

News & Comments

Critical Areas of Hormonal Contraceptive Pills*Fawaz Abdelrazak*

The most popular form of contraception among fertile women is hormonal contraceptive pills (HCPs), which either contain progestins or a progestogens-estrogens mixture. Three generations of HCPs have been created; the first generation is no longer in use. Levonorgestrel and desogestrel are the most prevalent examples of second and third-generation HCPs, respectively. The use of HCPs is linked to atherosclerosis risk, lipid metabolic changes, ischemic heart disease, and cardiovascular illnesses. Any change in the bacterial variety will result in a change in the metabolic processes because the metabolites produced by gut microbes enter the bloodstream and influence the physiology of important organs. In the current investigation, the impact of HCPs was assessed on the ecology of the gut microbiota, blood biomarkers, and the histology of female rats' breasts.

From October 20, 2019, until January 20, 2020, the animals were acquired and given medications. Immediately following the dissection of the animal, the blood biochemistry was assessed and compared. 1.5-month-old, identical in age The King Fahad Medical Research Centre (KFMRC) at King Abdul-Aziz University sold 12 female Wistar rats weighing between 100 and 120 g. The polypropylene shoebox cages (50x25x20 cm) were used to acclimate the rats for a week. The animals were split up into 3 groups, with 4 animals in each group living in a separate cage.

Group-I was the untreated or healthy control group, Group-II received 350 g of LNG31, and Group-III received 150 g of DG per kg of body weight per day as treatment. The results are described concerning the Mean \pm SD (Standard Deviation).

After receiving LNG treatment, Group-II animals' cortisol levels decreased. Histopathological slides show a substantial ($p < 0.01$) increase of 96.9 ± 10.02 nM compared to Group-I normal control animals 74.3 ± 2.45 nM.

The alpha diversity of the gut microbiota population is represented by the rarefaction of observed OTUs and estimated Chao in NC animals after investigations indicated structured cellular architecture with no infracted fat cells and no build-up of fat surrounding the cells. A normal, balanced level of cortisol is crucial for health. There were substantial variations in the gut microbiota population between the control group and both treatment groups at various levels. Numerous illnesses, including Cushing syndrome, are brought on by a persistently increased cortisol level. Cushing fast weight gain in the abdomen, chest, and face, as well as elevated blood pressure, is symptoms of the condition. Along with melancholy and anxiety, elevated cortisol levels can cause women to lose their libido and menstrual cycle. In the rats given LNG and DG treatment, the amount of testosterone was reduced. The reduction



in the rats receiving LNG treatment, however, was more noticeable.

It has been noted that the Bacteroidetes phylum genus Flavonifractor can cause oxidative stress and inflammation in the host by cleavage of the flavonoid C-ring. In this investigation, we discovered that the LNG-treated group had more members of the Flavonifractor genus. The use of HCPs is positively correlated with alterations in the gut microbiome, breast tissue histology, and blood biomarkers for hypertension, liver dysfunction, stress, and anxiety.

JOURNAL REFERENCE

Al-Ghamdi, M.A., O.A. Baothman, M. Afzal, S.I. Alzarea, F. Anwar, M.S. Nadeem and I. Kazmi, 2022. Levonorgestrel and desogestrel modulate gut microbiota and blood biochemistry of female Wistar rats. *Int. J. Pharmacol.*, 18: 826-841.

KEYWORDS

HCPs, gut microbiota, biomarkers, lipid profile, breast histology

