

## INTISARI

### **PERBANDINGAN PENGARUH APLIKASI ASAM HIALURONAT, ASAM ASKORBAT, DAN LENDIR BEKICOT TERHADAP EKSPRESI MAKROFAG PADA PROSES PENYEMBUHAN LUKA INSISI KULIT *Rattus norvegicus* DENGAN METODE IMUNOHISTOKIMIA MENGGUNAKAN ANTIBODI ANTI-CD68 (ED1)**

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**Latar Belakang:** Asam hialuronat, asam askorbat dan lendir bekicot bermanfaat dalam penyembuhan luka. Pada proses penyembuhan luka fase inflamasi terjadi antara hari ke 3-5 dan makrofag terlibat dalam fase ini.

**Tujuan:** Mengetahui pengaruh pemberian asam hialuronat, asam askorbat dan gel lendir bekicot terhadap ekspresi makrofag pada luka insisi kulit tikus *Rattus norvegicus*.

**Metode:** Dilakukan luka insisi pada punggung 40 ekor tikus dan dibagi menjadi 4 kelompok. Masing-masing kelompok diberi perlakuan berbeda yaitu kelompok: I (NaCl 0,9%), II (asam hialuronat 0,2%), III (Asam askorbat 10%) dan IV (gel lendir bekicot 20%). Terminasi dilakukan terhadap 5 tikus dihari ke-1 dan ke-4 pada masing masing kelompok. Pemeriksaan imunohistokimia digunakan untuk mengetahui ekspresi makrofag.

**Hasil:** Ekspresi makrofag pada hari ke-1 pada kelompok NaCl 0,9% ( $12,55 \pm 5,54$ ), asam hialuronat ( $12,38 \pm 6,84$ ), asam askorbat ( $11,12 \pm 6,01$ ), dan lendir bekicot ( $12,27 \pm 7,85$ ), sedangkan pada hari ke-4 didapatkan hasil pada kelompok NaCl 0,9% ( $20,71 \pm 2,46$ ), asam hialuronat ( $32,73 \pm 6,97$ ), asam askorbat ( $25,18 \pm 1,62$ ), dan lendir bekicot ( $44,81 \pm 4,12$ ).

**Kesimpulan:** Tidak terdapat perbedaan bermakna pada ekspresi makrofag hari ke-1 baik pada pemberian NaCl 0,9%, asam hialuronat 0,2%, asam askorbat 10%, dan gel lendir bekicot sedangkan pada hari ke-4 terdapat perbedaan bermakna antara kelompok dengan perlakuan gel lendir bekicot terhadap kelompok NaCl 0,9%.

**Kata kunci:** asam hialuronat, asam askorbat, lendir bekicot, makrofag, penyembuhan luka

## COMPARISON THE EFFECTS OF HYALURONIC ACID, ASCORBIC ACID, AND SNAIL MUCOUS GEL APPLICATION ON MACROPHAGE EXPRESSION IN WOUND HEALING PROCESS OF WISTAR RATS (*Rattus norvegicus*)

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**Background:** Hyaluronic acid, ascorbic acid and snail mucus are useful for wound healing process. In the wound healing process the inflammatory phase occurs between days 3-5 and macrophages are involved dominantly in this phase.

**Aim:** : To determine the effects of hyaluronic acid, ascorbic acid and snail mucous gel application on the expression of macrophage in *Rattus norvegicus* skin incision wounds.

**Methods:** Laboratory experimental research design, 20 white rats (*Rattus novergicus*) were divided into 4 groups, incision made on the back of rats, then sutured properly with simple interrupted technique by Silk 3.0 (2 stitches). Application of hyaluronic acid, ascorbic acid, snail mucus in 3 groups and NaCl 0.9% in one group. On day 1 and 4, euthanasia was performed, skin from the incision area was taken for histological examination to count the number of macrophage cells. Data was analyzed with normality test and variance similarity test, ANOVA test and post hoc test.

**Results:** Macrophage expression on the 1<sup>st</sup> day in NaCl 0.9% group (12.55±5.54), Hyaluronic acid (12.38±6.84), ascorbic acid (11.12±6.01), and snail mucus gel (12.27±7.85), whereas on the 4<sup>th</sup> day NaCl 0.9% group (20.71±2.46), Hyaluronic acid (32.73±6.97), ascorbic acid (25.18±1.62), and snail mucus gel (44.81±4.12).

**Conclusion:** There were no statistically significant differences in the expression of macrophages on first day either in the application of NaCl 0.9%, hyaluronic acid 0.2%, ascorbic acid 10%, and snail mucus gel but on the fourth day there were statistically significant differences between groups with snail mucus gel against the NaCl 0.9% group.

**Keywords:** hyaluronic acid, ascorbic acid, snail mucous gel, macrophage, wound healing