

Radiation Exposure to Breast in CT Scanning

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In recent years, considerable effort has been made by manufacturers and users of radiation producing equipment to minimize radiation exposure to breast tissue especially in mammography procedures. The Standardization required by the MQSA and ACR guide-lines have provided improved image quality with concurrent reduction in radiation exposure to breast tissue. However, the diagnostic procedures carried out in female population include routine chest x-ray examinations, scoliosis studies and CT scanning.

Since 1980, there has been a gradual reduction in radiation exposure to breast tissue in mammography, scoliosis and chest x-ray studies except CT scanning. The radiation exposure measurements were carried out in CT scanners using TLD'S in female rando phantom. The measured data included effect of variation of CT pitch factor on radiation dose delivered to breast tissue. The analysis of data show that increase in pitch factor reduces dose to breast tissue.

One of the ways to reduce radiation exposure to breast tissue is to use pitch factor greater than one (1) for scanning younger women, particularly if the chest area is involved. The other method would be to make appropriate reduction in mAs based on patient dimensions instead of using same mAs techniques for all chest CT scanning.