Hypothesis:

Harmful influences of Parabens additives in certain types of COVID.19 Vaccines

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COVID.19 pandemic is the main disaster facing human-being in 21th century, despite rapid development of vaccination methods, many doubts a rise about the validity of the clinical trials on these artificial immunization tools. Some people have complications after receiving COV-2 vaccines, ranging from mild symptoms to death. Parabens which is chemical substances added to vaccines to increase its shelf live, shows estrogenic effect, competes estradiol (E2) in its receptor, high level of estradiol in blood, lead to increase IL-6, which is already increased by parabens, cause thrombotic complications, also parabens lead to change of gene expression and lead to breast cancer, cross the placenta lead to underdevelopment of reproductive and immune system of the fetus, gestational diabetes observed in pregnant women exposed to parabens and it cause overweight during childhood. Furthermore it leads to reduction of testosterone, sperm function and may cause male infertility.

Keywords: parabens, COVID.19 Vaccines, pregnancy, diabetes, infertility, immune disorders

Background

Parabens used to keep vaccines to increase its longevity, but unfortunately these chemical have serious health impact. The antimicrobial power of parabens and their probable usefulness as stabilizers were initially described in 1924 by Sabalitschka.

Their use has progressively augmented; they are now amid the most widespread biocides existing in makeups, foods, and pharmaceuticals. [1].

The several characteristics predisposing it for usage as preservative have added to their significant approval. The properties shaping high effectiveness of parabens include;

- Wide spectrum of action against microbes.
- Chemical steadiness
- Inertness.
- Little degree of systemic toxicity.
- Low occurrence of sensitization.
- Adequate water solubility.
- Fairly safe use.
- Low expenses of production,
- No noticeable odor or taste,
- Not producing alterations in consistency or coloration of products [2]. Parabens can pass in the circulation via oral consumption or by transdermal penetration, which established by the finding of systemic paraben concentrations upon exposure to it. Though, parabens are very quickly metabolized to *p*-hydroxybenzoic acid by esterases in the liver and in the skin, followed by excretion through the urine. Numerous parabens preventing 17β-HSD1 and 17β-HSD2. It can exert estrogenic properties by stopping 17β-HSD2. Inhibition of 17β-HSD2 stops local inactivation of the active estrogen E2 [3]. Butyl paraben raised levels of tumour necrosis factor-alpha, interleukin-1-beta, and interleukin-6 [4].

Reduced fertility related with urinary propylparaben. Additional study connected butylparaben and total urinary paraben concentrations with reduced fertility, as specified by declined menstrual cycle length. Butylparaben concentrations in the mother's urine and concentrations in cord blood related with amplified chances of pre-term birth and low birth weight. Experts worried about the exposure to

exogenous estrogens and how they may participate to the jeopardy of malignancy, mainly breast cancer in women. Propylparaben can change expression of genes, counting those in breast cancer cells, and quicken the growth of breast cancer cells. A low dosages of butylparaben, formerly not considered harmful, functioned in with other cell receptors to switch on cancer genes and amplified the growth of breast cancer cells [5]. Methylparaben and butylparaben prove transplacental passage [6].

Mothers exposed to EDs at low concentrations throughout their lives, but because of their lipophilic features EDs may add in their fat stores. Pregnancy and breast-feeding are energetically very expensive, and these fat stores mobilized. This can result in the release of high levels of accumulated EDs, which may impact the immature reproductive and immune systems of the fetus and newborn child [7]. 1st trimester butylparaben and propylparaben urinary levels related with glucose concentrations in a pregnancy cohort of women at high risk of gestational diabetes (GDM), even after adjusting for possible confounders [8]. Maternal paraben exposure may take part to childhood overweight progress by changed POMC-mediated neuronal appetite regulation [9].

It confirmed that butyl- and isobutylparaben were more toxic than propyl- and isopropylparaben, and ethyl- methylparaben and p-hydroxybenzoic acid were less toxic than propylparaben, when seeing mitochondria as the site for the toxic effect. Because of the significant role of mitochondria in testis metabolism, it is reasonable to assume that parabens may also interfere with mitochondrial energetics and thus interrupt sperm function. In fact, first results show that many parabens present direct toxicity on isolated testis mitochondria at low levels [10]. The vulnerability to the mitochondrial permeability transition pore (MPTP) opening raised by all parabens, while this rise was noticeably significant for propyl and butyl [11]. Butyl paraben unfavorably disturbs secretion of testosterone and the function of the male reproductive system [12].

Problems of parabens additives in certain types of COVID.19 Vaccines extending from short- term disorders like thromboembolism and long-term complications like breast cancer , immune disorders and male infertility.

Conclusions:

Parabens compete estradiol in its receptors, cause high concentration of it in blood, increase interleukin -6, which is already raised due to high level of estradiol , that lead to tissue injury , aggregation of thrombocytes and activation of coagulation cascade. It also lead to reduction of testosterone level, injury in testis mitochondria, affect sperm function (shape and motility), may cause change of gene expression and lead to breast cancer , furthermore it can cross placenta , cause underdeveloped reproductive and immune system of the fetus. So usage of parabens as preservative for certain types of COVID.19 vaccines may cause harmful complications especially for pregnant women.

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