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******Expert urges greater caution in x-raying potential mothers.*

DALLAS--A radiation expert today called for exercise of greater caution in x-raying the abdomens of women of child-bearing age.

"I feel too many women are receiving postponable x-rays at a very early and especially vulnerable stage of embryonic development--the first six weeks--generally before the person realizes she is pregnant," said Dr. Mary Esther Gaulden, associate professor of Radiology at The University of Texas Southwestern Medical School.

"We found that five per cent of 2,000 women whose x-rays we delayed at Parkland Hospital were, in fact, pregnant," said Dr. Gaulden.

Damage to the baby can range from problems undetectable at birth to defects which can be easily observed. One fragment or photon of x-rays at the right place and time can induce a mutation in a cell.

"We know that diagnostic x-rays to the child at any time during pregnancy increase by a small amount the chances of leukemia and other types of tumors after birth," said Dr. Gaulden.

The scientist emphasized she was referring only to abdominal x-rays--not those involving chest, dental or other locations.

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"Obviously, there are emergency situations where the need for x-rays outweighs the risk--such as when the mother's life is in danger from trauma," she said. "In such cases the radiologist can often take the x-rays in such a way as to reduce the amount of radiation received by the baby if he or she knows the patient may be pregnant."

Dr. Gaulden said she felt most physicians exercised caution in this area but that sometimes there might not be sufficient safeguards through lack of communication between the patient and her physician and between radiologists and referring doctors.

Dr. Gaulden, who holds the Emma Freeman Professorship of Radiology at Southwestern, specializes in research on genetic damage from low level radiation such as delivered by diagnostic x-rays.

While gross abnormalities are unlikely with diagnostic levels of radiation, it is possible that a whole range of more subtle effects might be induced, said the researcher.

It is possible, she said, to induce a condition known as "genetic mosaicism" in the developing child. This means that a certain percentage of the body cells would be abnormal--they might perhaps exhibit the extra chromosome of Down's Syndrome--while the rest of the cells would be normal.

"In practically all known cases, these types of mosaics have decreased mental capacity."

The researchers noted that central nervous system development seemed to be particularly susceptible to radiation damage during the early developmental phase and this, perhaps, was because CNS coding genes were spread among all the 46 chromosomes.

"There are neuroblasts (cells which produce the central nevous system) throughout the whole body up to birth and in the head for two years after birth," she noted.

Dr. Gaulden said she felt the screening program at Parkland devised by Dr. Edward Christensen and the x-ray staff had been successful in preventing damage to many unborn babies.

"We started in 1970 and were one of the first hospitals in the country to screen abdominal x-rays on a regular basis.

"The first question asked of a woman of child bearing age was: when was the last menstrual period? We sought to postpone the x-ray if the patient was beyond the first ten days after the onset of the last menses.

"Obviously, this did not apply to those who had had a tubal ligation or hysterectomy.

"Generally, we would not even take people who were on the pill or who were fitted with an intra-uterine device (IUD) because I've seen too many fecund IUD wearers and people who forgot to take a pill. But if the patient insisted there was no possibility of pregnancy or if the referring physician needed the information immediately, we'd go ahead with the x-ray, tailored to reduce the amount of radiation to a minimum," explained Dr. Gaulden.

The scientist said she was issuing the warning in concert with a current program by the National Bureau of Radiological Health, designed to alert women to the possible dangers of radiation in early pregnancy, so that they can inform their physicians when there is such a possibility.

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