POTENSI EFEK SERBUK PLASENTA SAPI TERHADAP REGENERASI TESTIS PADA HEWAN MODEL TIKUS WISTAR

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INTISARI

Plasenta kering manusia memiliki kandungan yang kaya akan protein, serat, lemak, mineral (sodium, potasium, *phosphorus*, *calcium*, *iron*, magnesium, *zinc*, *copper, manganese*), dan hormon (estradiol, progesterone, testosterone, *growth hormone*). Beberapa penelitian melaporkan plasenta manusia yang telah dikeringkan digunakan pada pengobatan tradisional China untuk mengobati infertilitas, impotensi, dan kondisi-kondisi lainnya. Penelitian ini bertujuan mengetahui potensi regeneratif serbuk plasenta sapi terhadap degenerasi testis akibat pemberian D-galaktosa pada hewan model tikus wistar.

Sebanyak 15 ekor tikus Wistar jantan dewasa sehat digunakan dalam penelitian ini. Tikus dibagi menjadi tiga kelompok, kelompok A: kontrol sehat, kelompok B: diberikan perlakuan 3 mg/kg BB D-galaktosa, dan kelompok C: diberikan 3 mg/kg BB D-galaktosa dengan campuran serbuk plasenta dan pakan AD2. Pemberian D-galaktosa diberikan selama 6 minggu dan pemberian serbuk plasenta diberikan selama 30 hari. Semua tikus dieutanasi dan diambil sampel testis, semen dari epididimis dan serum. Sampel semen dibuat preparat apus dan analisis dilakukan dengan menghitung jumlah abnormalitas yang ditemukan. Sampel testis kemudian disimpan di dalam larutan Bouin's dan diproses menjadi slide. Kemudian dilakukan pengecatan HE untuk analisis kepadatan isi tubulus seminiferus dan penghitungan jumlah sel Leydig. Pengecatan imunohistokimia dilakukan menggunakan antibodi primer testosteron dengan perbandingan 1:20. Analisis hasil pengecatan dilakukan dengan menghitung jumlah sel imunoreaktif dan intensitas warna di jaringan interstitial. Sampel serum digunakan untuk penghitungan kadar testosteron, menggunakan ELISA (Calbiotech). Metode analisis yang digunakan adalah deskriptif, semi kuantitatif dan kuantitatif.

Hasil analisis menunjukkan bahwa campuran serbuk plasenta sapi dengan pakan AD2 terbukti memiliki kadar karbohidrat (57,56%) dan protein (22,95%). Kesimpulan penelitian ini adalah pemberian plasenta sapi dapat menyebabkan regenerasi testis dilihat dari peningkatan kepadatan isi lumen tubulus seminiferus secara signifikan.

Kata kunci: regenerasi, testis, plasenta sapi, D-galaktosa, serbuk plasenta

POTENTIAL EFFECTS OF BOVINE PLACENTA POWDER ON TESTICULAR REGENERATION IN WISTAR RATS

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ABSTRACT

Human dried placenta is rich in protein, fiber, fat, minerals (sodium, potassium, phosphorus, calcium, iron, magnesium, zinc, copper, manganese), and hormones (estradiol, progesterone, testosterone, growth hormone). Several studies report that dried human placenta is used in traditional Chinese medicine to treat infertility, impotence, and other conditions. This study aims to determine the regenerative potential of bovine placenta powder against testicular degeneration due to administration of D-galactose in animal models of wistar rats.

A total of 15 healthy adult male Wistar rats were used in this study. Rats will be divided into three groups, group A: healthy controls, group B: given 3 mg/kg BW of D-galactose, and group C: given 3 mg/kg BW of D-galactose with a mixture of placenta powder and AD2 feed. D-galactose was given for 6 weeks and placenta powder was given for 30 days. All mice were euthanized and testes, semen from the epididymis and serum were taken. Semen samples were made smear preparations and analysis was carried out by counting the number of abnormalities found. The testicular sample was then stored in Bouin's solution and processed into a slide. Then, HE staining was performed to analyze the density of the contents of the seminiferous tubules and to count the number of Leydig cells. Immunohistochemical staining was performed using testosterone primary antibody in a ratio of 1:20. Analysis of the staining results was carried out by counting the number of immunoreactive cells and the intensity of the color in the interstitial tissue. Serum samples were used to calculate testosterone levels, using ELISA (Calbiotech). The analytical method used is descriptive, semi-quantitative and quantitative.

The results of the analysis showed that a mixture of bovine placenta powder with AD2 feed proved consists of carbohydrate (57.56%) and protein (22.95%). The conclusion of this study is the supplementation of bovine placenta can cause testicular regeneration seen from the significant increase in the density of seminiferous tubules contents.

Keywords: regeneration, testes, bovine placenta, D-galactose, placenta powder