ECRONICON OPEN ACCESS

EC VETERINARY SCIENCE
Opinion

A Reminder for Radiation Dosimetry for Animals

Ibrahim Abdul-Azeez Okene*

Department of Clinical Studies, Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, Malaysia and Department of Surgery and Radiology, Faculty of Veterinary Medicine, University of Maiduguri, Nigeria

***Corresponding Author:** Ibrahim Abdul-Azeez Okene, Department of Clinical Studies, Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, Malaysia and Department of Surgery and Radiology, Faculty of Veterinary Medicine, University of Maiduguri, Nigeria.

Received: May 20, 2019; **Published:** July 31, 2019

Animal health care has improved tremendously over the years, even as we now understand much about their diseases, diagnosis, and approach to treatment. Despite the rapid integration of human medical diagnostic imaging modalities into routine and specialised veterinary diagnostics, there is apparently minimal attention accorded to radiation safety of our patients - animals. The IAEA [1] has set strict regulations for the protection of humans against ionising radiation and has developed measurement techniques for radiation dose. Authors have opined that the frequent exposure of our loved patients to ionising radiation from x-rays, computerised tomography scans, magnetic resonance image scans, and their variants especially those of radiation therapy may be detrimental to the wellbeing of animals. If data from the human medical practice are to be compared, reports are indicating an increase in the increased exposure of humans to ionising radiation from mammography, MRI scans, and radiation therapies.

Unconfirmed circulating theories relates the rise in exposure to ionising radiation in humans to certain types of cancers [2]. Concomitantly, there are similarly speculations about the seemingly rising incidences of cancers in small animals (dogs and cats) mostly attributed to feeding them with commercial pet foods. In the same vain on could as well hypothesis that the purported increase in cancer and reproductive anomalies [3] among animals can be due to frequent exposure to ionising radiations from routing diagnostic imaging procedures using MRI, CT, X-ray and their variants.

This piece aims to draw the attention of the veterinary community to rise to the challenge of developing radiation dosimetry for our dear patients. It is also to propel researchers to determine the maximum permissible doses for a wide range of species whose and well-being are our full-time responsibility. A group of researchers [4] identified the whole body dose in mice and rats exposed to isotopes 18F, 99mTc, 201Tl, (111)In, 123I, and 125I commonly used in single photon emission computerised tomography (SPECT) and positron emission tomography (PET). Their results indicate a radiation dose range of 6 - 90 cGy for mice and between 1 - 27 cGy for rats. They postulated that a much larger dose would be required for small animals (pets) to cause harm. In the same manner, Tryggestad., *et al*. [5] devised a comprehensive system for measuring dosimetry data in small animals. The pace at which advanced and recent studies complement these efforts do not match the dire need to protect our animals from the risk of ionising radiation. Thus, intensive studies are needed to quantify radiation dose risks for animals and establishing a commissioned standard for radiation safety practice for the veterinary profession.

Bibliography

1. IAEA. Radiation Protection and Safety in Medical Uses of Ionizing Radiation. Vienna: International Atomic Energy Agency (2018).

2. Brenner DJ and Hall EJ. "Computed Tomography - An Increasing Source of Radiation Exposure". *New England Journal of Medicine* 357.22 (2007): 2277-2284.

3. Hinton G., *et al*. "Radiation-induced effects on plants and animals: findings of the United Nations Chernobyl Forum". *Health Physics* 93.5 (2007): 427-440.

4. Funk T., *et al*. "Radiation dose estimate in small animal SPECT and PET". *Medical Physics* 31.9 (2004): 2680-2686.

5. Tryggestad E., *et al*. "A comprehensive system for dosimetric commissioning and Monte Carlo validation for the small animal radiation research platform". *Physics in Medicine and Biology* 54.17 (2009): 5341-5357.

Volume 4 Issue 6 August 2019