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Optimizing Patient Exposure to CT Radiation

Computed tomography (CT), which began as a novel tool over 40 years ago that enabled detailed examination of the human body in cross section, has become an essential component to modern day healthcare. It has without doubt revolutionized the way medicine is practiced today, allowing earlier diagnoses of pathology. This has in turn resulted in reduction of morbidity and mortality due to more timely treatment of diseases. Furthermore, the improved identification of pathology itself has reduced morbidity by reducing the number of invasive surgical procedures that were previously required to diagnose disease before treatment could even be started. This presentation will describe the components of our initiative that allowed us to optimize radiation dose in two ways: 1. Reducing the amount of dose to the lowest necessary to produce a diagnostic exam (principles of ALARA- as low as reasonably achievable), 2) Reduce variability of radiation dose administration, in other words to improve the consistency of dose across the network. The interventions can be broadly grouped into three categories: 1. Establishment of the Radiation Dose Optimization Committee (RDOC). The formation of this committee was important as it became the oversight entity responsible for disseminating protocols and policies to each site. 2. Standardization of Protocols. Prior to the formation of the RDOC, different sites in the network and even different scanners within the same site potentially had different protocols for the same studies. Under the direction of the RDOC, universal protocols were adopted at every site in the network. While the specific protocols utilized are important to achieve lower radiation doses, it was the universal adoption of these protocols across all sites which was important in reducing variability. 3) Implementation of scanner software which reduced variance of dose administration between patients of differing sizes. This will be described in detail during the presentation.

Biography

Ryan K. Lee, MD, MBA, MRMD is Clinical Associate Professor at the Sydney Kimmel College at Thomas Jefferson University. He is the Section Chief of Neuroradiology in the Einstein Healthcare Network and serves as the Director of Quality and Magnetic Resonance Medical Director in the Department of Radiology. His areas of expertise include radiation management in imaging, radiology clinical decision support, and MRI Safety. An authority on quality in radiology, he serves on several quality and safety committees in the Einstein Healthcare Network.

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