Details of the methods and interpretation of the index test (assessed technology) and reference standard used in included studies

Study ID	Index test (assessed technology) details	Reference standard details
Alkadhi 2010[41]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: 46 patients continued their baseline treatment with beta-blockers, no additional medication for heart rate control was given *Contrast agent*: 80 ml of iodixanol (Visipaque 320, 320 mg/ml, GE Healthcare, Buckinghamshire, UK), intravenously, flow rate of 5 ml/second, followed by 30 ml of saline. Scans performed from tracheal bifurcation to diaphragm *Scan parameters*: detector collimation $2 \times 32 \times 0.6$ mm³, slice collimation $2 \times 64 \times 0.6$ mm³, gantry rotation time 330 milliseconds, pitch 0.2–0.5, tube current time product 350 milliamps (mA) per rotation, and tube potential 120 kilovolts (kV) *Interpretation*: Two independent observers, who were blinded to clinical history and reference standard results, interpreted all images. Both readers rated image quality as diagnostic or non-diagnostic. Non-diagnostic segments were classified as FP. Positive stenosis was defined as diameter reduction of >50%, measured with an electronic calliper tool. Any disagreements between observers were resolved by consensus	*Catheter angiography*: 'Standard techniques', with at least two views in different planes for each artery (no further details reported) *Interpretation*: One experienced observer who was aware of clinical history, but blinded to CT results, assessed all angiograms. Positive stenosis was defined as diameter reduction of >50%
Brodoefel 2008[42]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: 94 patients had baseline treatment with beta-blockers. No additional beta-blockers were given *Contrast agent*: 80 ml of iomeprol (Imeron 400, Altana, Konstanz, Germany), i.v., flow rate of 5 ml/second, followed by 60 ml of chaser bolus *Scan parameters*: collimation 32×0.6 mm, slice acquisition 64×0.6 mm, gantry rotation time 330 milliseconds, pitch 0.2–0.43, tube current 400 mA per rotation, and tube voltage 120 kV *Interpretation*: Two experienced readers, who were blinded to reference standard results and clinical information, assessed images by consensus. Positive stenosis was defined as diameter reduction of ≥50%. Where there were multiple lesions per segment, the segment was classified by the worst stenosis	*Catheter angiography*: Transfemoral and transradial Judkins technique, two or more projections for the right coronary artery and six or more projections for the left coronary artery, performed by two experienced cardiologists *Interpretation*: One observer who was blinded to CT results assessed all angiograms. Positive stenosis was defined as diameter reduction of ≥50%

Study ID	Index test (assessed technology) details	Reference standard details
Brodoefel 2008[46]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: 75% of the total patient population (not reported for HHR or HCS subgroups) were routinely taking beta-blockers; no additional beta-blockers were administered to any patient *Contrast agent*: 80 ml of iomeprol (Imeron 400, Altana, Konstanz, Germany), i.v., flow rate of 5 ml/second, followed by 60 ml of chaser bolus *Scan parameters*: Collimation 32 × 0.6 mm, slice acquisition 64 × 0.6 mm, gantry rotation time 330 milliseconds, pitch 0.2–0.43, tube current 400 mA per rotation, and tube voltage 120 kV *Interpretation*: Two experienced observers, who were blinded to reference standard results and clinical information, assessed images by consensus. Positive stenosis was defined as diameter reduction of ≥ 50%. Where there were multiple lesions per segment, the segment was classified by using the worst stenosis	*Catheter angiography*: Transfemoral and transradial Judkins technique, two or more projections for the right coronary artery and six or more projections for the left coronary artery, preformed by two experienced cardiologists *Interpretation*: One observer who was blinded to CT results assessed all angiograms. Positive stenosis was defined as diameter reduction of ≥ 50%. Where there were multiple lesions per segment, the segment was classified by using the worst stenosis
