DES Sons Face No Fertility Problems

Beginning in the late 1940s, doctors prescribed high doses of a potent synthetic estrogen to prevent miscarriages. In the United States alone, some 3 million pregnant women may have received the therapy. But this drug—diethylstilbestrol (DES)—was banned after studies in the early 1970s showed that daughters of the treated women faced an increased risk of gynecologic cancers and reproductive abnormalities, including sterility.

What about sons? Those exposed to DES exhibited an unusually high incidence of genitourinary and reproductive abnormalities at birth. However, a new study finds, in contrast to earlier indications, such prenatal exposures did not impair the fertility of sons—even those born with genital defects.

"On the face of it, that seems weird," acknowledges study leader Allen J. Wilcox of the National Institute of Environmental Health Sciences (NIEHS) in Research Triangle Park, N.C. In fact, animal studies conducted at NIEHS 20 years ago showed that such prenatal exposures could induce devastating male reproductive problems, including sterility.

DES is the most potent estrogenic compound known—more powerful even than nature's primary estrogen. As such, DES has served as a model for scientists investigating the risks associated with the growing number and amount of estrogen-mimicking pollutants being released into the environment (SN: 7/3/93, p.10).

"We regarded this study as a step towards testing that," Wilcox told SCIENCE NEWS. "If DES had an effect on a man's fertility, it would support the idea that weaker estrogens might be having similar, if weaker, effects on male reproduction" (SN: 1/22/94, p.56).

In the new study, reported in the May 25 NEW ENGLAND JOURNAL OF MEDICINE (NEJM), his team surveyed evidence of fertility among the sons of women who took part in a double-blind DES trial at the University of Chicago during the early 1950s. Wilcox's group located 548 of the 848 boys born during the trial and interviewed 90 percent of them—253 who had been exposed to DES in the womb, 241 who had not.

The researchers note that 15 percent of the men whose mothers had taken DES reported genital malformations (mostly minor ones, such as epididymal cysts). That was three times the rate in unexposed men.

However, "we found no evidence that DES impairs male fertility," the researchers said—at least as measured by length of time to conception, age at fathering first child, average number of children, whether a man had ever fathered a child, and sexual function.

A study of the same Chicago sons in the 1970s had reported lower sperm counts and more abnormal sperm among those exposed prenatally to DES. "While we don't know the current sperm characteristics of these men," Wilcox notes, "it is possible DES affected sperm and did not affect fertility."

Endocrinologist Richard J. Sherins of the Genetics and IVF Institute in Fairfax, Va., made a similar point in a Feb. 2 NEJM editorial accompanying the report of a 20-year decline in semen quality and sperm counts among men in Paris (SN: 2/25/95, p.127). The French data did not signal a drop in fertility, he argues, because "sperm count [alone] does not translate into fertility."

But that said, Sherins argues that even in the face of this new DES study, "you have to be cautious about putting the whole [reproductive] issue of environmental estrogens to rest."

Endocrinologist Niels E. Skakkebaek of University Hospital in Copenhagen agrees: "I certainly think this issue remains an open one."

At a minimum, Wilcox maintains, environmental estrogens "might be a problem in species other than humans—and in a way that deserves very serious consideration." Moreover, he notes, other classes of emasculating chemicals, such as those that block male sex hormones, may masquerade as estrogens (SN: 7/2/94, p.15).

For now, Sherins says, the best policy "is to stay concerned." —*J. Raloff*

New Mexico volcano: Hot times ahead?

With budget-cutting gusto, Congress is debating whether to shut down the Department of Energy and its suite of national laboratories. But if the politicians in Washington wrangle long enough, a giant volcano in New Mexico may do some of the work for them.

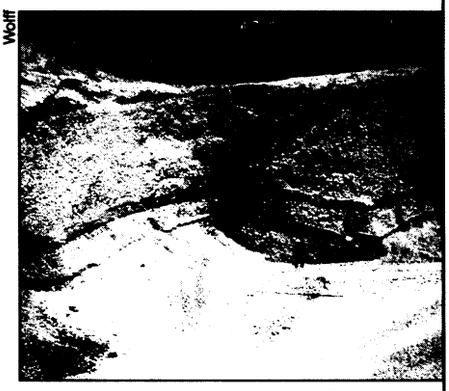
The Valles caldera, one of the largest volcanoes in the United States, looms over the Los Alamos National Laboratory (LANL), where J. Robert Oppenheimer oversaw the development of the atomic bomb in the mid-1940s. Two geoscientists warn that the Valles caldera could be gearing up for an eruption that would cover Los Alamos and many small towns in the region.

They cannot say, however, whether the blast will come anytime soon.

"The chances are small, but the consequences potentially are so devastating that it makes sense to take some simple precautions," says John A. Wolff of the University of Texas at Arlington. Wolff and Jamie N. Gardner of LANL describe their work in the May GEOLOGY.

The caldera—a crater 25 kilometers in diameter—developed during two major eruptions 1.6 and 1.2 million years ago. Geologists consider caldera-forming eruptions the largest class of volcanic explosions, but there is no historical record of any. For that reason, scientists do not know what signs lead up to caldera eruptions.

Two sets of findings raise concern about the threat at Valles, say Wolff and Gardner. According to new dating studies, the last eruption in the caldera occurred 60,000 years ago, relatively recently by geologic standards. Moreover, the microscopic texture of rock ejected during that blast indicates that the volcano entered a new phase of volcanic activity then.



Wolff

A quarry wall displays bands of volcanic ash and pumice that erupted from the Valles caldera about 60,000 years ago. Person in foreground gives sense of scale.

Scientists know that the crust beneath the caldera is hot and may contain a reservoir of molten rock. An eruption could come tomorrow, or it could wait for 20,000 years, Wolff says.

Although the chances of a blast right now appear slim, Wolff and Gardner urge the state or federal government to establish a relatively inexpensive monitoring program to keep tabs on the earthquakes and land movement in the caldera region that might warn of any impending eruption. —*R. Monastersky*