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ABSTRACTS

to the mortality predictors of LVO patients showed, that after adjusting for potential confounders, female sex remained an independent mortality decreasing factor ($p=0.017$).

Conclusions: We found that female sex is associated with reduced mortality following EST for LVO. Our results underline the significance of further evaluation of underlying causes of the role of sex in these ischaemic stroke patients to improve prognosis and the use of scoring systems.

OPTIMIZATION OF ULTRA-HIGH-RESOLUTION CORONARY CT ANGIOGRAPHIC RECORDS USING AN EX VIVO MODEL

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Keywords: Coronary-CT-angiography, Photon-Counting Detector CT, post-mortem, reconstruction, artifacts

Aims: We aimed to investigate the feasibility of the helical and sequential ultra-high resolution (UHR) coronary CT angiography (CCTA) scan modes directly with photon-counting detector CT (PCD-CT) in an ex vivo study. We aimed to optimize image reconstruction.

Methods: Imaging in helical and sequential UHR scan modes was repeated on ex vivo human hearts. Eight vascular kernels were used for reconstruction (Bv40 to Bv89) with matrix sizes of 512 and 1024. Image noise (IN), signal-to-noise ratio (SNR), contrast-to-noise ratio (CNR), vessel sharpness (VS) and blooming artifact were quantified. Subjective image quality (IQ) was assessed.

Results: 5 ex vivo hearts were included. The IN, SNR, CNR, VS and blooming artifacts differed significantly ($p<0.005$). Softer kernels showed the lowest IN, VS and highest SNR and CNR values in both modes (INBv40hel: 30.6 ± 7.3 HU; SNRBv40hel: 12 ± 6.9 HU; CNRBv40hel: 16.2 ± 8.4 HU; VSBv40hel: 421.7 ± 72.4 Δ HU/mm versus INBv40seq: 26.7 ± 11.8 HU; SNRBv40seq: 15.5 ± 3.7 HU; CNRBv40seq: 17.1 ± 6.2 HU; VSBv40seq: 443.3 ± 22.6 Δ HU/mm). Sharper kernels showed the opposite results. Comparing quantitative parameters in helical and sequential modes, there was no significant difference for any kernel (all $p>0.05$). Blooming artifacts reduced towards Bv64seq and Bv72hel ($35.2\pm10.2\%$ versus $33.7\pm8.4\%$). Subjective IQ, IN and VS were rated excellent for kernels Bv40seq/hel up to Bv64seq/hel.

Conclusions: UHR helical and sequential imaging modes do not differ significantly in IQ and quantitative parameters. Optimal IQ and vessel delineation were achieved using vascular kernel Bv64 with matrix size of 512 in both modes.

DIAGNOSTICS OF HAEMORRHAGIC COMPLICATIONS AFTER RECANALIZATION IN ISCHAEMIC STROKE

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Keywords: iodine map, water map single-energy CT, contrast extravasation, haemorrhagic transformation

Aims: Differentiating haemorrhage from contrast staining on post-recanalization follow-up scans in acute ischemic stroke is crucial for appropriate antithrombotic treatment choices, however, it is not possible with routine single energy CT (SECT). The goal was to assess the performance of dual-energy CT (DECT) in distinguishing the two entities.

Methods: SECT and DECT were performed within 24 hours after recanalization to exclude haemorrhage in 103 acute ischemic stroke patients (59 men, 44 women, aged 66.1 ± 13 years) who underwent thrombolysis ($n=52$), thrombectomy ($n=33$), or the combination of both ($n=18$). The prevalence of hyperdensities on SECT and on DECT maps in different treatment groups were assessed.

Results: SECT showed hyperdensity in 17.5% of patients, and its prevalence was higher in thrombectomized patients compared to the other two groups ($p=0.0014$). On DECT, both iodine and blood maps were positive in all patients receiving thrombolysis and combined therapies, while in the post-thrombectomy group, both maps were positive in 46.3%, while the iodine map only was positive in 53.8% of the cases. In all patients showing SECT hyperdensity after thrombolysis, the iodine map was also positive. There was not any case with blood map only hyperdensity.