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Male Parathyroid System Effects of Chronic High-Dose Nandrolone Decanoate

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ABSTRACT

Background: Athletes abuse AAS. Objectives: The current research evaluated chronic ND treatment on parathyroidsystem and haematological markers in ratsmale. Techniques: Ten Wistar-Albino male rats each will be in the test,control, and placebo groups. T Group got IM ND 15 mg/kg for 8 weeks. P group got similar amount in oilof peanut, whereas Cgroup could not. Animals were sedated, slaughtered, and cervical blood samples were taken. Using a gonadotropins susceptible rat kit and ELISA, FSH and LH levels were assessed. Laboratory procedures examined serum testosterone and haematological parameters. Data was analysed in SPSS version 17 byTukey testand ANOVA test. Results are MeanStvD. P 0.05 statistically significant. Group T had substantially lower testosterone, LH, FSH, weight growth, food, and water consumption (P 0.05). Group T had considerably more erythrocytes, leucocytes, haemoglobin, and hematocrit (P 0.05). High dosages of ND may change male rats' FSH, LH, testosterone, and haematological markers.

Keywords: Rats, Haematological markers Nandrolone decanoate, male hormone

1.Introduction

Nandrolone decanoate (ND) is an athlete abuseaccustomed to increase performance and muscular growth (1). Anemia patients benefited with anabolic-androgen drugs (2). Six months of ND may raise men's haemoglobin and hematocrit (3). Chronic disease will change rat melanocortin function, appetite, food intake (4). Chronic ND injection produces mental ratsabnormalities (5) and injuredDNA in mouse WBC, hepatocyte, bone marrow, testicular and brain cells, (6). Sex steroid hormones affect pituitary, FSH, and LH production (7). Androgenized female rats steroids injected in the pre-gestational phase revealed changes in cells linked with sterility (8).

2. Aim of the study

Since ND is misused by athletes and adolescents, the current research evaluated large dosages of ND on blood content of hormoneLH,FSH, mass growth, consumption of foodstuff, haematological measuresof rats.

3. Materials and Method

Study employed 30 male rats having Wistar-Albino types measures 230gms from Delhi University of Medical Sciences. Delhi University of Medical Sciences' animal research committee approved the project. Ratsmeasured on an EK-b10 digital weighing balance

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(initial weight) and randomly split placebo (P),control (C), and test (T) groups (10n) after 7 days.

T Group got 20 mg/kg IM, ND 8 weeks, however P group got Peanut oil. Group C received no experimental agents.

Drug research:ND India acquired at a town pharmacy.

Blood sample collection

At the conclusion of the experiment, animals were weighed, sedated with diethyl etherl, slaughtered, cervical samples are taken.Hematological parameters were measured using EDTA-coated CBC tubes.

Serum LH and FSH are quantified using an ELISA kit. Standard lab (Mino bine human kit USA) procedures evaluated serum testosterone. Laboratory procedures measure haematological parameters.

Statistical analysis: Data was analysed by ANOVA and Tukey tests in SPSS 17. Mean SD was used.

4. Results

In comparison to groups C and P, group T had considerably reduced blood levels of testosterone, LH, and FSH. Additionally, group T saw much less weight gain and food consumption compared to groups C and P. Group T had noticeably more erythrocytes, leucocytes, haemoglobin, hematocrit, and platelets than groups C and P.

Discussion

Male rat weight increase, plasma levels of FSH, LH, and testosterone, as well as food and water consumption, were all reduced by long-term, high-dose ND treatment. Additionally, group T had higher findings for erythrocytes, haemoglobin, hematocrit, leukocytes, and platelets. High dosages of AAS used to boost sports performance may cause irreparable organ damage, including gynecomastia and diminished male fertility (9). AAS has a high affinity for the androgen receptor in central and peripheral tissues, which affects the hypothalamic-pituitary-gonadal axis in addition to other processes (9). According to Kuhn CM's research, AAS modifies testosterone derivatives' enzymatic aromatization to boost their affinity for oestrogen receptors (10). Our research showed that group T members' blood levels of LH and testosterone were lowered by ND. These findings support those of Alsio (11), who claimed that AAS injections probably decrease the activity of the hypothalamic-pituitary-gonadal axis by disrupting physiological feedback pathways. In a pilot trial, Bijlsma et al. (7) found that giving ND to male rheumatoid arthritis patients significantly reduced the blood levels of FSH and Testosterone. Our results confirmed earlier research since group T's FSH level was much lower than those of the other groups (10). In normal rabbits, extended ND treatment, according to Oda and El-Ashmawy (12), lowered the weights of the testes and epididymis but had no appreciable effect on weight increase. Our findings differ from those of Oda and El-Ashmawy (12). Our results imply that sex steroid hormones may directly affect the

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hypothalamus-pituitary-testis axis, leading to the synthesis of FSH and LH being produced only when necessary (8). Additionally, Shokri et al. (13), who observed that exercise training increases the degree of apoptosis in the spermatogenic cell lineage of rats by giving them a supraphysiological dosage of ND, agreed with our results. The research found that group T consumed much less food and drink and gained weight than the other groups (14). According to Bhasin et al. (14), testosterone levels in healthy males between the ages of 18 and 50 who took AAS were associated with changes in the levels of erythrocytes, haemoglobin, and hematocrit. It has been shown that these improvements are dose-dependent. In the current investigation, which was supported by a separate evaluation, leukocyte, platelet, haemoglobin, erythrocyte, and hematocrit levels were considerably higher in group T than in the other groups (14,15). This is most likely because of how prolonged ND delivery in the current investigation affected bone marrow-stimulated hematopoiesis, serum erythropoietin levels, and metabolism.

In summary, male rats exposed to prolonged high doses of ND may see changes in their levels of testosterone, FSH, LH, and weight growth.

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