

INTISARI

PENGARUH PEMBERIAN *PLATELET RICH PLASMA* (PRP) TERHADAP KADAR TESTOSTERON DAN *TUMOR NECROSIS FACTOR-ALPHA* (TNF- α) INTRATESTIS PADA TIKUS YANG MENGALAMI STRES OKSIDATIF DIINDUKSI DENGAN D-GALAKTOSA

Latar Belakang: Stes oksidatif merupakan salah satu pemicu gangguan fertilitas pada pria. Peningkatan stres oksidatif memicu apoptosis disertai peningkatan TNF- α . Peningkatan kadar TNF- α yang berlebihan menurunkan kadar testosteron. *Platelet rich plasma* (PRP) berpotensi menurunkan kadar TNF- α dan meningkatkan kadar testosteron. Penggunaan PRP dalam penelitian dibidang reproduksi wanita memberikan hasil yang cukup baik, tetapi penggunaan PRP dalam bidang reproduksi pria belum banyak dilakukan.

Tujuan Penelitian: Penelitian ini bertujuan untuk mengkaji pengaruh pemberian PRP terhadap kadar testosteron dan TNF- α intratestis tikus Wistar yang diinduksi D-galaktosa.

Metode: Tikus Wistar jantan (3 bulan, 200-300gr, n=30) dibagi menjadi 5 kelompok: kelompok K (kontrol), P1 (D-galaktosa), P2 (D-galaktosa + 0,05 mL PRP), P3 (D-galaktosa + 0,1 mL PRP) dan P4 (D-galaktosa + 0,2 mL PRP). D-galaktosa diinjeksi setiap hari secara intraperitoneal dengan dosis 300 mg/kg berat badan dan PRP diinjeksikan 1 kali seminggu secara *intratesticular* selama 42 hari. Kadar testosteron dan TNF- α intratestis diukur menggunakan metode ELISA (*Finetest*).

Hasil Penelitian: Berdasarkan penelitian diperoleh hasil bahwa kadar testosteron dan TNF- α intratestis menunjukkan terdapat perbedaan signifikan antara kelima kelompok ($p < 0,05$). Kadar testosteron dan TNF- α intratestis kelompok perlakuan dengan PRP memiliki perbedaan signifikan dibanding kelompok tanpa PRP. Kadar testosteron intratestis tertinggi terdapat pada P4 (D-galaktosa + 0,2 mL PRP) dan kadar TNF- α intratestis terendah terdapat pada P2 (D-galaktosa + 0,05 mL PRP).

Kesimpulan: Pemberian PRP menunjukkan hasil bahwa rerata kadar testosteron intratestis lebih tinggi, serta rerata kadar TNF- α intratestis lebih rendah dibandingkan dengan kelompok tanpa pemberian PRP pada testis tikus yang diinduksi D-galaktosa.

Kata Kunci: PRP, D-galaktosa, testis, kadar testosteron intratestis, kadar TNF- α intratestis.

ABSTRACT

THE EFFECT OF PLATELET RICH PLASMA (PRP) ON INTRATESTICULAR TESTOSTERONE LEVELS AND TUMOR NECROSIS FACTOR-ALPHA (TNF- α) LEVELS IN OXIDATIVE STRESS RATS INDUCED BY D-GALACTOSE

Background: Oxidative stress is one of triggers for male fertility problems. Increased oxidative stress stimulates apoptosis and increase TNF- α . Elevation in TNF- α levels reduce testosterone levels. Platelet rich plasma (PRP) which has many growth factors is claimed to reduce levels of TNF- α and increase testosterone levels. Research on PRP use in female reproductive showed good result, but research in male reproductive has not been conducted.

Objective: To investigate the effect of PRP in intratesticular testosterone and TNF- α levels Wistar rat testes induced by D-galactose.

Methods: Male Wistar rats (3 months, 200-300gr, n=30) were divided into 5 groups: K (Control), P1(D-galactose), P2 (D-galactose + 0.05 mL PRP), P3 (D -galactose + 0.1 mL PRP) and P4 (D-galactose + 0.2 mL PRP). D-galactose with dose 300 mg/kg body weight was injected daily via intraperitoneal route and PRP were injected once a week by intratesticular for 42 days. Intratesticular testosterone and TNF- α levels were measured with ELISA kit.

Result: Based on this study, intratesticular testosterone and TNF- α levels showed significant differences between five groups ($p < 0.05$). Intratesticular testosterone and TNF- α levels had significant differences between P1 group (D-galactose) and control. Treatment group with PRP (P2, P3, P4) had significant differences compare to P1 group (D-galactose). The highest intratesticular testosterone levels were found in D-galactose + 0.2 mL PRP and the lowest intratesticular TNF- α levels were found in D-galactose + 0.05 mL PRP.

Conclusion: Administration of PRP on rats testes induced by D-galactose showed that intratesticular testosterone levels was higher, and intratesticular TNF- α was lower than the group without PRP.

Keywords: Platelet rich plasma, D-galactose, testes, intratesticular testosterone, intratesticular TNF- α .