

HORMONE IMBALANCE A CAUSE FOR CONCERN IN WOMEN

Navale Sakshi Navnath*¹, Mr Borade Deepak S*²

*^{1,2}Shri Swami Samarth Institute Of Pharmacy, Malwadi, Bota, India.

ABSTRACT

Hormones are chemical messengers produced by various endocrine glands that control key functions such as growth, metabolism, and reproduction. Hormonal imbalance can result from environmental factors, stress, lifestyle, or medical conditions, and it impacts on growth, metabolism, sexual function and other bodily processes. Causes of hormonal imbalance include stress, poor diet, environmental pollution, and medications, with symptoms such as weight fluctuations, fatigue, mood swings and sleep disturbances. Thyroid disorders (hypothyroidism and hyperthyroidism) are linked to weight changes, energy levels and metabolism issues. PCOS is common endocrine disorder affecting women's fertility, characterized by insulin resistance and menstrual irregularities. Sleep and hormonal imbalance are interrelated with disruption in sleep leading to problems with leptin, which affects appetite and fertility. Fertility issues related to hormones include imbalance in FSH, LH, progesterone, all of which influence ovulation and reproductive health.

Keywords: Hormone imbalance, PCOS, Depression, Hypersomnia, Pregnancy.

I. INTRODUCTION

Hormones are chemical messengers or chemicals that are created by the body's endocrine glands and are necessary for the maintenance of several metabolic processes. Women cannot conceive and children cannot grow without hormones.

Imbalance in the secretion of hormones may lead to numerous problems that make life terrible. Hormone imbalance may be considered as a silent killer and is arising as a true epidemic not only in India but throughout the world. In fast growing society, privatization, modernization, globalization, ferocious advancement in agriculture, overpopulation and severance has made man more vulnerable to perversity, stress, restlessness, mood swings, anger, depression, intolerance and abruptness in behavior. All these symptoms have contributed to hormone imbalance. These goods increase as one periods and come more pronounced and delicate to treat. Also, studies have been conducted on rats and humans to indicate that environmental impurity due to pollution has ruinous goods on the overall health of an existent at all most all the periods by causing hormone dislocations and colorful diseases. Women are more prone to similar imbalance as compared to men. Variations in hormone secretion becomes prominent during periods, pregnancy and menopause. occasionally drug taken to treat one type of a complaint may cause disturbance and intrude in the production and secretion of hormones.

Hormones that are used to increase the milk product and breast also increase the mortal vulnerability to environmental estrogens. Antibiotic set up in food force may also be associated with the threat of bone cancer by altering gut flora involved in enter hepatic rotation of estrogen. Hormone imbalance due to colorful factors affect multiple aspects of life. Some of the most grueling aspects have been discussed here.

Numerous threat factors for symptoms of hormone imbalance in women =Increased free estrogen levels [Hyperestrogenism] – In women have led to

- Early menarche
- Eating complaint
- Premenstrual pattern
- Endometriosis

What is a Hormonal imbalance?

- When you have too much or too little of one or more hormones, you have a hormonal imbalance. it's a general phrase that can refer to a wide range of hormone-related disorders.
- Hormones are strong messengers. Many hormones can cause significant changes in your body and result in illnesses that need to be treated if you have even a small amounts of them in excess or insufficiently.

- Some hormonal imbalances are short-term, while others are chronic (long term) .Furthermore, some hormone imbalances must be treated in order to maintain your physical health, while others may not have an effect on your health but may have a detrimental effect on your quality of life .

