

The hidden dangers of endocrine disruptors: Examining their potential impact on human and animal health.

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Abstract

Endocrine disruptors and their potential effects on human and animal health have become a topic of debate and active study in toxicology. The emphasis has been on xenoestrogens, which are environmental chemicals that have estrogenic action. In general, it is agreed that high doses of such compounds may induce developmental, reproductive, and tumorigenic effects ("hazard"). The risks connected with xenoestrogens under realistic (low) exposure scenarios are a source of contention. This is due to uncertainty about how to evaluate the interactions of exogenous compounds with the endocrine system and its complex regulation. Our overview will cover topics such as the consequences of previous clinical use of the potent oestrogen diethylstilboestrol, with a focus on dose-response relationships, other observations in humans exposed to estrogenic chemicals in an occupational context, and available information on exposure levels of synthetic and naturally occurring oestrogens in the diet. Novel aspects in the risk assessment for endocrine active compounds are addressed, along with a critical evaluation of techniques for detecting and quantifying the estrogenic activity of synthetic and naturally occurring chemicals.

Keywords: Estrogenic chemicals, Endocrine disruptors, Oestrogens in diet, Diethylstilboestrol.

Introduction

Although the effects of endocrine disruptors in wildlife have been studied extensively since the 1940s, endocrine disruption is a named area of study that has been very active for over ten years. Many chemicals have been identified as endocrine disruptors, and people can be exposed to them through their jobs as well as through dietary and environmental exposure (water, soil and air). Endocrine disrupting chemicals are substances that alter the normal working of both humans and wildlife's endocrine systems. Methods for predicting effects on populations and communities from knowledge must be created in order to comprehend the vulnerability and risk factors of people due to endocrine disruptors, as well as the remedies for these effects on individuals. For several years there has been a growing interest on the mechanism and effect of endocrine disruptors and their relation with environment and human health effect [1]. This paper, based on extensive literature survey, briefly studies the progress mainly in human to provide information concerning causative substances, mechanism of action, ubiquity of effects and important issues related to endocrine disruptors.

Endocrine disruptors are chemicals that can interfere with the endocrine system in both humans and animals. These chemicals can affect the functioning of hormones, which can lead to a range of health problems. Endocrine disruptors can be found in a variety of products, including plastics, pesticides,

and personal care products. Research has shown that exposure to endocrine disruptors can have a range of negative effects on both human and animal health [2]. These effects can include developmental disorders, reproductive problems, and cancer.

One of the most well-known endocrine disruptors is bisphenol A (BPA). BPA is a chemical found in many plastics, such as water bottles and food containers. BPA can mimic the hormone estrogen, which can disrupt the body's hormonal balance. Research has linked BPA exposure to a range of health problems, including developmental problems in children, infertility, and breast and prostate cancer [3].

Another commonly found endocrine disruptor is phthalates. These chemicals are used in a variety of products, including plastics, personal care products, and fragrances. Phthalates can disrupt the production of testosterone and other hormones in males, which can lead to developmental problems and reproductive issues. Pesticides are another source of endocrine disruptors [4]. These chemicals can interfere with the hormones that regulate growth and development in animals. Exposure to pesticides has been linked to a range of health problems in animals, including reduced fertility and birth defects. In addition to affecting animals, endocrine disruptors can also have negative effects on human health. For example, exposure to certain endocrine disruptors during pregnancy can lead to developmental problems in children. Studies have shown that exposure to endocrine disruptors during pregnancy can lead

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to reduced birth weight, decreased head circumference, and increased risk of neurodevelopmental problems. Endocrine disruptors have also been linked to a range of reproductive problems in both men and women. These chemicals can affect the production and function of reproductive hormones, which can lead to infertility and other reproductive disorders [5]. Given the potential health risks associated with endocrine disruptors, it is important to take steps to reduce exposure to these chemicals. This can include using safer alternatives to products that contain endocrine disruptors, such as glass containers instead of plastic. It is also important to limit exposure to pesticides and other chemicals that can contain endocrine disruptors.

Conclusion

Endocrine disruptors are a group of chemicals that have been shown to interfere with the hormonal balance in both humans and animals. Exposure to these chemicals has been linked to a range of negative health effects, including developmental disorders, reproductive problems, and cancer. The pervasiveness of endocrine disruptors in our daily lives and the potential long-term health effects they pose should not be overlooked. By taking steps to limit exposure to these chemicals, choosing safer alternatives, and supporting regulations that reduce the use of endocrine disruptors in consumer goods and the environment. It is important to

prioritize our health and the health of future generations by raising awareness about the dangers of endocrine disruptors and working towards reducing their impact on human and animal health.

References

1. DeVito M, Biegel L, Brouwer A, et al. Screening methods for thyroid hormone disruptors. *Environ Health Perspect.* 1999;107(5):407-15.
2. Frye C, Bo E, Calamandrei G, et al. Endocrine disruptors: a review of some sources, effects, and mechanisms of actions on behaviour and neuroendocrine systems. *J Neuroendocrinol.* 2012;24(1):144-59.
3. Guillette Jr LJ, Edwards TM. Is nitrate an ecologically relevant endocrine disruptor in vertebrates?. *Integr Biol.* 2005;45(1):19-27.
4. Kassotis CD, Vandenberg LN, Demeneix BA, et al. Endocrine-disrupting chemicals: economic, regulatory, and policy implications. *Lancet Diabetes Endocrinol.* 2020;8(8):719-30.
5. Zhou T, Taylor MM, DeVito MJ, et al. Developmental exposure to brominated diphenyl ethers results in thyroid hormone disruption. *Toxicol Sci.* 2002;66(1):105-16.