Efek suntikan intra articular recombinant human growth hormone dibandingkan dengan asam hyaluronat dan placebo terhadap degenerasi tulang rawan kelinci selandia baru mocel osteoarthritis = Effect of intraarticular injection of recombinant human growth hormone compared with hyaluronic acid and placebo in cartilage degeneration process of osteoarthritic model in white new zealand rabbit

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Abstrak

ABSTRAK
 Pendahuluan. Osteoarthritis (OA) adalah sebuah penyakit sendi degeneratif yang menyebabkan disabilitas dengan prevalensi yang terus meningkat. Hormon pertumbuhan memiliki efek regenerasi tulang rawan secara langsung melalui stimulasi sel kondroblas dan proses morphoangiogenesis juga melalui faktor pertumbuhan secara sistemik. Penelitian ini bertujuan untuk mengetahui manfaat suntikan sendi dengan hormon pertumbuhan pada kasus Osteoarthritis.

Metode Penelitian. Penelitian dilakukan di Rumah Sakit Hewan Institut Pertanian Bogor pada bulan Mei hingga September 2015. Desain penelitian adalah randomized post test only control group. Sejumlah 21 ekor kelinci Selandia Baru putih, berat 1.9-2.6kg, usia 7-8 bulan. Kelinci dibagi secara acak menjadi kelompok kontrol (NaCl 0.9%), suntikan hormon pertumbuhan (4iu), dan suntikan asam hyaluronat (6mg) . Dengan metode acak tersamar dilakukan suntikan kolagenase tipe II C. Histolyticum pada hari 1 dan ke 4 pada lutut kiri, kemudian tindakan penyuntikan dilakukan sebanyak tiga kali dengan selang waktu 1 minggu. Evaluasi dengan periode kepincangan, skoring makroskopis, histologis dilakukan pada minggu ke-8 pasca penyuntikan pertama.

Temuan Penelitian. Berdasarkan hasil penelitian ditemukan periode kepincangan pada grup yang diberikan hormon pertumbuhan lebih singkat, dan bermakna secara statistik dibandingkan dengan grup kontrol ($p<0.001$), grup asam hyaluronat ($p<0.03$), dan grup hormon pertumbuhan ($p<0.001$). Evaluasi skor makroskopik dengan skor yoshimi menunjukan bahwa kelompok hormon pertumbuhan memiliki kerusakan tulang rawan yang lebih ringan jika dibandingkan dengan grup kontrol ($p=0.001$) dan grup asam hyaluronat ($p=0.04$). Skoring histopatologis menggunakan skor modifikasi Mankin menunjukan pada kelompok dengan hormon pertumbuhan memiliki angka terendah dibandingkan grup lainnya ($p=0.001$), grup kontrol ($p=0.001$), grup asam hyaluronat ($p=0.015$).

Kesimpulan. Suntikan hormon pertumbuhan ke dalam sendi memiliki efektifitas yang lebih baik dibandingkan dengan Asam hyaluronat pada model osteoarthritis.

Hormon pertumbuhan memberikan harapan baru sebagai alternatif dalam terapi osteoarthritis.ABSTRACT
 Introduction. Osteoarthritis is a degenerative joint disorder that cause disability
for patients all over the globe, with an increasing number of patients. Growth hormone (GH) works trough direct and indirect effect on cartilage regeneration by chondroblast stimulation, stimulation of growth factors and morphoangiogenesis process. Further research is needed to know the effects of intra articular joint injection of growth hormone using validated animal model and reliable outcome measurement.

Methods. This study was conducted in Animal Hospital of Agricultural Institute Bogor west Java, from May to September 2015. The design of the study was randomized posttest only control group. Male white New Zealand rabbit (n=21) weighted 1.9-2.6kg, age 6-7months were used in this study. The sample was randomized and divided into three groups. All groups recieved intra articular injection of type 2 collagenase (Sigma® Missouri) 2mg at the left knee on day 1 and 4. Injections of growth hormone (4iu), hyaluronic acid (HA) (6mg) and saline (0.6ml) were done at 2 weeks after collagenase injection once a week for consecutive 3 weeks. Evaluation of weight and lameness periode is done periodically, histopathological and macroscopic score were done at 8 weeks since the first injection.

Result. The lameness priode for control group is significantly longer than both of the experimental groups ($p<0.001$), HA ($p<0.03$), and GH ($p<0.001$). Macroscopic score evaluation taken from the lateral condyle of the left femur showed that the GH group received significantly less cartilage damage than the HA group ($P=0.04$) and placebo ($P=0.01$). Histopathological score was also found lowest at the GH group ($p=0.001$), with significant difference in control ($p=0.001$), and HA group ($p=0.015$).).

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