عنوان مقاله:

Quality assessment of conventional X-ray diagnostic equipment by measuring X-ray exposure and tube output parameters in Great Khorasan Province, Iran

محل انتشار:

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خلاصه مقاله:

Introduction: Regular implementation of quality control (QC) program in diagnostic X-ray facilities may affect both image quality and patient radiation dose due to the changes in exposure parameters. Therefore, this study aimed to investigate the status of randomly selected conventional radiographic X-ray devices installed in radiology centers of Great Khorasan Province, Iran, to produce the data needed to formulate QC policies, which are essential to ensure the accuracy of the diagnosis while minimizing the radiation dose. Material and Methods: This cross-sectional study was performed using a calibrated Piranha multi-purpose detector to measure QC parameters in order to unify X-ray imaging practices using international guidelines. The QC parameters included voltage accuracy, voltage reproducibility, exposure time accuracy, exposure time reproducibility, tube output linearity with time andmilliampere (mA), and tube output reproducibility. Data analysis procedures were performed based on the type of an X-ray generator, which has not been reported in previous studies. Results: The results showed that the implementation of high-frequency X-ray generators were more advantageous compared to alternative current generators, due to their efficient, better accuracy, linearity, and reproducibility. Conclusion: The survey revealed that the QC program was not conducted at regular intervals in some of the investigated radiology centers, mostly because of inadequate enforcement by national regulatory authorities for implementation of QC program.

کلمات کلیدی:

Diagnostic Equipment, Quality Control, Radiography