Radiation Protection knowledge and Practices in Interventional Cardiologists Practicing in Africa: A cross sectional Survey

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Background

Ionizing radiation related health problems are more frequently observed in workers performing fluoroscopically guided cardiovascular procedures than in unexposed controls.

Objective

This study sought to determine the current existing knowledge and practice of radiation protection among interventional cardiologists working in some of the centers in Africa.

Methods

This was a cross sectional survey of cardiologists working in the cardiac catheterization laboratories across Africa. A self-administered questionnaire was distributed via email and in person on the 4th edition of CSI Africa in Nairobi, Kenya, December 1 – 2, 2017. Data were entered into Statistical Software for Social Sciences (SPSS) for Mac and analyzed.

Results

Out of the total 72 questionnaires distributed directly and via email, 61 participants responded. Forty-four, (72.1%) were males. Twenty-eight, (45.9%) of the respondents were younger than 45 years. With respect to their professional experience in the catheterization laboratory, 37 (60.6%) of the respondents had professional experience of <10 years. Twenty-eight, (45.9%) were pediatric and congenital heart disease interventionists. Only 28 (45.9%) reported having had radiation protection training. Fifty-

eight, (95.1%) responded that they always used lead aprons whenever they worked in the catheterization laboratory. Forty-seven (77%) consistently used thyroid protection lead shields. Only 10 (16.4%) consistently used radiation protection eyeglasses. None of the participants reported using radiation protection gloves consistently. Use of the radiation protection tools by their co-workers (assistants, scrub nurses, radiographic technicians etc.) was reported to be similar to the respondents themselves. Thermoluminescent Dosimeter (TLD) badges were consistently used only in 23 (37.7%) of the respondents. When asked about their level of radiation exposure in the most recent one year: 14 said it was ≤2mSv; 8 reported between 2 and 20 mSv; 2 reported between 20 and 30mSv, whilst 33 did not know their doses. When asked if they ever had high readings on TLD badge to the best of their memory, 17 answered yes. However, when asked whether they know the maximum acceptable/allowable effective dose of radiation exposure (International Commission on Radiological Protection-ICRP) only 5 responded correctly, whilst the rest responded incorrectly or did not know.

Conclusion

Use of basic radiation protection tools as well as the knowledge and measurement of radiation exposure among interventional cardiologists working in Africa is low. Whilst the major reason for underutilization of the protective tools was reported to be unavailability of the tools, there also exists a knowledge gap. Concerned institutional management and other responsible stakeholders should take initiatives to offer radiation protection trainings, so that these young and early career professionals, co-workers and their patients are protected.