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ADVANCED IMAGING CENTER

PHYSICIAN NEWS

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Radiation Dose on AIC's 64-Slice CT: 20-60% Less Dose with Automatic Exposure Control (AEC)

It has been brought to our attention that some of our referring physicians have been misinformed about the radiation exposure from a 64-slice CT, such as the one recently installed at AIC. To put the rumors to rest, the following article is referenced. If you would like the full manuscript, please call me to email it to you.

"CT Dose Reduction with CARE Dose 4D", Stefania Rizzo, MD,[1] Mannudeep K. Kalra, MD,[2] Department of Radiology, [1]University of Milan, Milan, Italy, [2]Massachusetts General Hospital and Harvard Medical School, Boston, MA, Emory University Hospital, Atlanta, GA

This paper reviews the use of a recently introduced automatic exposure control (AEC) technique (CARE Dose 4D) in reducing radiation dose associated with CT scanning. With an increasing number of CT studies performed every year, concerns have been raised over increasing radiation doses associated with CT scanning. In response to these concerns, various techniques have been introduced to reduce radiation dose. According to the International Council for Radiation Protection, AEC techniques represent the most important technique for CT dose reduction.

What is automatic exposure control (AEC) in CT scanning?

AEC is a technique that adapts the tube current according to patient size and anatomy, in order to adjust quantum noise in different beam projections and maintain a specified image noise with improved radiation dose efficiency. Thus, automatic exposure control in CT scanning is analogous to photo timing or an automatic exposure control technique that has been used for automatically terminating the exposure in conventional radiography once the pre-determined radiographic density has been obtained.

Compared to CT scanning with a fixed tube current selected by the technologists, automatic exposure control techniques offer several advantages. For example, selection of fixed tube current values based on technologist's arbitrary judgment of patient age, size or weight, department protocols, or study indication is often difficult, given the multiple scanning options. Automatic exposure control techniques automatically adapt tube current to the selected combination of scanning parameters to obtain required quality. Likewise, fixed tube current values from one type of multidetector-row CT scanner cannot be automatically applied to another type of scanner.

In conclusion, the automatic exposure control (AEC) technique, CARE Dose 4D, represents an important technological innovation for the optimization of radiation dose as well as image quality in patients undergoing CT scanning. The new AEC technique on a 64-slice CT can reduce the radiation exposure by 20-60% (especially in pediatrics) compared to older scanners. You can be assured that not only are you getting the fastest and best image quality possible for your patients, but also with less radiation in most cases as well.

Upcoming events:

- **AIC-Valencia** Annual Holiday Bash Party: Friday, December 1st (at the Odyssey Ballroom, Granada Hills)
- **AIC-Lancaster/Palmdale** Annual Holiday Party Bash : Friday December 8th (at the Oasis in Palmdale)

For more information, please call me directly. Thank you for your continued support.

Ray

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