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Effect Of Vaccines On Reproductive Hormone Levels

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Introduction

Luteinizing hormone (LH) plays a key role in gonadal function. LH in synergy with follicle stimulating hormone (FSH) stimulates follicular growth and ovulation. Thus, normal follicular growth is the result of complementary action of FSH and LH. [1]

FSH hormone Follicle stimulating hormone is one of the gonadotrophic hormones. It is released by the pituitary gland into the bloodstream. Follicle stimulating hormone is necessary pubertal development and the function of women's ovaries and men's testes. In women, this hormone stimulates the growth of ovarian follicles in the ovary before the release of an egg from one follicle at ovulation. It also increases oestradiol production. In men, follicle stimulating hormone acts on the Sertoli cells of the testes to stimulate sperm production (spermatogenesis). [2]

Luteinizing hormone (LH) is a pituitary hormone that is essential for sexual development and reproduction in both men and women. LH is regulated by GnRH from the hypothalamus which is sensitive to circulating levels of sex hormones. LH interacts with receptors on ovarian follicles and promotes their maturation. In the middle of the menstrual cycle, a surge of LH triggers ovulation and production of progesterone by the corpus luteum that is necessary for the maturation of the uterine endometrium for implantation of the fertilized egg. In males, LH stimulates production of testosterone by the testes. LH is used clinically in assisted reproduction techniques (ART) and in vitro fertilization (IVF) to stimulate ovarian follicle maturation. Both urinary derived (menotropin, Menopur, which also has FSH activity) and recombinant forms (lutropin alfa: Luveris) of human LH have been developed, but not all are available in the United States. LH is generally administered by subcutaneous injection in a cyclic and step-wise fashion. The dosages and regimens of administration vary by indication. These agents should be used only by health care workers with expertise in management of infertility and hypogonadism. [3]

COVID-19 Vaccines:

COVID‑19 vaccine is a vaccine intended to provide acquired immunity against severe acute respiratory syndrome coronavirus 2 (SARS‑CoV‑2), the virus that causes coronavirus disease 2019 (COVID‑19).[4]

The first type of vaccine is an mRNA vaccine. The mRNA vaccine contains material from the COVID-19 virus that gives the body's cells instructions for how to make a harmless protein that is unique to the COVID-19 virus.

After cells make copies of this protein, they destroy the genetic material from the vaccine . A person's body will recognize that the protein should not be there and will build special white blood cells to fight the virus. These special cells, called T-lymphocytes and B-lymphocytes, will remember how to fight the virus if the person gets COVID-19 in the future.

The second type of vaccine is a protein subunit vaccine. This type of vaccine includes harmless pieces (called proteins) of the virus that cause COVID-19 instead of the entire virus.

Once a person receives this type of vaccine, their immune system recognizes that the proteins don't belong in the body and begins making T-lymphocytes and antibodies.

If a person ever gets COVID-19 in the future, memory cells will recognize and fight the virus.

The third type of vaccine we will talk about is a vector vaccine. This type of vaccine contains a modified version of a different virus than the one that causes COVID-19. Inside the shell of the modified virus, there is material from the virus that causes COVID-19. This is called a viral vector.

Once the viral vector is inside the body's cells, the genetic material gives cells instructions to make a protein that is unique to the virus that causes COVID-19.Using these instructions, the cells make copies of the protein. This prompts the body to build T- lymphocytes and B-lymphocytes that will remember how to fight the COVID-19 virus if a person gets COVID-19 in the future.[5]

References:

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