Molds, Fertility, and Other Hormonal Concerns

Fusarium is a mold found in a variety of host plants and soil debris around the world. Zearalenone is a mold toxin produced by different strains of Fusarium fungi. (1,7) which are found in contaminated grain. This compound and its metabolites (8,11) which can get into animals fed contaminated grain have an estrogenic effect (6,12,14) approximately half that of estradiol. (1) Animals exposed to zearalenone had decreased fertility (21), number of viable offspring per litter and numbers of egg follicles and implantations of the fertilized egg. (2,15) Researchers have shown that the fungal metabolites decrease the number of eggs that mature to fertilization and cause chromosomal mutations in some of those which do mature. (11,15) There were also an increase in the number of skeletal and soft tissue deformities in the fetuses. Other animal species had reduced libido due to depressed levels of testosterone upon ingestion of this mold toxin. (3) A Norwegian study demonstrated "climatic conditions favoring fungal growth in grain were associated with hormone-dependent adverse outcomes among female farmers", including ovarian and breast cancer, late-term miscarriages and male genital defects in offspring. When it is ingested during pregnancy, there is decreased weight of the uterus, placental membranes and fetus, and there were also lower red blood counts in those fetuses. (4) "High maternal estrogen exposure during pregnancy increases breast cancer risk among daughters." (5) Moreover, the protective effect of progesterone against excessive estrogenic action is impaired by zearalenone. (10)

Once exposed or ingesting mycotoxins, they are stored in the fat of the body (18) and may recirculate in the body and can take a very long time to be removed by natural processes. (12) Laboratory studies show that immature animals ingesting zearalenone have degeneration of the ovarian follicle (12) resulting in decrease egg production. Although direct extrapolation to humans is not always 100% correct, protecting a young girl's fertility potential may warrant keeping her away from exposure fusarium molds.

"The presence of zearalenone in the study groups is, however, a growing concern, due to the possible effects of cumulative long-term exposure of oestrogenic target organs to this compound." (13) It is known that high estrogen effects from external estrogens, like zearalenone, increase the development of breast and cervical cancer in humans. (22) Studies show that zearalenone stimulates the uteri of laboratory animals. (20) Tamaszewski ,et al have

observed that zearalenone possesses “tumor promoting activity similar to that of estrogen and hypothetically can induce proliferation and carcinogenesis in estrogen-dependent tissues.” (17) Menstruating animals exposed have a decreased menstrual cycle length. (15) Studies show that metabolites of zearalenone in the body have an estrogenic effect several times higher that zearalenone itself. (19) Some of these metabolites are present in very high concentrations in muscle (23) and causes one to wonder if they could be a cause of fibromyalgia in some women. One study (16) showed that the concern for environmental estrogens (xenoestrogens or phytoestrogens) in females may also be applicable to men with prostrate problems.

As can be seen from this brief survey of the literature, most of the concern comes from studies and observations in non-human animals. However, we have many unanswered questions regarding what causes breast and uterine cancer, prostatic cancers, infertility, menstrual irregularities, birth defects, and so forth. Human chemistry and metabolism is very similar if not identical to other animals. Consequently, perhaps we can expect to have similar effects in humans as are present in other animals. At least the risk to similar effects warrants concern. Whatever the exact details of the connection between the fusarium molds and disease development, it behooves the individual to identify the presence of exposure where a risk is evident from musty odors in domiciles or water intrusions into work and living spaces.

We are able to identify probability of fusarium exposure by skin testing for molds and blood testing for IgE and IgG antibodies for molds. Mycotoxins are not always associated with mold exposure; consequently, additional testing for mycotoxins may be indicated when preliminary blood and skin testing shows exposure and the patient feels or shows signs of laboratory evidence of toxicity. We are able to measure mycotoxin antibodies in blood, which is a measure of mold toxin exposure. It is also possible to measure the presence of the mold toxins themselves in human urine, which is a direct proof of mycotoxin current or recent mycotoxin accumulation. Persons undergoing effective treatment are expected to feel better within three months if the disease is not to far advanced.

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