De Graaf 2010[40]	*CT scanner*: Aquilion ONE, Toshiba Medical Systems, Otawara, Japan *Use of beta-blockers*: Metoprolol was administered orally, 1 hour before data acquisition, to all patients with HR of > 65 b.p.m., unless contraindicated. Patients with a heart rate between 65 and 75 b.p.m. received 50 mg metoprolol; patients with HR ≥ 75 b.p.m. received 100 mg metoprolol *Contrast agent*: Triphasic injection of 60–80 ml of iomeprol (Iomeron 400, Bracco, Milan, Italy), flow rate of 5 or 6 ml/second, followed by 20 ml of 50% contrast/saline mix and finally 25 ml of saline at 3 ml/second *Scan parameters*: Gantry rotation time 350 milliseconds, tube current 400–580 mA (dependent upon BMI), and tube voltage 100–135 kV (dependent upon BMI). All images were acquired during a 5-second breath hold *Interpretation*: Two experienced observers, who were blinded to reference standard results, assessed images by consensus. Overlapping stents were considered to represent a single stent. Significant in-stent restenosis was defined as lumen reduction of ≥ 50%, or the presence of significant stent edge (< 5 mm from edge) stenosis. Reduced run-off distal to the stent was also judged to suggest in-stent stenosis. In patient-based analysis, the CTA was deemed non-diagnostic if patients had one or more uninterpretable stents; non-diagnostic stents were classified as positive	*Catheter angiography*: 'Standard techniques,' no further details reported *Interpretation*: One experienced observer, blinded to CT results. Positive stenosis was defined as lumen reduction ≥ 50%, or the presence of significant stent edge (< 5 mm from edge) stenosis in the view with the most severe luminal narrowing
LaBounty 2010[38]	*CT scanner*: 128-slice, dual source, manufacturer not specified. Later confirmed by the manufacturer to have used Discovery CT750HD *Use of beta-blockers*: NR *Contrast agent*: No details reported *Scan parameters*: No details reported *Interpretation*: Two blinded, experienced observers interpreted images and disagreements were resolved by a third observer. Positive stenosis was defined as diameter reduction of ≥ 50%	*Catheter angiography*: No details reported *Interpretation*: Blinded, experienced core laboratory. Positive stenosis was defined as diameter reduction of ≥ 50%
Leber 2007[43]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: No patients received beta-blockers prior to imaging *Contrast agent*: Body weight adapted (1.25 ml/kg Ultravist 370, Schering, Berlin, Germany) i.v. at a constant rate to give an injection time of 20 seconds, followed by 100 ml of saline at 5 ml/second *Scan parameters*: Collimation 0.6 mm, 64 slices, gantry rotation time 330 milliseconds, pitch 0.2–0.44, tube current 560 mA per rotation, and tube voltage 120 kV *Interpretation*: Two independent investigators assessed the DSCT images. Positive stenosis was defined as diameter reduction of > 50%	*Catheter angiography*: Judkins approach using 4F catheters and acquiring standard projections *Interpretation*: No details of who interpreted angiograms were reported. Positive stenosis was defined as diameter reduction > 50%

Study ID	Index test (assessed technology) details	Reference standard details
Lin 2010[44]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: No patients received beta-blockers prior to imaging *Contrast agent*: Continuous injection of 50–70 ml of iopamidol (Iopamiro 370 mg I/ml, Bracco, Milano, Italy) according to patient size, flow rate of 5–7 ml/second, followed by 50 ml of saline *Scan parameters*: Collimation 32 × 0.6 mm, slice acquisition 64 × 0.6 mm, gantry rotation time 330 milliseconds, pitch 0.2–0.43, tube current 400 mA per rotation, and tube voltage 120 kV *Interpretation*: All images were evaluated and classified by two independent readers. Positive stenosis was defined as diameter reduction of >50%	*Catheter angiography*: Recorded in three orthogonal projections after intracoronary injection of 100 mg nitroglycerine *Interpretation*: Single observer, blind to CT results. Stenotic severity was defined as narrowest diameter divided by diameter of the nearest distal normal segment. Positive stenosis was defined as diameter reduction of >50%
