ABSTRAK

Berbagai penelitian mengarah pada potensi *Stem Cell* untuk mempercepat proses penyembuhan luka tanpa menyebabkan jaringan parut. Namun sejauh ini belum dibuktikan bagaimana pengaruh MSC terhadap kadar VEGF dan jumlah fibroblas pada proses penyembuhan luka bakar.

Penelitian dengan *post test only control group design*, dilakukan pada mencit Balb/C yang diberi luka bakar derajat III. Luka bakar diberi perlakuan dengan MSC yang berasal dari *umbilical cord* janin tikus dengan dosis tunggal $10x10^3$, $20x10^3$, $40x10^3$ dan kontrol dengan aquabides. VEGF diukur kadarnya menggunakan Elisa, sedangkan fibroblas diamati menggunakan pengecatan HE. Data kadar VEGF dan jumlah fibroblas dianalisa menggunakan Kruskall Wallis dan One Way Anova dengan tingkat kemaknaan <0,05. Sedangkan uji beda antar kelompok menggunakan Mann Withney dan Post Hoc LSD.

Hasil uji kadar VEGF dengan Kruskall Wallis menunjukkan nilai p=0,011, pada uji beda antar kelompok Mann Withney dosis $10x10^3$(0,064) terhadap kelompok kontrol (0,063) tidak berbeda signifikan dengan p=0,917, dosis $20x10^3$ (0,078) terhadap kontrol (0,063) tidak berbeda signifikan dengan p=0,530 dan dosis $40x10^3$ (0,149) terhadap kontrol (0,063) berbeda signifikan dengan p=0,009. Dan pada jumlah fibroblas dengan One Way Anova menunjukkan nilai p=0,000, pada uji beda antar kelompok Post Hoc LSD dosis $10x10^3$ (19,6) terhadap kelompok kontrol (3,4) berbeda signifikan dengan p=0,009, dosis $20x10^3$ (38,9) terhadap kontrol (3,4) berbeda signifikan dengan p=0,000 dan dosis $40x10^3$ (57,5) terhadap kontrol (3,4) berbeda signifikan dengan p=0,000.

Hasil penelitian dapat disimpulkan pemberian MSC meningkatkan kadar VEGF dan jumlah fibroblas pada luka bakar.

Kata kunci : MSC, kadar VEGF, jumlah fibroblas

ABSTRACT

Various research was lead on Stem Cell potent to accelerate the wound healing process without causing scarring. But so far has not demonstrated how the MSC effect on the VEGF level and fibroblast number in healing process of burns.

Research with posttest only controls group design, performed in Balb/C mice that were given a third-degree of burns. The burns were treated with MSC derived from the umbilical cord of fetal rats at doses $10x10^3$, $20x10^3$, $40x10^3$ and control with aquabidest in single dose. VEGF levels are measured using Elisa, while fibroblasts were observed using HE staining. Data were analyzed descriptively, VEGF levels and fibroblast number analyzed with Kruskal Wallis and One Way Anova with significance level <0.05. While mean difference between groups was tested using Mann Whitney and Post Hoc LSD test.

VEGF Levels in Kruskal Wallis test p=0.011, while in Mann Whitney test showed that VEGF levels mean in group of dose $10x10^3$ (0,064) with the control group (0.063) was not significant with p = 0.917, VEGF level mean in group of dose $20x10^3$ (0.078) with the control (0.063) also was not significant with p = 0.530, but in $40x10^3$ dose (0.149) with the control (0.063) was significant with p = 0.009. Fibroblast number showed there were different means with One Way Anova test p=0.000, at different test between groups with Post Hoc LSD dose $10x10^3$ (19.6) but in control group (3.4) was significantly different with p = 0.009, in $20x10^3$ dose (38.9) but in control (3.4) was significant with p = 0.000 and in $40x10^3$ dose (57.5) but in control (3.4) was also significant with p = 0.000.

Results of this study could be concluded that MSC administration increases VEGF levels and fibroblast number in burns.

Keywords: MSC, VEGF levels, fibroblast number