

September 2011

Radiation Dose Reduction

Computed tomography (CT) has become an invaluable tool in diagnostic imaging with tremendous growth in number of procedures. It is such an important asset in patient diagnosis and management in the ED, for example, that its use has increased over 300% over the last decade alone. Today it is estimated that more than 62 million CT scans are performed every year in the United States. There is wide agreement that the benefits of an indicated CT scan far outweigh the potential radiation risk. However, although the relative risks to any one person are not large, there is growing concern of the increasing radiation exposure delivered to the patient population as a whole. At OCMMC, we have instituted several dose reduction measures to assure radiation dose is kept as low as possible to ensure patient safety without compromising diagnostic quality.

OCMMC has completed installation of ASIR (Adaptive Statistical Iterative Reconstruction) dose reduction technology on both of its CT scanners. ASIR reduces radiation exposure by reducing image noise in CT images. By doing so, less radiation dose is required to create comparable images. Radiation dose can be reduced by more than 50%. While this has a clear benefit to our oncologic and other patients who require close CT follow-up and short interval repetitive scanning, ASIR technology will be used on every patient so all will benefit. As part of this technology, CT technologists can see the projected radiation dose to be delivered to patients before they are scanned to assure standards are not exceeded. Actual radiation dose is then monitored and recorded.

Our radiologists and technologists play an active role to limit dose as much as possible. Our technologists are extensively trained. Equipment is routinely tested and calibrated. Standard CT scanning protocols have been developed by our radiologists which provide maximum diagnostic value at the lowest possible radiation dose. These protocols are followed by our technologists to prevent overexposure and maintain quality. Where applicable, the use of IV and oral contrast help to limit routine inclusion of additional “pre-contrast” scans. Radiologists educate medical staff through CME, coastlines articles and direct

communication as to appropriate diagnostic test selection. Tailoring CT exams or utilizing appropriate ultrasound or MRI instead also decreases exposure.

Radiation dose reduction will undoubtedly be a major focus in medical imaging in the future as our reliance on CT continues to increase. While we have made strides to decrease dose, the further growth of CT as a diagnostic tool will likely foster continued development of dose reduction technology and policies. Please do not hesitate to call our radiologists at 378-7520 to discuss radiation exposure, our new ASiR technology or specific imaging needs for your patients.