

Review of: "Dose Reduction in Medical Radiography: Advancing Veterinary Diagnostic Solutions"

Gabriela Beatriz Grad¹

¹ Universidad Nacional de Córdoba

Potential competing interests: No potential competing interests to declare.

The results presented by the authors suggest that using LAD in veterinary radiography can improve safety by reducing radiation dose without sacrificing diagnostic image quality.

What is truly innovative in this work is the introduction and evaluation of the Linear Array Detector (LAD) system compared to standard Flat Panel Detectors (FPDs) for veterinary medical radiography.

The novelty of this work lies in the evaluation and demonstration of the benefits of the LAD system in reducing radiation doses in veterinary radiography, and in the development of a mechanical system that facilitates its clinical use. This could lead to significant improvements in the safety and quality of veterinary imaging.

Suggested corrections:

Use:

source-to-image distance (SID)

"In LAD system, incident X-ray and the detector's active area are in the same plane and image is performed line by line to form the image Fig.1B. X-ray is fan-shaped and covers photosensitive window of the LAD."

Consider changing to:

In the LAD system, the incident X-ray and the detector's active area are in the same plane, and the image is formed line by line as shown in Fig. 1B. The X-ray is fan-shaped and covers the photosensitive window of the LAD.

Materials and Methods

As the water phantom, a radiotransparent LEXAN sheet cabinet with a 20 mm layer of aluminum (Al) block placed inside as a bone model was used to analyze water thickness from 10 to 60 cm.

Consider changing to:

A radiotransparent LEXAN sheet cabinet with a 20 mm layer of aluminum (Al) block placed inside as a bone model was used to analyze water thickness from 10 to 60 cm.

Results and Discussion

1) An anthropomorphic phantom is designed to simulate the diagnostic features of X-ray procedure. Obviously, anthropomorphic phantom dose analysis couldn't have given precise results since the gray scale and diagnostic quality phenomena are subjective criteria themselves.

Consider changing to:

An anthropomorphic phantom is designed to simulate the diagnostic features of X-ray procedures. However, anthropomorphic phantom dose analysis cannot provide precise results because grayscale and diagnostic quality are subjective criteria themselves.

2) Water phantom analysis can be considered alongside anthropomorphic phantom analysis, as it involves measuring the dose from photons that penetrate through homogeneous water and reach the detector in X-ray settings, including the presence of an aluminum block.

Consider changing to:

Water phantom measurements can be considered alongside anthropomorphic phantom analysis, as they involve measuring the dose from photons that penetrate through homogeneous water and reach the detector in X-ray settings, including the presence of an aluminum block.

3) The results obtained using these X-ray parameters indicated that adequate image quality could be achieved with correspondingly lower ESD. The similar sizes of donkeys and horses suggest that, in theory, equine whole-body imaging could be successfully performed.

Consider changing to:

The results obtained using these X-ray parameters indicated that adequate image quality could be achieved with correspondingly lower ESD. The similar sizes of donkeys and horses suggest that, in theory, equine whole-body imaging could be successfully performed.

Conclusion

Low dose means low energy consumption, which may create the chance of producing mobile diagnostic equipment instead of stationary.

Consider changing to:

Low dose implies low energy consumption, which could potentially enable the development of mobile diagnostic equipment instead of stationary units.