Molecular imaging agent coupled with 'motion frozen' processing improves heart imaging

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Molecular imaging of the heart just got better, according to a study revealed at SNM's 57th Annual Meeting. Combining a potential new imaging agent with a molecular imaging technique that reduces blur caused by the motion of the heart and lungs could lead to unprecedented image quality when conducting myocardial perfusion imaging, a procedure used to evaluate blood flow to the heart.

"Both cardiac and respiratory motion degrade image quality by adding some unwanted blur," said Ludovic Le Meunier, Ph.D., lead researcher and staff scientist for Siemens Healthcare, Knoxville, Tenn., based at Cedars-Sinai Medical Center, Los Angeles, Calif. "Our objective in this work was to provide the highest myocardial perfusion image quality by using a promising heart imaging agent and correcting the motion of those organs. In conjunction, these tools can provide unprecedented diagnostic capability for clinicians evaluating heart disease."

The new imaging agent, called flurpiridaz F 18 injection, uses a fluorine-18 (F-18) based radioisotope, and while it is still in clinical trials, the compound has been shown to facilitate very high-quality imaging of the heart. Other positron emission tomography (PET) agents used to image the heart have a much shorter half-life and need to be produced within an on-site cyclotron, which limits access. Some agents can be produced on-site with a generator, but image quality appears not to be as high. F-18 has a half-life of 108 minutes and therefore can be

delivered to imaging centers located within a wider radius, with no compromise to image quality.

The technology used in this study included high-definition, or "HD" PET, a technique that images the body's physiological functions and automatically corrects distortions that occur during scanning. Next, researchers used post-scan image processing tools called respiratory gating and "motion-frozen" cardiac gating, which cut out or otherwise compensate for the motion of these organs during scanning. The result is virtually motion-free myocardial perfusion imaging.

Provided by Society of Nuclear Medicine

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