

INTISARI

Trauma dental yang paling sering terjadi akibat kegiatan olahraga adalah avulsi gigi. Replantasi yang merupakan perawatan ideal untuk gigi avulsi seringkali tidak dapat dilakukan di lokasi kejadian, sehingga dibutuhkan media penyimpanan gigi avulsi untuk menjaga proliferasi sel fibroblas jaringan periodontal. Proliferasi sel fibroblas akan menentukan perlekatan sel-sel ketika di replantasi. *Hank's Balanced Salt Solution* (HBSS) merupakan media penyimpanan gigi avulsi ideal memiliki banyak nutrisi yang mampu mempertahankan proliferasi sel, namun tidak mudah ditemukan di lokasi kejadian trauma. Larutan isotonik *Pocari Sweat*[®] yang diminati para atlet karena dirancang untuk meningkatkan kinerja atlet memiliki beberapa nutrisi yang mampu mempertahankan proliferasi sel dan juga aksesibilitas yang tinggi. Penelitian ini bertujuan untuk mengetahui perbedaan proliferasi sel fibroblas jaringan periodontal dalam larutan isotonik *Pocari Sweat*[®] dan HBSS sebagai media penyimpanan gigi avulsi.

Subjek penelitian adalah subkultur kelima sel fibroblas ligamen periodontal. Penelitian menggunakan 3 jenis larutan yaitu *Hank's Balanced Salt Solution*, isotonik *Pocari Sweat*[®], dan *Dulbecco's Modified Eagle's Medium* (Kontrol Positif). Ketiga larutan tersebut diaplikasikan ke dalam 96-well-microplate berisi sel fibroblas ligamen periodontal yang kemudian diinkubasi selama 24 jam dan 72 jam. Uji proliferasi menggunakan MTT yang kemudian didapatkan hasil data berupa nilai *optical density*.

Hasil analisis statistik menunjukkan adanya perbedaan proliferasi ($p < 0,05$) antara kelompok larutan *Hank's Balanced Salt Solution* dan larutan isotonik *Pocari Sweat*[®]. Kesimpulan penelitian ini adalah terdapat perbedaan proliferasi sel fibroblas jaringan periodontal dalam larutan isotonik *Pocari Sweat*[®] dan HBSS sebagai media penyimpanan gigi avulsi. Larutan HBSS lebih baik dalam menjaga proliferasi sel fibroblas ligamen periodontal.

Kata Kunci: Gigi avulsi, proliferasi, sel fibroblas, HBSS, *Pocari Sweat*[®]

ABSTRACT

Most common dental trauma due to sports activities is dental avulsion. Replantation which an ideal treatment for avulsion teeth often can't be done at the scene, so avulsion tooth storage media is needed to maintain the proliferation of periodontal tissue fibroblast cells. Proliferation of fibroblast will determine the attachment of cells when replanted. HBSS is an ideal avulsion tooth storage medium that has many nutrients that are able to maintain cell proliferation, but hard to find at the scene of trauma. The isotonic solution Pocari Sweat® is sought after by athletes because it's designed to improve athlete's performance and has several nutrients that are able to maintain cell proliferation and has high accessibility. This study aims to determine differences in proliferation of periodontal tissue fibroblast cells in isotonic solution Pocari Sweat® and HBSS as storage media for avulsed teeth.

The research subject was the fifth passage of periodontal ligament fibroblast cells. The study used 3 types of solutions HBSS, isotonic Pocari Sweat®, and DMEM (control). The three solutions were applied to 96-well-microplate containing periodontal ligament fibroblast cells which then incubated for 24 hours and 72 hours. Proliferation test using MTT which then obtained data in the form of optical density values.

Statistical analysis showed a difference in proliferation ($p < 0.05$) between HBSS group and isotonic Pocari Sweat® group. The conclusion of this study is that there are differences in proliferation of periodontal tissue fibroblast cells in the isotonic solution of Pocari Sweat® and HBSS as storage media for avulsed teeth.

Keywords: Avulsion tooth, proliferation, fibroblast cell, HBSS, Pocari Sweat®