Reducing Radiation Exposure from Medical X-Rays

As the news about the nuclear reactors in Japan continues to unfold, concern over radiation exposure in all walks of life becomes a natural topic of discussion. How much radiation will I get from the x-ray my doctor just ordered? What risks are associated with the exposure? Is there another equally effective test available that will provide an accurate diagnosis? These are concerns that hospital radiology departments wrestle with every day, and the Elkhart General Hospital Radiology Department is no exception. In fact, thanks to an aggressive program led by Diagnostic Radiologist Samir Patel, MD, this hospital is setting the regional standard for minimizing radiation that comes with x-ray imaging.

According to Dr. Patel, “The radiologist is responsible for ‘effective imaging’ to ensure that we use the lowest level of radiation possible while still generating an image of sufficient quality to make an accurate diagnosis. Too little radiation and we’ll get a picture that won’t be clear enough. Too much radiation creates unnecessary risk for the patient. It’s a matter of striking the right balance.”

Dr. Patel emphasizes that effective imaging is a front-burner issue for radiology departments across the country, and the program that’s underway here at Elkhart General is establishing the benchmark for other Michiana hospitals that are also working to meet the low-dose challenge. “Our initiative here involves a number of steps that are effectively reducing patient exposure, and as the program evolves we’ll be sharing our results with the other hospitals in the area,” Dr. Patel said.

One reason Elkhart General is ahead of the curve relates to the long-standing commitment to advanced technology. “We were the first hospital in the region to have 64-slice CT (computed tomography) imaging equipment, state-of-the-art technology known for generating highly detailed images with minimal radiation,” Dr. Patel said. “And this summer, we’ll add to the next generation in technology by adding a 128-slice CT that is even more effective in terms of high image quality and low exposure.”

But having the latest technology is only one aspect of the Hospital’s campaign to ensure that patients are exposed to the lowest effective dose of radiation. Ray Kiendl, Director of Radiology at the Hospital, explains some of the additional steps that are in place as part of the Hospital’s low-dose initiative. For example, “We now have the ability to better tailor each CT study to the specific body characteristics. Patients come in all shapes, sizes, and ages. No longer does one size fit all. We are able to quickly and efficiently deliver the absolute least amount of radiation possible (by industry standards) and still get a good quality image to further hasten diagnosis for the physician and ultimately the patient. Breast shields are now routinely used to protect sensitive breast tissue from ‘scatter’ radiation. And we’re able to more precisely target the area to be examined, again reducing exposure to healthy tissue.”

Yet another positive outcome of this campaign to lower radiation exposure involves doctors talking with one another more about the tests that are being ordered. “When a physician sends a patient to us with a request for a CT scan, the first thing we do is ask whether a different study might be just as effective,” says Dr. Patel. “If we conclude that we’re able to get the job done with an MRI or Ultrasound with zero radiation exposure to the patient, we’ll go back to the physician with that recommendation and everyone wins.”
So just how effective is this campaign to reduce radiation? Consider the patient who comes into the Emergency Department with an apparent pulmonary embolism – a potentially fatal blood clot in the lung. “On a typical day we’ll see as many as five such patients,” says Dr. Patel, “And most will require an immediate CT scan. By following the new protocols we’ve established, radiation exposure to these patients has been reduced by 67 percent. That number will come down even more with the addition of the new 128-slice CT unit this year.”

The program has clearly worked with CT scans, so Elkhart General is now applying these same protocols to other x-ray studies. “Our across-the-board goal is to get the best diagnostic result with the lowest level of radiation and minimum risk to the patient. This program is helping us get there in a big way,” Dr. Patel said.

For more information on the Elkhart General Hospital Radiology Department, visit egh.org or call (574) 523-3303.