Quality Control of Radiography X-ray Generators in Kerman Province, Southeastern Iran

Jomehzadeh A[1], Jomehzadeh Z[1], Tavakoli MB[2]

E-Mail: a.jomehzadeh@kmu.ac.ir

1- Department of Medical Physics, Kerman University of Medical Sciences, Kerman, Iran.

2- Department of Medical Physics and Medical Engineering, Isfahan University of Medical Sciences, Isfahan, Iran.

Introduction:

Application of quality control (QC) programs at diagnostic radiology departments is of great significance for optimization of image quality and reduction of patient dose. The main objective of this study was to perform QC tests on stationary radiographic X-ray machines, installed in 14 hospitals of Kerman, Iran.

Materials & Methods:

In this cross-sectional study, QC tests were performed on 28 conventional radiographic X-ray units in Kerman governmental hospitals, based on the protocols and criteria recommended by the Atomic Energy Organization of Iran (AEOI), using a calibrated Gammex QC kit. Each section of the QC kit incorporated different models.

Results:

Based on the findings, kVp accuracy, kVp reproducibility, timer accuracy, timer reproducibility, exposure reproducibility, mA/timer linearity, and half-value layer were not within the acceptable limits in 25%, 4%, 29%, 18%, 11%, 12%, and 7% of the evaluated units (n=28), respectively.

Discussion:

As radiographic X-ray equipments in Kerman province are relatively old with a high workload, it is recommended that AEOI modify the current policies by changing the frequency of QC test implementation to at least once a year.