Marwan 2010[47]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: 46 (77%) participants were on long-term beta-blockers. In addition, three (5%) participants received 100 mg of atenolol orally, before imaging, and 21 (35%) received i.v. metoprolol (5–20 mg) before scanning. Eight patients (13.3) received diltiazem *Contrast agent*: 60–110 ml of iopromide (370 mg iodine/ml, Ultravist 370, Schering, Berlin, Germany), flow rate of 6 ml/second, followed by 50 ml of saline *Scan parameters*: Collimation 2 × 64 × 0.6 mm, rotation time 330 milliseconds, pitch 0.2–0.43, tube current 360 or 400 mA (dependent upon patient BMI), and tube voltage 100 or 120 kV (dependent upon patient BMI) *Interpretation*: All images were jointly assessed by two readers, each with >3 years' experience in coronary CT angiography. Positive stenosis was defined as diameter reduction of >50%. Patients with one or more unevaluable vessel were classified as positive because the presence of stenosis could not be ruled out. Patients in whom all vessels were evaluable and no significant stenosis was found were classified as negative	*Catheter angiography*: 'Standard projections' after intracoronary injection of 0.2 mg isosorbide dinitrate *Interpretation*: Projections were evaluated offline by an independent observer. Stenosis was determined from two orthogonal views. Positive stenosis was defined as diameter reduction of ≥50%
Meng 2009[48]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: No beta-blockers were administered for scanning *Contrast agent*: Continuous injection of 80 ml bolus of iohexol (350 mg iodine/ml, Amersham Heath, Princeton, NJ), flow rate of 5 ml/second, followed by 50 ml of saline *Scan parameters*: Detector collimation 32 × 0.6 mm, slice acquisition 64 × 0.6 mm, gantry rotation time 330 milliseconds, pitch 0.2–0.5, tube current 400 mA per rotation, and tube voltage 120 kV *Interpretation*: All images were independently assessed by two observers, blind to clinical details and ICA results and any disagreements were resolved by consensus. Positive stenosis was defined as diameter reduction of >50%	*Catheter angiography*: Standard Judkins technique, two or more projections for the right coronary artery and six or more projections for the left coronary artery *Interpretation*: One experienced cardiologist who was blinded to CT results assessed all angiograms. Positive stenosis was defined as diameter reduction of >50%
Oncel 2007[49]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: No additional medication for heart rate control given *Contrast agent*: Bolus 70 ml of iopromidum (Ultravist 350/ml, Schering, Berlin, Germany), flow rate of 6 ml/second, followed by 50 ml bolus of saline at 5 ml/second *Scan parameters*: with collimation, 64 × 0.6-mm slice thickness, rotation time 0.33 seconds, pitch 0.26–0.45, tube current 900 mA, and tube voltage 120 kV *Interpretation*: All images were assessed by two radiologists with 5 years cardiac CT experience each, who were blind to ICA results. Positive stenosis was defined as diameter reduction >50%. Vessels with poor or non-evaluable image quality were excluded from analysis. In per vessel/patient analysis the presence of any significant lesion was considered positive	*Catheter angiography*: 'Standard techniques', no details reported *Interpretation*: One experienced cardiologist who was blinded to CT results assessed all angiograms. Positive stenosis was defined as diameter reduction >50%

Study ID	Index test (assessed technology) details	Reference standard details
Oncel 2008[50]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: No beta-blockers were given before scanning *Contrast agent*: Bolus 70 ml of iomeprol (400 mg I/ml Iomeron, Bracco, Italy), flow rate of 6 ml/second, followed by 50 ml bolus of saline at 5 ml/second *Scan parameters*: Collimation 32×0.6 mm, slice acquisition 64×0.6 mm, gantry rotation time 330 milliseconds, pitch 0.2–0.47, tube current 390 mA per rotation and tube voltage 120 kV *Interpretation*: All images were assessed by two independent radiologists with 5 years' cardiac CT experience each, who were blind to ICA results and clinical information. Any disagreements were resolved by consensus. Positive in-stent restenosis was defined as diameter reduction of $\geq 50\%$. Persistent stenosis was defined as $\geq 50\%$ narrowing, 5 mm proximal and distal to the stent	*Catheter angiography*: 'Standard techniques', no details reported *Interpretation*: One experienced cardiologist (at least 10 years' angiography experience), who was blinded to CT results, assessed all angiograms. Positive stenosis was defined as diameter reduction of $\geq 50\%$ anywhere within the stent or within the 5-mm segment proximal or distal to the stent margins
