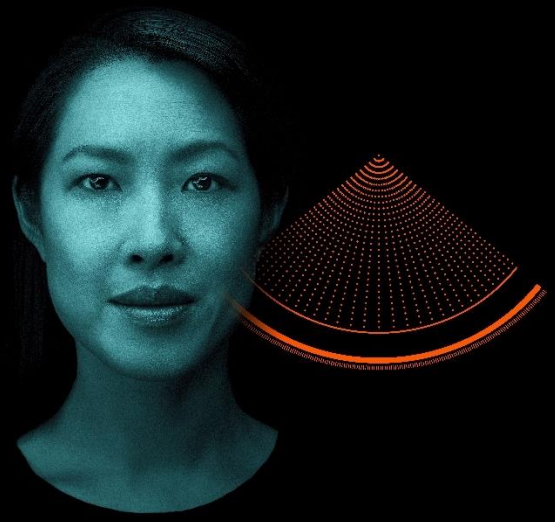
Carotid artery assessment in dual-source photon-counting CT: impact of low-energy virtual monoenergetic imaging on image quality, vascular contrast and diagnostic assessability

NAEOTOM Alpha
Publication Summary



Photon-counting is NAEOTOM

Key findings of the case study

"Mean attenuation, **CNR and SNR** values were **highest** in **40 keV VMI** reconstructions (HU, 1362.32 ± 457.81; CNR, 33.19 ± 12.86; SNR, 34.37 ± 12.89) followed by 55 keV VMI reconstructions (HU, 736.94 ± 150.09; CNR, 24.49 ± 7.11; SNR, 26.25 ± 7.34."

"The qualitative analysis showed the highest rating scores for **55 keV** VMI reconstructions followed by 40 keV and 70 keV VMI series."

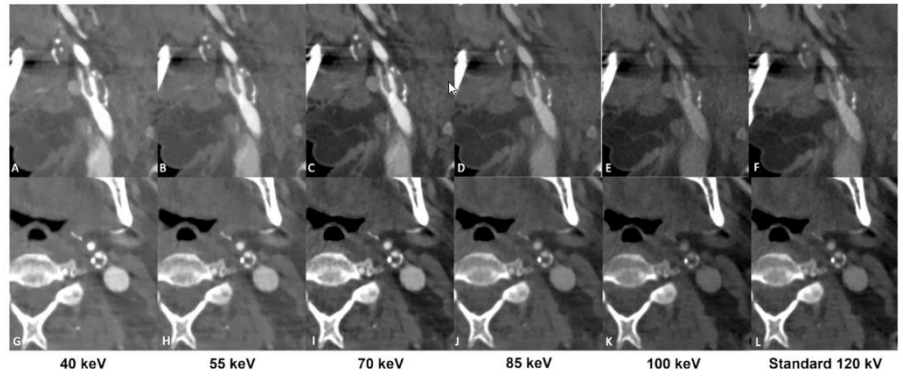
"The ever-available spectral dataset might improve vascular visualization in all studies, even those performed with non-vascular protocols, thereby leading to a **reduction in contrast medium amount**."

*"**Low-keV** VMI reconstructions at a level of 40–55 keV significantly **improve image quality**, vascular contrast, and the diagnostic **assessability** of the carotid artery compared with standard CT series in photon-counting CTA."*

Authors: Booz. C. et al. Radiol med 2024

Institute: University Hospital Frankfurt, Germany

https://doi.org/10.1007/s11547-024-01889-6



PCCT angiography reconstructions in the Parasagittal (upper row), and axial plane (lower row)

VMI: Virtual monoenergetic image
CTA: CT angiography
PCCT: Photon-counting CT

SIEMENS Healthineers