

## HUBUNGAN ANTARA DEGENERASI LEMAK MUSKULUS PARASPINAL LUMBAL DENGAN DERAJAT HERNIA NUKLEUS PULPOSUS

Ike Pramastuti<sup>1</sup>, Bambang Supriyadi<sup>2</sup>, Hesti Gunarti<sup>2</sup>

<sup>1</sup>Residen dan <sup>2</sup>Staf Departemen Radiologi  
Fakultas Kedokteran, Kesehatan Masyarakat dan Keperawatan  
Universitas Gadjah Mada  
Yogyakarta-Indonesia

### INTISARI

**Latar Belakang :** Infiltrasi lemak muskulus paraspinal menyebabkan berbagai kelainan lumbal, salah satunya hernia nukleus pulposus (HNP). Penilaian degenerasi muskulus paraspinal berguna dalam penentuan prognosis pasca pembedahan pada pasien nyeri punggung bawah. Sehingga penilaian derajat degenerasi lemak paraspinal penting untuk dilaporkan pada pencitraan MRI sebelum dilakukan operasi lumbal.

**Tujuan :** Mengetahui hubungan antara derajat degenerasi lemak muskulus paraspinal lumbal dengan derajat hernia nukleus pulposus.

**Metode:** Penelitian ini merupakan penelitian analitik observasional rancangan *cross sectional*, dengan mengambil data sekunder pasien yang menjalani MRI lumbal pada RSUP dr Sardjito sebanyak 72 pasien. Penilaian degenerasi lemak pada MRI lumbal menggunakan metode *automated threshold*, pada MRI sekuen T2W potongan aksial setinggi DIV 4-5. Penilaian HNP dengan menggunakan *viewer*, pada MRI T2W potongan aksial dan sagital.

**Hasil :** Analisis bivariat menggunakan spearman menunjukkan terdapat hubungan signifikan antara degenerasi lemak muskulus paraspinal lumbal dengan derajat hernia nukleus pulposus ( $p < 0,001$ ,  $r = 0,391$ ). Usia memiliki pengaruh terhadap derajat hernia nukleus pulposus ( $p = 0,013$ ,  $r = 0,328$ ), sedangkan jenis kelamin dan Indeks Massa Tubuh (IMT) tidak berpengaruh.

**Kesimpulan :** Terdapat hubungan antara degenerasi lemak muskulus paraspinal lumbal dengan derajat hernia nukleus pulposus.

**Kata Kunci :** HNP, Degenerasi Lemak, MRI Lumbal, *automated threshold*

## CORRELATION BETWEEN LUMBAR PARASPINAL MUSCLE FATTY DEGENERATION AND DEGREE OF HERNIATED NUCLEUS PULPOSUS

Ike Pramastuti<sup>1</sup>, Bambang Supriyadi<sup>2</sup>, Hesti Gunarti<sup>2</sup>

<sup>1</sup>Resident and <sup>2</sup>Staff Department of Radiology  
Faculty of Medicine, Public Health and Nursing  
Gadjah Mada University, Yogyakarta-Indonesia

### ABSTRACT

**Background :** Fatty infiltration of paraspinal muscles causes various lumbar disorders, one of which is herniated nucleus pulposus (HNP). Assessment of paraspinal muscle degeneration is useful in determining post-surgical prognosis in low back pain patients. Therefore, assessment paraspinal muscle fatty degeneration is important to report on MRI imaging before lumbar surgery.

**Objective :** To assess the correlation between lumbar paraspinal muscle fatty degeneration and degree of herniated nucleus pulposus.

**Method :** This research is an observational analytical study with a cross sectional design, using secondary data from 72 patients who underwent lumbar MRI at Dr Sardjito Hospital. Assessment of fatty degeneration on lumbar MRI using the automated threshold method, on T2W MRI sequence axial at intervertebral disc L4-5. HNP was assessed using a viewer on axial and sagittal T2W sequences.

**Results :** Bivariate analysis using Spearman showed that there was a significant relationship between fatty degeneration of the lumbar paraspinal muscles and the degree of herniated nucleus pulposus ( $p < 0.001$ ,  $r = 0.391$ ). Age has an influence on the degree of herniated nucleus pulposus ( $p = 0.013$ ,  $r = 0.328$ ), while gender and Body Mass Index (BMI) did not have a significant influence.

**Conclusion :** There is a significant correlation between lumbar paraspinal muscle fatty degeneration and degree of herniated nucleus pulposus.

**Keywords :** HNP, Fatty Degeneration, Lumbar MRI, automated threshold