Pflederer 2009[51]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: Patients with a heart rate of >65 b.p.m. received 100 mg atenolol orally 45–60 minutes before DSCT. If heart rate remained >65 b.p.m. up to four doses of metoprolol 5mg were given intravenously *Contrast agent*: Bolus 60–95 ml of iopromide (370 mg I/ml Ultravist 3070, Schering, Berlin, Germany), flow rate of 6 ml/second, followed by 50 ml bolus of saline at 6 ml/second *Scan parameters*: Collimation 0.6 mm, simultaneous collection of 2×64 slices, gantry rotation time 330 ms, pitch 0.2–0.43, tube current 400 mA and tube voltage 120 kV *Interpretation*: All images were jointly assessed by two readers with >3 years' cardiac CT experience. Each stent was first classified as assessable or not assessable. Assessable stents were evaluated for stenosis. Positive in-stent restenosis was defined as diameter reduction of $\geq 50\%$. For patient based assessment non-assessable stents were classified as having in-stent restenosis using DSCT	*Catheter angiography*: To acquire two or more projections of the stented coronary segment *Interpretation*: One experienced observer who was blinded to CT results assessed all angiograms. Positive stenosis was defined as diameter reduction $\geq 50\%$. Diagnostic accuracy was calculated for assessable stents
Pflederer 2010[34]	*CT scanner*: Somatom Definition FLASH, Siemens Healthcare, Forchheim, Germany *Use of beta-blockers*: NR *Contrast agent*: 60–90 ml, intravenously, unspecified contrast agent, flow rate of 6 ml/second *Scan parameters*: collimation $2 \times 128 \times 0.6$ mm, gantry rotation time 280 milliseconds. No further details reported *Interpretation*: No details of who interpreted scans were reported. Positive stenosis was defined as diameter reduction >50%	*Catheter angiography*: No details reported *Interpretation*: No details of who interpreted angiograms were reported. Positive stenosis was defined as diameter reduction of >50%
Pugliese 2008[52] and Pugliese 2007[53]	*CT scanner*: Somatom Definition, Siemens, Forchheim, Germany *Use of beta-blockers*: 70 (70%) of patients were on treatment with beta-blockers, none received additional beta-blockers prior to scanning *Contrast agent*: 60–100 ml contrast agent (Iomeron 400 mg/ml, Bracco, Italy) was injected into the antecubital vein at a flow rate of 5.0 ml/second, followed by a saline chaser (40 ml) *Scan parameters*: Collimation $2 \times 32 \times 0.6$-mm, gantry rotation time 330 ms, pitch 0.20–0.43, tube current 412 mA/rotation, and tube voltage 120 kV *Interpretation*: Two experienced readers evaluated the DSCT studies independently; the readers were unaware of the findings of conventional angiography. Any disagreements were resolved by consensus. Positive in-stent restenosis was defined as $\geq 50\%$ lumen diameter reduction. When multiple stents were implanted contiguously to treat one lesion, they were considered as one single stent. When stent lumen was uninterpretable and in-stent restenosis could not be excluded the stents were considered to have restenosis	*Catheter angiography*: No details reported *Interpretation*: A single observer, who was unaware of the CT results, examined the angiograms before contrast injection to identify the sites of stent implantation. Positive in-stent restenosis was defined as luminal narrowing of >50%

Study ID	Index test (assessed technology) details	Reference standard details
Rist 2009[54]	*CT scanner*: Somatom Definition, Siemens Medical Systems, Forchheim, Germany	*Catheter angiography*: Two or more projections for each coronary artery
