

Breast shields better at reducing dose than posteriorly centered partial CT, study finds

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The use of breast shields is the technique of choice to protect the breasts of women from radiation exposure while undergoing chest CT examinations, according to a new study.

The use of CT has grown exponentially which brings into question the level of radiation exposure to patients. Recently the International Commission of Radiation Protection (ICRP) increased the tissue weighting factor for the breast from 0.05 to 0.1 noting that [breast tissue](#) is even more sensitive to [radiation exposure](#) than previously thought, said Rafel Tappouni, MD, the lead author of the study. To put the risk into perspective, the delivery of 1 rad to a 35 old woman is estimated to increase her lifetime risk of [breast cancer](#) by 13.6%; each CT exam delivers at least twice that amount, he said.

Dr. Tappouni and his colleagues at Penn State Hershey Medical Center in Hershey, PA measured the [radiation dose](#) to the front and back of a breast phantom (a object that mimics the size of the breast area of a person) using a breast shield and using a new technique called posteriorly-centered partial CT. In posteriorly centered partial CT, the [CT scanner](#) turns on and off as it scans the patient. "We found that posteriorly centered partial CT does decrease skin entrance radiation dose to the breast by 16%, but increases overall radiation dose to the chest by 8%," said Dr. Tappouni. "The bismuth breast shields, on the other hand, reduced skin entrance dose to the breast by 38% without an increase in overall radiation dose," he said.

Dr. Tappouni noted that they now use breast shields at his facility for all female patients up to age 90 who undergo chest CT examinations.

More information: The study is being presented during the American Roentgen Ray Society Annual Meeting on May 4 in Chicago.

Provided by American Roentgen Ray Society

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