Sign and symptoms of a Hormonal Imbalance:-

- Weight gain
- Hump of fat between the shoulders
- Unexplained and occasionally unforeseen weight loss
- Fatigue
- Muscle weakness
- Muscle pangs , tenderheartedness and stiffness
- Pain, stiffness or swelling in your joints
- Increased or decreased heart rate
- Sweating
- Increased perceptivity to cold or heat
- Constipation
- Frequent urination
- Increased thirst

Hormonal Imbalance, Weight gain and weight loss:-

Thyroid hormone is known to regulate rudimentary metabolic rate of the body. Any drop (hypothyroidism) or increase (hyperthyroidism) in the situations of their stashing may beget numerous physiological changes –

- Hypothyroidism cause –
 - Weight gain
 - Depression
 - Hair loss
 - Low energy
 - Constipation
 - Dry skin
 - Cold dogmatism
- Hyperthyroidism cause –
 - Weight loss

Warm body all the time due to increased metabolism, high energy and diarrhea .Imbalance in cortisol situations also lead to weight gain .These are associated with estrogen dominance cortisol regulates glucose and insulin situations ,inflammation ,bone matrix deposit, muscle stamina ,coitus drive and sleep cycles. When stress increases, cortisol position change up and down and this triggers blood sugar and insulin imbalances, food jones and inhibition of thyroid function. This cause drop in metabolic conditioning and thus weight gain.

Hormone imbalances can affect several processes in the body that lead to weight gain .Some illustration include-

- Dwindling situations of estrogen can lead trusted source to weight gain in menopause.
- Hormonal imbalance due to PCOS can affect trusted source to weight gain.
- Weight gain and nonage rotundity are common trusted source symptoms of Cushing's pattern. This complaint causes the body to produce redundant quantities of cortisol.

Hormone Imbalance and polycystic ovarian syndrome (PCOS):-

Menstrual abnormalities marked by prolonged anovulation, hyper and rogenism, and infertility are thought to be caused by PCOS, an endocrine condition. It is estimated that between 10% and 13% of all women of childbearing age have infertility and anovulation. PCOS has been linked to a number of metabolic diseases .While some women may have a single ovarian cyst, others may have polycystic ovaries .The primary cause of PCOS is thought to be insulin resistance.

Symptoms of PCOS:-

- Redundant hair growth on the face or other places where males are generally more likely to have hair.
- lacing hair on the crown
- unctuous skin or severe acne
- Skin markers on the neck or armpits
- Patches of thick, darkened skin, particularly on the neck, groin or underneath the guts.
- Weight gain or difficulty losing weight

