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Coronary CT Angiography Performed at the Primary-Care Level: Real-World Findings and Pathway Requirements in 230 Patients

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KEYWORDS: coronary CT angiography, primary health care, chronic coronary syndrome, patient safety, radiation dose.

CITATION: Cardiol Croat. 2026;21(11-12):308. | https://doi.org/10.15836/ccar2026.308

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Introduction: The 2024 ESC Guidelines recommend coronary CT angiography (CCTA) as an initial test for many patients with suspected chronic coronary syndrome. Yet evidence on implementation of CCTA services delivered at the primary-care level remains limited, particularly for services operating outside a conventional hospital cardiology pathway.[1-5] We evaluated diagnostic findings, safety and radiation exposure in a single-centre CCTA service delivered at the primary-care level; patients were referred from multiple levels of care. We also considered the multidisciplinary requirements for implementation.

Patients and Methods: We retrospectively analyzed 230 consecutive patients undergoing CCTA at a primary-care-level radiology service; referrals originated from multiple levels of care. Recorded variables included coronary artery calcium score (CACS), report-derived high-risk plaque morphology, documented adverse events, direct escalation to hospital care and estimated effective radiation dose, calculated from dose-length product. The service involved cardiology, radiology and anesthesiology expertise.

Results: CACS was zero in 37% and >400 in 20%. High-risk plaque morphology was reported in 21/230 patients (9.1%); none had CACS = 0. Three patients (1.3%) required direct hospital escalation for clinical severity. Four adverse events were documented (1.7%): two anaphylactic reactions, one urticaria and one post-procedural chest-pain/presyncope episode; no lasting sequelae were reported. Mean estimated effective dose was approximately 9.0 mSv (range 0.5–30.9 mSv). The most recent subgroup had a lower mean dose than the earlier cohort (8.2 vs 9.1 mSv), a descriptive difference that warrants confirmation.

Conclusion: This single-centre experience suggests that CCTA performed at the primary-care level can provide a structured route to anatomical assessment while identifying the small proportion requiring urgent escalation. Safe implementation depends on more than scanner access: appropriate patient selection and referral criteria, pre-scan review of contraindications and contrast-related risk, trained acquisition and expert reporting, radiation-dose optimization, preparedness to manage acute reactions, and explicit routes for communicating results and escalating abnormal findings. Our findings support feasibility, not comparative effectiveness; prospective multicentre evaluation is needed to assess clinical outcomes, appropriateness and resource impact.

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RECEIVED:
October 25, 2026
UPDATED:
November 4, 2026