

INTISARI

Latar Belakang: Di Indonesia, 4-10% orang mengalami ulkus kronis pada kaki dengan risiko amputasi pada tungkai bawah. Untuk mengurangi angka kejadian amputasi, belakangan ini mulai diatasi dengan pendekatan selular salah satunya menggunakan metode tandır kulit dari hasil kultur keratinosit. Keratinosit didapatkan dengan melakukan pelepasan epidermis dan dermis menggunakan tripsin karena spesifik memutuskan *cadherin* pada epidermis, serta suhu dan waktu inkubasi yang dapat mengoptimalkan laju reaksi tripsin. Terdapat 2 metode penggunaan tripsin, yaitu *warm* dan *cold trypsin*. Meskipun sudah ada metode penggunaan tripsin tersebut, beberapa peneliti menggunakan variasi konsentrasi, suhu, dan waktu inkubasi yang berbeda untuk pelepasan keratinosit. Hingga saat ini belum ada penelitian terkait optimasi konsentrasi tripsin, suhu, dan waktu inkubasi untuk pelepasan keratinosit pada proses penyembuhan luka kronis dengan metode tandır kulit.

Tujuan Penelitian: Mengetahui adanya perbedaan rata-rata jumlah keratinosit berdasarkan konsentrasi tripsin, suhu, dan waktu inkubasi dan mengetahui konsentrasi optimal tripsin berdasarkan suhu dan waktu inkubasi untuk pelepasan keratinosit dengan jumlah yang paling banyak.

Metode Penelitian: Penelitian ini dilakukan di Laboratorium Dermatologi dan Venereologi FKMK Universitas Gadjah Mada. Metode pelepasan keratinosit pada penelitian ini menggunakan konsentrasi tripsin, yaitu 0,25%; 0,5%; dan 0,7% yang diinkubasi masing-masing selama 24 jam pada suhu 4°C dan selama 30 menit pada suhu 37°C, kemudian dilakukan penghitungan keratinosit menggunakan *cell counter*. Uji statistik dilakukan untuk mengetahui adanya perbedaan rata-rata jumlah keratinosit berdasarkan konsentrasi tripsin, suhu, dan waktu inkubasi dan untuk mengetahui konsentrasi optimal tripsin berdasarkan suhu dan waktu inkubasi untuk pelepasan keratinosit dengan jumlah yang paling banyak.

Hasil Penelitian: Pada jumlah keratinosit didapatkan rata-rata tertinggi pada sampel 1 dan terendah pada sampel 3, serta didapatkan rata-rata jumlah keratinosit paling banyak pada tripsin 0,25% dengan suhu 4°C selama 24 jam dan paling sedikit pada tripsin 0,5% dengan suhu 4°C selama 24 jam. Tidak terdapat perbedaan rata-rata jumlah keratinosit berdasarkan konsentrasi tripsin, suhu, dan waktu inkubasi ($p > 0,05$).

Simpulan: Tidak terdapat perbedaan rata-rata jumlah keratinosit berdasarkan konsentrasi tripsin, suhu, dan waktu inkubasi. Pemberian tripsin 0,25% dalam suhu 4°C selama 24 jam optimal untuk pelepasan keratinosit dengan jumlah paling banyak.

Kata Kunci: Konsentrasi tripsin, suhu, waktu inkubasi, keratinosit, tandır kulit.

ABSTRACT

Background: In Indonesia, 4-10% of people have chronic leg ulcers with risk of amputation of the lower limbs. To reduce incidence of amputation, recently began to overcome the cellular approach one of them using skin graft method from cultures of keratinocytes. Keratinocytes are obtained by releasing epidermis and demis using trypsin because it specifically decides cadherin in the epidermis, as well as the temperature and incubation time which can optimize trypsin reaction rates. There are 2 methods of using trypsin, which is warm and cold trypsin. Although there are already methods of trypsin use, several researchers used different variations in concentration, temperature, and incubation time for the release of keratinocytes. Until now there has been no research related to optimization of trypsin concentration, temperature, and incubation time for the release of keratinocytes in the healing process of chronic wounds with skin graft method.

Objective: Knowing the difference in the average number of keratinocytes based on trypsin concentration, temperature, and incubation time and knowing the optimal trypsin concentration based on the temperature and incubation time for the highest amount of keratinocyte release.

Research Methods: This research was conducted at Dermatology and Venereology Laboratory of Faculty of Medicine, Public Health, and Nursing Gadjah Mada University. The method of releasing keratinocytes in this study used trypsin concentration, which is 0.25%; 0.5%; and 0.7% were incubated for 24 hours at 4°C and for 30 minutes at 37°C, then keratinocyte calculations were performed using cell counters. Statistical test conducted to determine the differences in the average number of keratinocytes based on trypsin concentration, temperature, and incubation time and to determine the optimal trypsin concentration based on temperature and incubation time for the highest amount of keratinocytes release.

Result: The highest number of keratinocytes was obtained in sample 1 and the lowest in sample 3, and the average number of keratinocytes was highest in 0.25% trypsin at 4°C for 24 hours and lowest in 0.5% trypsin at 4°C for 24 hours. There was no difference in the average number of keratinocytes based on trypsin concentration, temperature, and incubation time ($p>0.05$).

Conclusion: There was no difference in the average number of keratinocytes based on trypsin concentration, temperature, and incubation time. The administration of trypsin 0.25% at 4°C for 24 hours is optimal for releasing keratinocytes in the highest number.

Keywords: Trypsin concentration, temperature, incubation time, keratinocyte, skin graft.