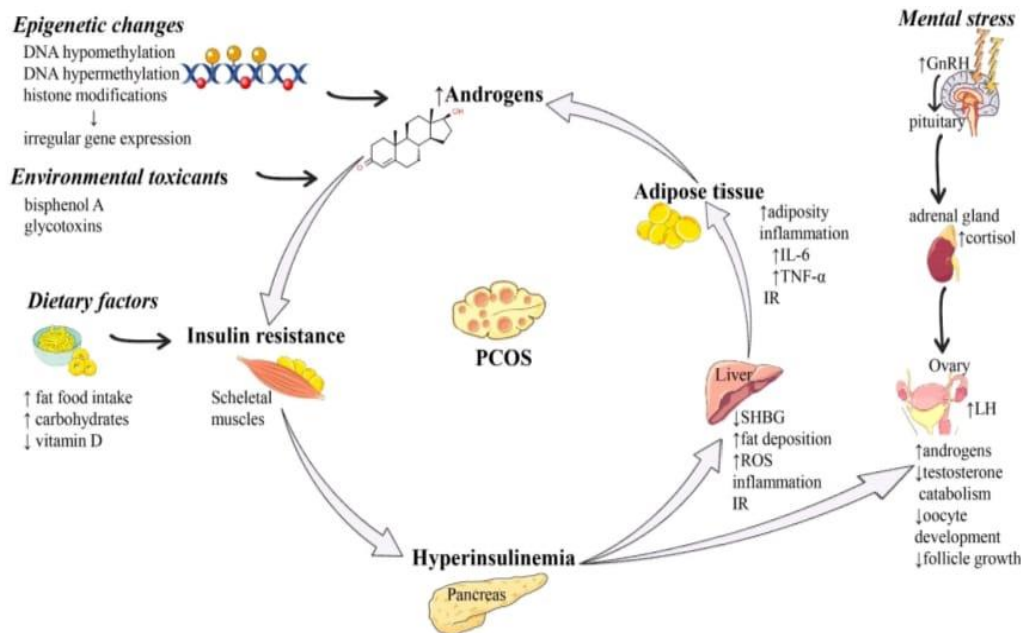


Figure 1. Summarized scheme regarding the pathophysiology of PCOS. Abbreviations and symbols: ↑ (increased), ↓ (decreased), DNA (deoxyribonucleic acid), GnRH (Gonadotropin-releasing hormone), IL-6 (interleukin 6), IR (insulin resistance), LH (luteinizing hormone), PCOS (polycystic ovary syndrome), SHBG (sex hormone-binding globulin), TNF-α (tumor necrosis alpha).

How PCOS impacts on fertility:-

People with PCOS have a hormonal imbalance that can lead to:-

- High situations of hormones called androgens
- The conformation of small ,royal ,fluid –filled sacs in the ovaries
- Thickening of the external shell of the ovaries
- High situations of insulin in your blood

These are all thing that can intrude with ovulation .one sign that this is passing is irregular or missed periods.

Different detection of PCOS:-

The clinician must consider several possibilities including: -

- Exogenous androgens.
- Androgen concealing excrescences.
- Acromegaly
- Cushing pattern.
- Primary ovarian failure.
- Thyroid dysfunction

Individual evaluation and work over:-

- Routine physical examination
- BMI->30is fat
- BP recording.

Laboratory disquisition:-

- Demonstration of biochemical hyperandrogenaemia.

- S: estradiol and FSH estimations.

Life style operation of PCOS:-

➤ Diet Regimen :-

Diet authority not only aims at weight operation but also prevents long term threat of PCOS, Type -2 diabetes mellitus, complaint etc.

➤ The following products should be avoided :-

- Alcohol , caffeine , nicotine and their addicting agents
- Soy products as they stymie ovulation
- Milk protein limits normal testosterone processing causing levels stories
- impregnated fats red meat , dairy products as they increase estrogen product .
- High glycemic indicator similar as white rice, potatoes.

➤ The following products should be consuming:-

- Whole grains-rag , red rice
- Green lush vegetables –rich minerals , vitamins and nutrients
- Dry fruits dates
- Low Glycemic whole fruits apples ,pears ,grapes ,oranges ,and plums
- Bright intrigued vegetables –carrots, capsicum, beets, salad etc.
- Carbohydrates and proteins.

➤ Exercise :- 10min exercise ameliorate the condition of PCOS

Hormone Imbalance, stress and sleep:-

Sleep and rest are necessary and form an integral part of healthy, prosperous and joyful life. Sleep focus on repairing and revitalizing mechanisms of the body .Thus lack of sleep may intrude with colorful metabolic processes .Once the disturbance is initiated it becomes more pronounced with time and age .Its delicate to say whether lack of sleep cause hormone imbalance or hormone imbalance cause lack of sleep or wakefulness .Sleep problems are much more likely to be reported by women, as typically, in most of the life stages women slept further than men.

They suffer wakefulness twice the rate of men. Hormone estrogen is directly linked to sleep .Any change or drop in estrogen due to physical stress like over exercising ,low fat or low carbohydrate diets ,fasting and dramatic weight loss may lead to anxiety ,restlessness and sleep disturbance .Disturbed sleep affects fertility by altering ovulation pattern .Normal sleep is needed to produce acceptable quantities of leptin dropped sleep duration drop the quantities of leptin produced and increase the situations of ghrelin .Ghrelin is a potent stimulator of appetite and is produced by technical cells of stomach and pancreas .Leptin acts on central nervous system to suppress the food input and increase the energy consumption .

Leptin insufficiency increases appetite and leads to obesity .It has also been reported that elevated leptin attention drop appetite and decelerate down the basal metabolic that's associated with obesity .This may explain the negative impact of leptin on fertility.

Anti – depressants are specified to relieve stress. Living in stress cause loss of progesterone. During perimenopause period, progesterone situations begin to fall, especially when women are stressed .Both age and stress drop the quantities of progesterone produced by the ovaries.