	Use of beta-blockers: Beta-blockers were not administered before the examination; 16 patients were receiving continuous beta-blocker treatment, which was not interrupted for the examination	*Interpretation*: One independent observer, who was blinded to CT results, assessed all angiograms. Positive stenosis was defined as diameter reduction of ≥50%
	Contrast agent: Body weight adapted (1.25 ml/kg Ultravist, Iopromide 370 mgI/ml, Bayer-Schering, Berlin, Germany) i.v., mean volume 90 ml, mean flow rate 5.5 ml, followed by 50 ml saline	
	Scan parameters: Collimation 0.6 mm, gantry rotation time 330 milliseconds, pitch 0.2–0.43, tube current time product 410 mA/rotation, effective tube current time product 360 mA, and tube voltage 120 kV	
	Interpretation: All images were assessed by two experienced readers, blinded to clinical information and other test results. Positive stenosis per patient was defined as one or more significant diameter reduction ≥50%	
Rixe 2009[35]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany	*Catheter angiography*: No details reported
	Use of beta-blockers: Beta-blockers were not administered before the examination	*Interpretation*: No details of who interpreted angiograms were reported. Positive stenosis was defined as diameter reduction of >50%
	Contrast agent: No details reported	
	Scan parameters: Collimation 64 × 0.6 mm, no further details	
	Interpretation: No details of who interpreted scans were reported. Positive stenosis was defined as diameter reduction of >50%. Un-assessable segments were regarded as having significant stenosis	
Ropers 2007[39]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany	*Catheter angiography*: No details reported
	Use of beta-blockers: Beta-blockers were not administered before the examination; 34 patients were taking routinely beta-blockers, which were not discontinued for the examination	*Interpretation*: One observer, different from the CT observer. Positive stenosis was defined as diameter reduction of >50%
	Contrast agent: ≥60 ml (Omnipaque 350, Schering AGF, Berlin, Germany) i.v., flow rate 5 ml/second, followed by 50 ml of saline at 5 ml/second	
	Scan parameters: Collimation 0.6 mm, 2 × 64 slices, gantry rotation time 330 ms, pitch 0.2–0.43, tube current 400 mA/tube, and tube voltage 120 kV	
	Interpretation: All images were assessed by one observer, blinded to clinical information and ICA results. Each coronary segment was first classified as evaluable or not evaluable. In evaluable segments Positive stenosis was defined as diameter reduction of >50%. Unevaluable segments were classified as positive	
Ropers 2008[37]	*CT scanner*: DSCT-Scanner, no details reported	*Catheter angiography*: No details reported
	Use of beta-blockers: NR	*Interpretation*: No details of who interpreted angiograms were reported. Positive stenosis was defined as diameter reduction of ≥50%
	Contrast agent: NR	
	Scan parameters: Collimation 0.6 mm, 2 × 64 slices, gantry rotation time 330 ms, no further details reported	
	Interpretation: No details of who interpreted scans were reported. Positive stenosis was defined as diameter reduction of ≥50%	

Study ID	Index test (assessed technology) details	Reference standard details
Scheffel 2006[55]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: Beta-blockers were not administered before the examination. Three patients took beta-blockers as part of their baseline medication *Contrast agent*: Bolus 80 ml of iodixanol i.v. (Visipaque 320, 320 mg/ml, GE Healthcare, Buckinghamshire, UK), followed by 30 ml of saline at 5 ml/second *Scan parameters*: Collimation 32 × 0.6 mm, 64 × 0.6 mm slice acquisition, gantry rotation time 330 milliseconds, pitch 0.2–0.39, tube current 80 mA per rotation and tube voltage 120 kV *Interpretation*: All images were assessed by two independent readers and disagreements were resolved by consensus. Positive stenosis was defined as diameter reduction of > 50%	*Catheter angiography*: 'Standard techniques with multiple views stored', no details reported *Interpretation*: Assessed by one experienced observer, blind to CT results. Positive stenosis was defined as diameter reduction of > 50%
