

## ABSTRAK

### PERBANDINGAN EFEK SEKRETOM TERHADAP HISTOLOGI SENDI FEMOROPATELLAR DAN FEMOROTIBIAL TIKUS WISTAR (*Rattus norvegicus albinus*) TERINDUKSI OSTEOARTRITIS

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Osteoarthritis merupakan penyakit degeneratif sendi yang terapinya masih melalui pemberian antiinflamasi tetapi belum cukup efektif, terlebih dengan efek jangka panjangnya. Sekretom sebagai terapi yang memberi efek regeneratif, diberikan kepada hewan model untuk mengetahui efek sekretom dalam perbaikan histologi kartilago sendi femoropatellar dan femorotibial yang rusak akibat osteoarthritis.

Tujuh puluh lima ekor tikus Wistar jantan usia dua bulan dibagi ke dalam lima kelompok. Kelompok kontrol sehat (A) diinjeksikan *saline* secara intra artikular. Kelompok induksi osteoarthritis (B-E) diinjeksikan monosodium iodoasetat (MIA) yang sudah dilarutkan dalam NaCl fisiologis dengan konsentrasi 100 mg /5 ml. Kelompok perlakuan diinjeksikan sekretom setiap minggunya selama empat minggu dengan dosis 0,1 mg/kg BB (C); 0,2 mg/kg BB (D); dan 0,5 mg/kg BB (E) secara intra muskular. Pengambilan sampel sendi dilakukan setiap dua minggu sekali, lalu difiksasi dalam larutan *Bouin's* dan didekalsifikasi dengan EDTA. Pewarnaan dilakukan dengan pewarnaan *hematoxylin-eosin*, *Mallory's aniline blue*, dan *Masson's trichrome*. Analisis jaringan dilakukan secara kualitatif dan semi-kuantitatif berdasarkan *Osteoarthritis Research Society International* (OARSI) untuk menilai gambaran histologi kartilago sendi.

Hasil penelitian menunjukkan pemberian MIA mengubah histologi sendi femoropatellar dan femorotibial serta adanya perbaikan kartilago sendi pada kelompok C, D, dan E dinilai berdasarkan standar *grading* OARSI. Kesimpulan penelitian ini MIA sebagai induksi osteoarthritis menyebabkan perubahan histologi berupa kerusakan kartilago sendi serta adanya perbaikan histologi kartilago sendi pada kelompok perlakuan sekretom.

**Kata kunci:** histologi, kartilago sendi, MIA, osteoarthritis, sekretom.

## ABSTRACT

### A COMPARISON OF SECRETOME EFFECTS ON FEMOROPATELLAR AND FEMOROTIBIAL JOINT HISTOLOGY OF WISTAR RATS (*Rattus norvegicus albinus*) INDUCED BY OSTEOARTHRITIS

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Osteoarthritis is a degenerative joint disease whose current therapy is still through the administration of antiinflammatory drugs but it is not yet effective enough, especially with its long-term effects. Secretome as a therapy that gives a regenerative effect, was given to animal models to determine the effect of secretomes in histology repair of the cartilage of the femoropatellar and femorotibial joints damaged by osteoarthritis.

Seventy-five male Wistar rats aged two months were divided into five groups. The non-MIA control group (A) was injected with saline intraarticularly. The osteoarthritis induction group (B-E) was injected with monosodium iodoacetate (MIA) which had been dissolved in saline at a dose of 100 mg /5 ml. the treatment group was injected with secretome every week for four weeks at a dose of 0.1 mg/kg BW (C); 0.2 mg/kg BW (D); 0.5 mg/kg BW (E) intramuscularly. Joint samples were taken every two weeks, then fixed in Bouin's solution and decalcified with EDTA. Staining was performed with Hematoxylin-eosin, Mallory's Aniline Blue, and Masson's Trichrome staining. Tissue analysis was performed qualitatively and semi-qualitatively based on the Osteoarthritis Research Society International (OARSI) to assess the histology of articular cartilage.

The results showed that the administration of MIA changed the histology of the femoropatellar and femorotibial joints as well as the articular cartilage repair in groups C, D, and E assessed according to the OARSI grading standard. This study concludes that MIA as induction of osteoarthritis causes histological changes in the form of articular cartilage damage and an improvement in the histology of articular cartilage in the treatment group.

**Keywords:** articular cartilage, histology, MIA, osteoarthritis, secretome.