Hormonal imbalance and pregnancy:-

Hormonal imbalance with any of the following hormone could make it delicate to get pregnant.

- Follicle stimulating hormone (FSH) :-

FSH is one of the most important hormone for fertility .This hormone is made in the pituitary gland and is responsible for maintaining menstrual cycle regularity and producing healthy mature eggs .It also controls sperm product in people with testes .

An imbalance in FSH can lead to fertility, menstrual, and libido problems.

- Luteinizing hormone (LH) :-

H, or luteinizing hormone, may sound familiar; it's the hormone that's measured in at-home ovulation predictor accoutrements (OPKs). Like FSH, the pituitary gland makes this hormone. LH is the hormone that tells your body to release an egg that's ready to be fertilized. It also causes the testes to produce testosterone, which is demanded for sperm product.

An imbalance in LH can lead to infertility, irregular periods and low libido.

- Progesterone :-

The hormone progesterone is critical in preparing the body for gestation and helping a new pregnancy thrive. Specifically, it triggers the uterine lining (endometrium) to broaden to prepare for a fertilized egg. It also keeps the uterine muscles from constricting so the egg is not rejected. This hormone is produced in the ovaries after ovulation.

- Prolactin :-

Still, you are correct! But it's also a crucial player in icing your menstrual cycle stays regular, which is important when trying to conceive. If you suppose that this hormone is the bone that handles milk production. This hormone is made in the pituitary gland.

An imbalance in prolactin, especially excess prolactin, can cause menstrual and fertility problems, low sex drive, and erectile dysfunction.

- T3 and T4 :-

The hormones T3 and T4 are made in your thyroid. They work together to regulate your body energy use. They also play part in your weight, body temperature, muscle strength, and nervous system.

exploration suggests that imbalance thyroid hormone may significantly impact your capability to get pregnant. that because thyroid hormone abnormality can vitiate ovulation.

II. CONCLUSION

Include hormonal imbalance can significantly impact physical, mental, and emotional well-being, affecting areas like metabolism, mood energy levels, and reproductive health. Various factors, including stress, poor diet, and underlying health conditions can disrupt hormone levels, leading to symptoms such as fatigue, weight gain, mood swings and irregular periods. Addressing these imbalance often involves lifestyle adjustment, such as improved nutrition, regular exercise and stress management, along with medical treatments like hormone replacement therapy, medication, or supplements when necessary. Consulting healthcare professionals for a proper diagnosis and personalized treatment plan is essential to restoring hormonal balance and achieving optimal health.

III. REFERENCE

- [1] Silva AP, Guimaraes DE, Mizurini DM, Maia IC, Ortiz - costa S, Sardinha FL, et.al. Dietary Fatty acids early in life affect lipid metabolism and adiposity in young rat's. *Lipids*. 2006; 41(6):535-541.
- [2] Lang IA, Galloway TS, Scarlett A, Henley WE, Depledge M, Wallace RB, et .al. Association of urinary bisphenol A concentration with medical disorders and laboratory abnormalities in adults. *JAMA*. 2008;300(11):1303-1310.
- [3] Markowski VP, Currie D, Reeve EA, Thompson D, Wise JP Sr. Tissue specific and dose related accumulation of arsenic in mouse offspring following maternal consumption of arsenic contaminated water. *Basic clin pharmacol Toxicol*. 2011; 108(5):326-332.
- [4] Naveed S, Ghayas s, Hameed A. Hormonal imbalance and its causes in young female's. *J innov Pharm Biol Sci*. 2015; 2(1): 12-16.
- [5] Rogan WJ, Ragan NB. Some evidence of effects of environmental chemicals on the endocrine system in children. *Int J Hyg Environ Health*. 2007; 210 (5): 659-667.
- [6] Steingraber S. *Living Downstream: An ecologist looks at cancer and the environment*. Boston, Mass: Addison Wesley Publishing Co. 1997.