Tsiflikas 2010[56] and Drosch[57]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany *Use of beta-blockers*: 35 of 41 patients were on daily beta-blockers treatment. Additional beta blockers before scan NR *Contrast agent*: 70 ml (90 ml in patients with CABGs) Imeron 400mg iodine/ml at a flow-rate of 5 ml/second, followed by a saline chaser bolus (50 ml, flow-rate 5 ml/second) *Scan parameters*: 0.6 mm collimation (cardiac mode), 330 milliseconds gantry rotation time, pitch 0.2–0.43 (automatically adapted to the patients' heart rate). Tube current for both tubes was 560 mA and tube voltage was 120 kV *Interpretation*: All CT data sets were interactively assessed by two experienced observers who were not aware of patients' clinical information or the coronary angiographic findings. Positive stenosis was defined as > 50% diameter reduction	*Catheter angiography*: No details reported *Interpretation*: By one independent, experienced interventional cardiologist, using quantitative coronary analysis with automated vessel contour detection. The cardiologist was not aware of the CT results. In coronary segments with more than one lesion, the lesion with the most severe diameter reduction determined the test result. Positive stenosis was defined as > 50% diameter reduction
Van Mieghem 2007[36]	*CT scanner*: DSCT (unspecified). No further details reported *Interpretation*: Positive stenosis was defined as > 50% diameter reduction. No further details reported	*Catheter angiography*: No details reported *Interpretation*: Positive stenosis was defined as > 50% diameter reduction. No further details reported
Weustink 2009[58]	*CT scanner*: Somatom Definition Siemens Healthcare, Forchheim, Germany *Use of beta-blockers*: No beta-blockers were administered before scanning *Contrast agent*: A bolus of iodinated contrast material (Ultravist 370, Schering AG, Berlin, Germany), which varied between 80 and 100 ml depending on the expected scan time, was injected in an antecubital vein followed by a saline chaser (40 ml; flow rate 4.0–5.0 ml/second) *Scan parameters*: Collimation 2 × 32 × 0.6, rotation time 330 ms, pitch 0.20–0.53, tube current 380 mA/rotation, and tube voltage 120 kV *Area scanned*: The scan range was extended to the level of the subclavian arteries in patients with internal mammary artery grafts *Interpretation*: Two experienced radiologists blinded to ICA findings independently scored all CT data sets. Any disagreements were resolved by discussion. Positive stenosis was defined as ≥ 50% lumen diameter reduction	*Catheter angiography*: No details reported *Interpretation*: One experienced cardiologist, unaware of the results of the CTA, identified all graft segments, distal run-offs and native coronary segments. Lesions with ≥ 50% lumen diameter reduction in two orthogonal planes were considered positive for stenosis. Distal run-off segments supplied by occluded grafts were classified as native grafted segments. All graft and native coronary segments located distally to a total occlusion (100% lumen reduction) and not supplied by collaterals were classified as post-occlusion segments and were excluded from analysis. In addition, native grafted segments with a lumen diameter of < 1.5 mm were excluded Stents with uninterpretable lumen were classified as having in-stent restenosis

Study ID	Index test (assessed technology) details	Reference standard details
Weustink 2009[45]	*CT scanner*: Somatom Definition Siemens Healthcare, Forchheim, Germany *Use of beta-blockers*: No beta-blockers were administered before scanning *Contrast agent*: A bolus of iodinated contrast material (370 mg/ml, Ultravist; Schering, Berlin, Germany), which varied between 60 and 100 ml, depending on the expected scan time, was injected (flow rate 5.5 ml/second) in an antecubital vein followed by a saline chaser (40 ml; flow rate 5.5 ml/second) *Scan parameters*: Two X-ray tubes, 32 detector rows of 0.6 mm each, rotation time 330 milliseconds, pitch 0.2–0.53, tube voltage 120 kV and full tube current 625 mA (independent of patient size) *Interpretation*: Two experienced observers, each with ≥ 5 years' experience in CT coronary angiography and unaware of the results of conventional coronary angiography, independently scored all CT coronary angiograms; any