Potensi asam amino L-arginin terhadap laju kecepatan migrasi Human Dental Pulp Stem Cells (hDPSCs) = Potential use of L-arginine amino acids towards Human Dental Pulp Stem Cells (hDPSCs) migration rate

Deryana Avidhianita, author

Abstrak

Latar Belakang: L-arginin merupakan asam amino semiesensial yang produksinya tidak mencukupi kebutuhan dalam kondisi stres oksidatif akibat inflamasi. L-arginin adalah satu-satunya substrat bagi enzim nitric oxide synthase (NOS) yang memproduksi nitric oxide (NO) yang dapat mengaktivasi focal adhesion kinase (FAK) pathwaydan memicu terjadinya proses migrasi sel.
Tujuan: Mengetahui potensi media kultur asam amino L-arginin terhadap laju kecepatan migrasi hDPSCs.
Metode: Evaluasi media kultur asam amino L-arginin konsentrasi 300, 400, 500 ¼mol/L, serta DMEM sebagai kontrol terhadap laju kecepatan migrasi hDPSCs menggunakan uji scratch assay menggunakan uji scratch assay yang dihitung dengan rumus laju kecepatan migrasi setelah 24 jam. Analisis statistic menggunakan Paired T-Test dan Oneway ANOVA dengan post hoc LSD.
Hasil: Terdapat perbedaan bermakna potensi L-arginin 500 Î¼mol/L dibandingkan konsentrasi 300 dan 400 Î¼mol/L, serta kontrol.
Kesimpulan: Media kultur asam amino L-arginin 500 ¼mol/L memiliki potensi laju kecepatan migrasi yang lebih baik dibandingkan konsetrasi 300, 400 ¼mol/L dan kontrol.
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Background: L-arginine is semiessential amino acid which the production is insufficient under oxidative stress due to inflammation. L-arginine is the only substrate of nitric oxide synthase (NOS) enzyme that produces nitric oxide (NO) which activates focal adhesion kinase (FAK) pathway to stimulate cell migration.
Objective: To understand potential of L-arginine amino acid culture media towards speed rate of hDPSCs migration.
Methods: Evaluation of 300, 400, 500 ¼mol/L of L-arginin amino acid culture media and DMEM as control towars speed rate of hDPSCs migration using scratch assay and calculation of migration speed rate after 24 hours. Statistical analysis using Paired T-Test and Oneway ANOVA with post hoc LSD.
Results: Significant result was shown between 500 ¼mol/L of L-arginin amino acid culture media compared with 300 and 400 ¼mol/L concentration and control towards migration speed rate after 24 hours.
Conclusion: 500 ¼mol/L of L-arginin amino acid culture media has a better migration rate compared with lower concentrations and control.