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CCTA-Based High-Risk Signatures Predict Peri-Procedural Complications in Patients Undergoing ECMO-Assisted PCI

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Background: Preoperative recognition of vulnerable coronary anatomy in patients older than or equal to 75 years undergoing ECMO assisted PCI is limited. We aimed to define CCTA features that foretell peri procedural complications.Methods: In 26 consecutive patients, two blinded radiologists graded pre PCI CCTA for high risk plaques (napkin ring sign, low-attenuation less than 30 HU), bifurcation morphology, calcification (Agatston > 400 or arc > 180 degree), and CTO (J CTO more than or equal to 3). Associations with 30 day composite complications (stroke, bleeding, infection) were analysed by logistic regression.Results: CTO with calcium arc > 180 degree (OR 6.3, 95 % CI 1.2 to 33.0, p = 0.03) and napkin ring positive plaques (OR 4.9, 95 % CI 1.0 to 22.9, p = 0.05) independently predicted complications. Thirty day event rate was 23 % (6/26).Conclusions: CTO circumferential calcification and napkin ring sign on CCTA flag heightened peri procedural risk in elderly ECMO PCI cases, supporting structured radiologic reporting to optimise care.