Pengaruh Pemberian Ekstrak Kuda Laut (Hippocampus comes L.) terhadap Kadar Luteinizing Hormone dan Maturasi Sel Sperma pada Tikus yang Diinduksi DMPA = Effect of Seahorse Extract (Hippocampus comes L.) on Luteinizing Hormone Levels and Sperm Cell Maturation in DMPA-Induced Rats

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Abstrak

Gangguan keseimbangan hormonal dapat menyebabkan infertilitas pada pria, salah satunya adalah Hipogonadisme. Hipogonadisme ditandai dengan abnormalitas kadar hormon testosteron yang dapat mengganggu proses spermatogenesis. Kuda laut (Hippocampus spp.) merupakan sumber daya kelautan yang digunakan sebagai pengobatan tradisional di wilayah asia untuk mengatasi infertilitas pada pria. Hippocampus comes merupakan salah satu spesies kuda laut yang memiliki habitat di perairan Indonesia, namun belum banyak penelitian yang meneliti pengaruh spesies kuda laut ini terhadap biomarker terkait infertilitas pria, terutama kadar Luteinizing Hormone sebagai hormon gonadotropin yang menstimulasi sekresi hormon testosteron, serta kajian histologi testikuler mengenai indeks meiosis dan indeks sel Sertoli. Induksi Depot Medroksiprogesteron asetat (DMPA) dapat mengganggu aksis hipotalamus-pituitari-gonad yang menyebabkan turunnya sekresi hormon gonadotropin serta hormon testosteron sehingga mempengaruhi proliferasi dan maturasi sel spermatogenik. Dua puluh delapan tikus jantan Sprague Dawley diinduksikan DMPA 1,25 mg/kgBB pada minggu ke- 0 dan 12, kemudian dibagi menjadi empat kelompok, yaitu kontrol negatif (CMC Na 1%), dosis ekstrak 150 mg/kgBB, 225 mg/kgBB, dan 300 mg/kgBB. Parameter kadar LH tikus dianalisis menggunakan Enzyme-Linked Immunosorbent Assay (ELISA), sedangkan parameter indeks meiosis dan indeks sel Sertoli dianalisis melalui pemeriksaan histologi pewarnaan H&E. Hasil menunjukkan bahwa ketiga varian dosis tidak menghasilkan perbedaan yang bermakna antar kelompok pada ketiga parameter, namun cenderung mengalami peningkatan pada dosis 300 mg/kgBB setelah 18 minggu perlakuan.

.....Hormonal imbalances can lead to male infertility, one of which is hypogonadism. Hypogonadism is characterized by abnormal levels of testosterone hormone that can disrupt the process of spermatogenesis. Seahorses (Hippocampus spp.) are marine resources used in traditional medicine in Asia to address male infertility. Hippocampus comes is one of the seahorse species that inhabits the waters of Indonesia, but there have been few studies examining the effects of this seahorse species on biomarkers related to male infertility, especially the levels of Luteinizing Hormone as a gonadotropin hormone that stimulates testosterone secretion as well as histological studies of testicular meiotic index and Sertoli cell index. Induction of Depot Medroxyprogesterone Acetate (DMPA) can disrupt the hypothalamic-pituitary-gonadal axis, leading to a decrease in the secretion of gonadotropin hormones and testosterone, thus affecting the proliferation and maturation of spermatogenic cells. Twenty-eight male Sprague Dawley rats were induced with 1.25 mg/kg body weight of DMPA in weeks 0 and 12, then divided into four groups: negative control (CMC Na 1%), extract dose of 150 mg/kg BW, 225 mg/kg BW, and 300 mg/kg BW. The levels of LH in the rats were analyzed using Enzyme-Linked Immunosorbent Assay (ELISA), while the meiotic index and Sertoli cell index parameters were analyzed through histological examination using H&E staining. The

results showed that the three dose variants did not produce significant differences between groups in all three parameters, but tended to increase at a dose of 300 mg/kg body weight after 18 weeks of treatment.