- [7] Raiser G, Toppari J, Parent AS, Bourguignon JP. Female sexual maturation and reproduction after prepubertal exposure to estrogens and endocrine disrupting chemicals: an r review of rodent and human data. *Moll Cell Endocrinol.* 2006; 254–255: 187–201.
- [8] Toppari J, Juul A. Trends in puberty timing in humans and environmental modif ire’s. *Mol Cell Endocrinol.* 2010; 324 (1–2): 39–44.
- [9] Velicer CM, Heckbert SR, Lampe JW. Antibiotic use in relation to the risk of breast cancer. *JAMA.* 2004; 291: 827.
- [10] Britton, the editors Nicki R. Colledge , Brian R. Walker, Stuart H. Ralston; illustrated by Robert. Davidson’s principles and practice of medicine (21st ed.). Edinburgh: Churchill Livingstone/Elsevier. 2010.
- [11] Hall J. Guyton and Hall textbook of medical physiology , 12th ed., Philadelphia, Pa .: Saunders/Elsevier. 2011.
- [12] Dayan CM, Panicker V. Hypothyroidism and depression. *Eur Thyroid J.* 2013; 2(3): 168-179.
- [13] Wagh (patil) SD. Role of cortisol in stress, fat deposition and weight gain in women. *Int J Life Sciences.* 2016; 4 (4): 599 -601.
- [14] Coderre L, Shrivastav AK, Chiasson JL. Role of glucocortic oid in the regulation of glycogen metabolism in skeletal muscle. *Am J Physiol.* 1991; 260 (6 pt1): E927-932.
- [15] Delarue J, Matzinger O, Binnert C, Scheiter P, Chiolero R, Tappy L. Fish oil prevents the adrenal activation elicited by mental stress in healthy men. *Diabetes Metab.* 2003; 29(3): 289 -295.
- [16] Chao AM, Jastreboff AM, White MA, Grilo CM, Sinha R. Stress, cortisol, and other appetite -related hormones: Prospective predict of 6-month changes in food cravings and weight. *Obesity.* 2017; 25(4): 713–720
- [17] Loverro G, Vicino M, Lorusso F, Vimercati A , Greco P, Selvaggi L . Polycystic ovary syndrome: relationship between insulin sensitivity, sex hormone levels and ovarian stromal blood flow. *Gynecol Endocrinol.* 2001; 15(2):142-149.
- [18] Azziz R, Woods KS, Reyna R, Key TJ, Knochenhauer ES, Yildiz BO. The prevalence and features of the polycystic ovary syndrome in an unselected population. *J Clin Endocrinol Metab.* 2004; 89(6):2745-2749.
- [19] Melo AS, Vieira CS, Barbieri MA, Rosa-E-Silva AC, Silva AA, Cardoso VC, et.al. High prevalence of polycystic ovary syndrome in women born small for gestational age. *Hum Reprod.* 2010; 25(8):2124-2131.
- [20] Wang S, Alvero R. Racial and ethnic differences in physiology and clinical symptoms of polycystic ovary syndrome. *Semin Reprod Med.* 2013; 31(5):365 -369.
- [21] Burgard SA, Ailshire JA. Gender and time for sleep a mong U.S. adults. *Am Sociol Rev.* 2013; 78(1): 51-69.vary syndrome. *Semin Reprod Med.* 2013; 31(5):365 -369.
- [22] Jehan S, Masters-Isarilov A, Salifu I, Zizi F, Jean -Louis G, Pandi-Perumal SR, et. al. Sleep disorders in post-menopausal women. *J Sleep Disord Ther.* 2015; 49(5): 1000212
- [23] Alfonso J, Frasch AC, Flugge G. Chronic stress, depression and antidepressants: Effects on gene transcription in the hippocamp us. *Rev Neurosci.* 2005; 16(1):43-56.
- [24] Smith P. A comprehensive look at hormones and the effects of hormone replacement. 14thAnnual International Congress on Antiaging Medicine, Orlando, FL, Vol.5, retrieved June 2005.
- [25] Herrera AY, Nielsen SE, Mather M. Stress induced increases in progesterone and cortisol in naturally cyclin g women. *Neurobiol Stress.* 2016 ; 3: 96-104.