ABSTRAK

Latar belakang : Sel punca mesenkim sangat berkembang saat ini. Kultur *Stem Cell* memerlukan *growth factor* yang biasanya disediakan oleh *Fetal Bovine Serum* (FBS). Penggunaan FBS diperlukan untuk meningkatkan proliferasi dan pelekatan sel. FBS mengandung N-glycolylneuraminic acid (Neu5GC) xenoantigen yang dapat memicu respon imun pada pasien, bahkan harga FBS juga mahal. *Platelet Rich Plasma* (PRP) mudah diperoleh, kaya akan *frowth factor* dan komplemen yang diperlukan dalam pertumbuhan sel sehingga memungkinkan PRP potensial dalam menggantikan FBS, selain harganya murah. Penelitian ini bertujuan membedakan *wharthon jelly umbilical cord* yang dikultur dalam medium yang mengandung PRP µg/mL, PRP 10µg/mL, PRP 15 µg/mL dan FBS.
Metode: penelitian yang dilakukan merupakan penelitian eksperimental laboratorium *in vitro* dengan menggunakan rancangan penelitian *post test only control group design*. *Wharthon jelly umbilical cord* dikultur dalam PRP 5µg/mL, PRP 10µg/mL, PRP 15µg/mL dan FBS 10%. Hasil proliferasi dan ekspresi Ki 67 diuji menggunakan *one way anova* dan analisis *post hoc* dengan LSD.
Hasil: PRP dosis 10 dan 15 ug/mL dalam mengekspresikan ekpresi Ki67 dan proliferasi *wharton jelly umbilical cord* MSC berbeda secara bermakna dibandingkan dengan FBS, sedangkan PRP dosis 5 ug/mL dalam mengekspresikan ekpresi Ki67 dan proliferasi *wharton jelly umbilical cord*MSC tidak menunjukkan perbedaan yang bermakna dibandingkan dengan FBS.
Kata kunci: Platelet Rich Plasma, Fetal Bovine Serum, Proliferasi, Ekspresi Ki67, Wharton Jelly Umbilical Cord Mesenchymal Stem Cell

ABSTRACT

Background: mesenchyme stem cells are highly developed today. Stem Cell cultures require growth factors normally provided by Fetal Bovine Serum (FBS). The use of FBS needed to increase proliferation and cell adhesion. FBS contains N-glycolylneuraminic acid (Neu5GC) xenoantigen that can trigger an immune response in a patient, even the price of FBS too expensive. Platelet Rich Plasma (PRP) is easy to obtain, rich in growth factor and complement in cell growth, in order to that PRP was potent to replacing FBS, in addition low cost. The objective of this study to know the differences of wharthon jelly umbilical cord that were cultured in medium that contains PRP µg/mL, PRP 10µg/mL, PRP 15µg/mL and FBS.

Methods: The study that had conducted is laboratory experimental studies in vitro with posttest only control group design. Wharthon jelly umbilical cord was cultured in PRP 5µg/mL, PRP 10µg/mL, PRP 15µg/mL and FBS10%. The results of proliferation and Ki 67 expression were analyzed with one-way anova and post hoc LSD test.

Results: PRP dose of 10 and 15 µg/mL in expressing Ki67 and proliferation of wharton jelly umbilical cord MSCs significantly different compared with FBS, while PRP dose of 5 µg/mL in expressing Ki67 and proliferation wharton jelly umbilical cord MSC showed no significant difference compared with FBS.

Keywords: Platelet Rich Plasma, Fetal Bovine Serum, Proliferation, Ki67 Expression, Wharton's Jelly Umbilical Cord Mesenchymal Stem Cell