TOWARDS PROPOSITION OF A DIAGNOSTIC REFERENCE LEVEL FOR MAMMOGRAPHIC EXAMINATION IN THE GREATER KHORASAN PROVINCE, IRAN

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Received December 31, 2011.
Revision received October 20, 2012.
Accepted November 4, 2012.

Abstract

Although, over the past few years, the application of mammography has risen up sharply in Iran, very little, if any, has been reported of the extent of patient’s dose from this type of imaging. The purpose of this study was to establish local diagnostic reference level (DRL) arising from mammography in the great Khorsan province of Iran. It is generally assumed that the glandular tissue is the most vulnerable type of breast tissue. Therefore, the mean glandular dose (MGD) has been widely accepted as the most appropriate dosimetric quantity to predict the risk of radiation-induced cancer. Literally, DRL for mammography is defined as the 75th percentile of MGD distribution. In Khorsan province, 7 out of 40 centres were randomly selected. In this work, 100 patients were studied. Thermoluminescence dosimeters have been used to measure entrance surface doses (ESDs). Since, it is difficult to directly measure MGD, Monte Carlo model–based conversion factors were utilised to conclude MGD from ESD. The results have revealed that patients dose is varied widely. The measured ESDs ranged from 0.74 to 19.81 mGy for the craniocaudal (CC) view and 1.20 to 25.79 mGy for the mediolateral oblique (MLO) view. The average MGDs per image were 0.88 and 1.11 mGy for CC and MLO views, respectively. Based on the internationally adopted