DIETHYLSTILBESTROL

DES Exposure and Autoimmune Disease Risk

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Animal studies show that DES causes an increased risk of autoimmune disease; human studies are conflicting although self-reports by patients show an increased risk.

Diethylstilbestrol (DES) is a non-steroidal estrogen drug first synthesized in 1938. Diethylstilbestrol was never patented because patenting drugs for profit was against the policy of the University College London professors who used public funds to develop DES. Sold generically under a multitude of brand names, DES was widely used in the United States until 1971, when it was found to be a teratogen, causing birth defects in the children born to pregnant women. Despite warnings to discontinue using it in pregnancy, DES continued to be used in other conditions through the 1990s.

Uses of Diethylstilbestrol

In 1941, DES was approved by the Food and Drug Administration (FDA) as a treatment for gonorrheal vaginitis, atrophic vaginitis and other symptoms of menopause, and to suppress postpartum lactation and prevent associated breast engorgement after childbirth. The use of DES for gonorrhea was discontinued when penicillin was introduced in 1945.

In 1945, researchers at the University of Chicago began using DES to treat metastatic prostate cancer, and in the 1960s DES began being used for breast cancer. In the 1940s, physicians began using DES off-label to prevent miscarriages, and FDA approval for this use was granted in 1947. In the United States, an estimated 5-10 million people were exposed to DES between 1941-1971, including pregnant women and the children born of these pregnancies who are known as DES daughters and DES sons.

DES continued to be used as a post-coital contraceptive for rape victims through the 1980s although its use to prevent breast engorgement continued through 1978. In the 1990s DES was still used for prostate and breast cancer until DES stopped being manufactured in the U.S. in 1997. DES was sold under many names including Benzestrol, Chlorotrianisene, Estrobene and Estrosyn. For a complete list, see the CDC's DES list. Today, in the United States, DES is used in canines in very small doses, usually 1 mg daily, to prevent incontinence. At such low doses, DES is considered safe.

First Indications of Trouble

The first problems with DES began to surface in 1971 when the adult daughters of DES mothers began developing adenocarcinoma of the vagina, a condition only rarely seen before then. In 1971 the FDA advised physicians to stop prescribing DES to pregnant
patients. However, the use of DES was never banned and continued to be prescribed through the 1990s.

**Autoimmune Disorders**

Besides causing adenocarcinoma of the vagina and cervix, DES is known to cause infertility, vaginal adenosis, cervical irregularities, ectopic pregnancies, breast cancer, and autoimmune disorders as well as genital and reproductive disorders in men. Animal studies in female mice show an increased risk for autoimmune disorders. Human studies are conflicting although most studies show an increased risk in women who had been exposed to DES in utero.

However, no single autoimmune disease was found to occur more than others. Studies involving self-reporting by patients exposed to DES show an increased risk in many different autoimmune disorders, including autoimmune thyroid disorders and connective tissue disorders.

**Resources:**

Diethylstilbesterol CDC reports,

National Cancer Institute, DES Daughters

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