

# EFEKTIVITAS OZON BAGGING TERHADAP PROSES PENYEMBUHAN ULKUS LEPROA:

## Studi Terhadap Kadar Fibroblas dan Neovaskularisasi

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### ABSTRAK

**Latar Belakang:** Ulkus kusta merupakan salah satu komplikasi penyakit kusta yg dapat menimbulkan disabilitas maupun stigma penderita. Penatalaksanaan ulkus kusta semakin berkembang untuk mendapatkan hasil yang optimal. Ozon telah terbukti memiliki efek antimikroba, antioksidan, dan menstimulasi aktivitas imunoregulasi, yang akan bermanfaat dalam proses penyembuhan ulkus lepra.

**Tujuan:** Membuktikan efektivitas kombinasi terapi standart ulkus dengan pemberian ozon bagging pada ulkus kusta.

**Metode:** Uji klinis *double blind randomized controlled trial, two group pre and post design*. Subyek penelitian pasien ulkus kusta 20 orang, dibagi menjadi dua kelompok A dan B. Kelompok A mendapat terapi standart ulkus berupa irigasi NaCl, debridement, salep antibiotic dan ganti kassa tiap hari, dan kelompok B mendapatkan terapi standart dengan kombinasi ozon bagging dosis 52 µg/mL (total volume: 20 – 50 mL) dalam kantung khusus selama 30 menit pengulangan 1x/minggu. Pengambilan jaringan ulkus untuk diperiksa histopatologi dilakukan pada hari ke-0 dan hari ke-14 dengan teknik punch biopsy. Pemeriksaan hisopatologi dengan pengecatan HE untuk melihat jumlah sek fibroblast dan sel kapiler pada sediaan.

**Hasil:** Peningkatan rerata jumlah sel fibroblast secara bermakna pada kelompok perlakuan  $23,92 \pm 13,91$  dibanding kelompok kontrol  $5,96 \pm 9,01$  ( $p=0,003$ ; uji t-tidak berpasangan). Peningkatan rerata jumlah sel kapiler secara bermakna pada kelompok perlakuan  $2,06 \pm 1,5$  dibanding kelompok kontrol  $0,86 \pm 0,85$  ( $p=0,04$ ; uji t-tidak berpasangan). Tidak ditemukan adanya efek samping paska Tindakan ozon.

**Simpulan:** Tatalaksana terapi standart dan dikombinasi ozon bagging efektif meningkatkan fibroblast dan neovaskularisasi pada jaringan ulkus kusta.

**Kata Kunci:** Ulkus kusta, ozone, fibroblast, neovaskularisasi

# EFFECTIVENESS OF OZONE BAGGING IN THE PROCESS OF HEALING LEPROSY ULCERS:

## Study of Fibroblast Levels and Neovascularization

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### ABSTRACT

**Background:** Leprosy ulcers are one of the complications of leprosy which can cause disability and stigma to sufferers. Management of leprosy ulcers is increasingly developing to obtain optimal results. Ozone has been shown to have antimicrobial, antioxidant effects, and stimulates immunoregulatory activity, which will be beneficial in the healing process of leprosy ulcers.

**Objective:** To prove the effectiveness of a combination of standard ulcer therapy with ozone bagging in leprosy ulcers.

**Method:** Double blind randomized controlled trial, two group pre and post design. The research subjects were 20 leprosy ulcer patients, divided into two groups A and B. Group A received standard ulcer therapy in the form of NaCl irrigation, debridement, antibiotic ointment and daily gauze changes, and group B received standard therapy with a combination of ozone bagging at a dose of 52  $\mu$ g/mL (total volume: 20 – 50 mL) in a special bag for 30 minutes repetition 1x/week. Ulcer tissue was taken for histopathological examination on day 0 and day 14 using the punch biopsy technique. Histopathological examination with HE staining to see the number of fibroblasts and capillary cells in the preparation.

**Results:** The average number of fibroblast cells increased significantly in the treatment group 23.92+13.91 compared to the control group 5.96+9.01 ( $p=0.003$ ; unpaired t-test). The mean increase in the number of capillary cells was significant in the treatment group 2.06+1.5 compared to the control group 0.86+0.85 ( $p=0.04$ ; unpaired t-test). No side effects were found after the ozone action.

**Conclusion:** Standard therapy and a combination of ozone bagging are effective in increasing fibroblasts and neovascularization in leprosy ulcer tissue.

**Keywords:** Leprosy ulcers, ozone, fibroblasts, neovascularization