS, and PT with hip joint osteoarthritis based on total SHOMRI scores ( $p=0.731$ ;  $p=0.784$ ;  $p=0.931$ ;  $p=0.671$ ). Additionally, a significant association existed between the degree of facet joint osteoarthritis at L4–L5 and L5–S1 with hip joint osteoarthritis ( $p=0.014$ ;  $p=0.017$ ).

**Conclusion:** LL, PI, and SS were significantly correlated with facet joint osteoarthritis at L4–L5, while LL and SS were correlated with facet joint osteoarthritis at L5–S1. No direct correlation was observed between LL, PI, SS, and PT with hip joint osteoarthritis based on total SHOMRI. A significant relationship exists between facet joint osteoarthritis at L4–L5 and L5–S1 and hip joint osteoarthritis.

**Keywords:** Facet joint osteoarthritis, Hip joint osteoarthritis, Spinopelvic parameters, Weishaupt Classification, SHOMRI