

Large medical center reduces cumulative radiation exposure and CT scans through imaging algorithm

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A large, academic medical center implemented an imaging algorithm that allowed radiologists to successfully reduce the cumulative radiation exposure and number of computed tomography (CT) angiography (CTA) and CT perfusion studies performed on patients with aneurysmal subarachnoid hemorrhages (a form of stroke), according to a study published in the July issue of the *American Journal of Roentgenology*.

The algorithm serves as a guide to physicians regarding the most appropriate time points at which to detect vasospasm (a condition in which blood vessels [spasm](#), leading to vasoconstriction (a narrowing of the blood vessels) with CTA and CT perfusion imaging.

The study, performed at the New York Presbyterian Hospital — Weill Cornell Medical Center, in New York, NY, included 60 patients with aneurysmal subarachnoid hemorrhages: 30 in the baseline group (before implementation of the imaging algorithm) and 30 patients in the post-algorithm group.

"With the new algorithm, the mean number of CT examinations per patient was 5.8 compared with 7.8 at baseline, representing a decrease of 25.6 percent," said Michael L. Loftus, MD, lead author of the study.

"The number of [CT perfusion](#) examinations per patient decreased 32.1 percent. Overall, there was a 12.1 percent decrease in cumulative [radiation exposure](#)," said Loftus.

"Our results are promising, showing that guidelines for utilization of CT can lead to reduced radiation exposure of individual patients and the population. Our overall goal is to apply to other patient populations this concept of imaging algorithms as utilization guidelines for CT," he said.

"Application of these methods to other patient populations with the high use of CT may reduce cumulative radiation exposure while the clinical benefits of imaging are maintained," said Loftus.

Provided by American College of Radiology

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