

General Clinical Specialties

MTA II: Outcomes/Comparative Effectiveness Research & Radiation Safety Posters

Radiation exposure reduction to PET technologists with the use of an automated dosage delivery system

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Objectives: To quantitate potential exposure reduction to PET technologists, a retrospective review of dosimeter badges was performed before and after the initiation of an automated dose delivery system (ADDS).

Methods: Our PET technologists administer all radiotracer dosages and are made up of a core group (n=7) who only work in PET and a rotating group (n=13) who divide time between our PET and general nuclear medicine practice. All technologists wear both body and ring dosimeter badges that are monitored monthly or quarterly. Prior to mid-2nd quarter of 2011, all dosages were provided to the technologists as individual units from our chemistry laboratory. During the 2nd quarter of 2011, use of an ADDS was initiated (Intego PET Infusion System, MEDRAD) which allows for individual dosages to be infused from a multi-dose vial without the need for direct contact with the dosage by the technologist. Ring and body radiation dosimeter badges were monitored before and after initiation of this system.

Results: Exposure reduction was noted in both our core and rotating technologists with initiation of the ADDS. Comparing 1st and 3rd quarter of 2011, ring dosimeter badge readings decreased from 27.9 to 14.7 μ Sv (2.79 to 1.47 mrem) per dosage administered in core imaging technologists (47.5% reduction, p<0.0001). When accounting for both our core and rotating technologists, ring dosimeter readings decreased from 79.3 to 44.5 μ Sv (7.93 mrem to 4.45 mrem) per dosage administered (43.9% reduction, p<0.0001). Comparable reductions in body dosimeter badge readings were also noted in both our core (0.908 to 0.717 mrem per dose administered, 21.0% reduction, p<0.001) and our core plus rotating technologists (1.869 to 1.435 mrem per dose administered, 23.4% reduction, p<0.001).

Conclusions: The use of an ADDS can lead to significant reduction in technologist radiation exposure. This benefit is significant both for those technologists who work exclusively with PET imaging as well as

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those who rotate through PET on a more limited basis

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