

Efek conditioned medium asal kultur sel punca jaringan lemak terhadap ekspresi protein K19 pada proses re-epitelisasi luka bakar tikus = Effect of adipose derived stem cell conditioned medium on K19 protein expression in re epithelialization process of thermal injured rats

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Abstrak

Latar Belakang: Luka bakar memerlukan alternatif terapi selain silversulfadiazin SSD karena bersifat sitotoksik. Conditioned medium dari kultur sel punca mesenkimal asal jaringan lemak ADSC-CM disingkat CM kaya akan sejumlah sitokin, vascular endothelial growth factor VEGF dan epidermal growth factor EGF yang berperan dalam re-epitelisasi. Proses ini didominasi oleh migrasi, proliferasi dan diferensiasi keratinosit. Protein K19 merupakan penanda sel progenitor keratinosit. ADSC-CM diharapkan mampu menjadi alternatif SSD dalam terapi luka bakar.

Metode: Penelitian dilakukan pada tikus model luka bakar Sprague dawley empat luka per ekor yaitu kontrol K, CM, medium complete MC dan SSD yang diberikan secara topikal. Penutupan luka secara makroskopis diukur menggunakan visitrak digital pada hari ke-6, 12, 18 dan 24. Re-epitelisasi, ekspresi dan distribusi K19 diamati dengan pewarnaan hematoksilin-eosin dan imunohistokimia.

Hasil: Luas luka makroskopis menunjukkan bahwa kelompok CM mengalami pengurangan luas paling cepat, berbeda bermakna dengan kelompok K dan tidak bermakna dengan kelompok SSD. Hal tersebut sebanding dengan ekspresi K19 pada epidermis. Secara mikroskopis, re-epitelisasi dimulai dari tepi luka, kelompok CM paling efektif daripada K, MC dan SSD.

Kesimpulan: Penelitian ini menunjukkan bahwa CM paling efektif untuk reepitelisasi dan ekspresi K19 sebagai progenitor sel keratinosit. Aplikasi CM topikal berpotensi sebagai alternatif terapi pada penyembuhan luka bakar. Kata kunci: Luka bakar, Mesenchymal Conditioned Medium, Keratin 19 K19, Re-epitelialisasi, Penutupan Luka.

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Background Burns require alternative therapies other than silver sulfadiazine SSD for cytotoxic. Conditioned medium from adipose derived stem cell ADSCCM abbreviated CM is rich in a number of cytokines, vascular endothelial growth factor VEGF and epidermal growth factor EGF, which play a role in re epithelialization. This process is dominated by migration, proliferation and differentiation of keratinocytes. K19 protein is a marker of keratinocyte progenitor cells. ADSC CM is expected to be an alternative SSD in the treatment of burns.

Methods The study was conducted on rats models of burns Sprague dawley four wounds per animal, control K, CM, complete medium MC and the SSD is administered topically. Macroscopic wound closure was measured using a digital visitrak on days 6, 12, 18 and 24. Re epithelialization, and distribution K19 expression was observed by hematoxylin eosin staining and immunohistochemistry.

Results As a macroscopic indicates that the CM group were reduced of the fastest wide, a significant difference with the group K, meaningless with SSD. This is comparable with the expression of K19 in the epidermis. Microscopically, re epithelialization starts from the edge of the wound, the group CM most effectively than K, MC and SSD.

Conclusion This study shows that the most effective CM to re epithelialization and K19 expression as keratinocyte progenitor cells CM topical application potential as an alternative therapy in the healing of burns.