disagreements were resolved by consensus. Positive stenosis was defined as ≥ 50% lumen diameter reduction. Segments distal to a chronic total occlusion were excluded. An intention-to-diagnose design was used: all scanned patients, including all segments, were analysed even if the image quality was impaired	*Catheter angiography*: No details reported *Interpretation*: Three cardiologists, with ≥ 5 years' experience in interventional cardiology and unaware of the results of CT, assessed all angiograms. All segments, regardless of size, were included for comparison with CT coronary angiography. Positive stenosis was defined as lumen diameter reduction of ≥ 50%
Zhang 2010[59]	*CT scanner*: Somatom Definition, Siemens Medical Solutions, Forchheim, Germany) *Use of beta-blockers*: No beta-blockers were administered before scanning *Contrast agent:* Bolus of 80 ml of Ultravist (370 mg I/ml; Bayer Schering Pharma, Berlin, Germany) followed by 40 ml of saline solution injected into an antecubital vein via an 18-gauge catheter (injection rate 5 ml/second) *Scan parameters*: Rotation time of 0.33 seconds, tube voltage of 120 kV, effective tube current of 330 mA, adapted pitch value of 0.20–0.43 according to heart rate, slice thickness of 0.75 mm, a reconstruction increment of 0.5 mm *Interpretation*: Two experienced observers, who had 8 and 3 years' experience of interpretation of CTCA, respectively, and were unaware of the results of ICA, scored all DSCT coronary angiography data sets Positive stenosis was defined as ≥ 50% diameter reduction. A TP case was defined as having at least one worse than significant or severe stenosis in both per-patient and per-vessel analyses	*Coronary angiography*: CAG (INNOVA 3100, GE Healthcare, Waukesha, WI, USA) was performed according to 'standard techniques,' and multiple views were stored *Interpretation*: By one experienced observer with 10 years' experience in the interpretation of CAT results, who was unaware of the CTCA results Positive stenosis was defined as ≥ 50% diameter reduction. In the case of multiple abnormal segments per artery, the vessel was classified by the segment with the most severe irregularity. Patients were classified as positive for the presence of significant CAD if there was a significant stenosis in any artery

CTA, computed tomography angiography; i.v., intravenously.

Inclusion/exclusion criteria and participant characteristics of included studies

Study ID	Total participants (*n*), participant group (*n*)	Inclusion criteria	Exclusion criteria	Participant characteristics
Alkadhi 2010[41]	Total 150 HHR 75	Patients with chest pain and a negative or equivocal stress test but stable clinical conditions Only patients with an intermediate pre-test probability of CAD were included[128]	Renal insufficiency (creatinine level >130 µmol/l), previous allergic reactions to iodinated contrast material, known CAD or an unstable clinical condition	*HHR*: Age (years) 63.5 ± 12.0 Male/female 51/24 BMI (kg/m^2) 26.2 ± 4.2 Obesity 27 (36.0%) HR 78.9 ± 9.4 b.p.m. Calcium score 568 ± 807 Type II diabetes mellitus 14 (18.7%) Family history CAD 8 (10.7%) Hyperlipidaemia 32 (42.7%) Symptomic angina 64 (85.3%)
Brodoefel 2008[42]	Total 125 Obese 44	Patients scheduled for catheter angiography for suspected CAD or suspected progression of known CAD	Renal insufficiency (serum creatinine level >1.5 mg/dl), hyperthyroidism (basal TSH <0.03 µl/l), known allergic reaction to iodinated contrast media, inability to follow breath-hold instruction, previous bypass surgery	*Obese*: Age (years) 63 Male/female 29/15 BMI (kg/m^2) 32.8 ± 2.5 HR 65.7 ± 12.1 b.p.m. Calcium score 741 ± 968 Diabetes mellitus 15 (34.1%) Hypertension 41 (93.2%)
Brodoefel 2008[46]	Total 100 HHR 30 HCS 47	Patients scheduled for catheter angiography for suspected CAD or suspected progression of known CAD	Renal insufficiency (serum creatinine level >1.5 mg/dl), hyperthyroidism (basal TSH <0.03 µl/l), known allergic reaction to iodinated contrast media, inability to follow breath-hold instruction, previous bypass surgery	*Total*: Age (years) 62 ± 10 Male/female 80/20 Adiposis 61 (61%) HR 64.9 ± 13.2 b.p.m. Calcium score 786.5 ± 965.9 Diabetes mellitus 24 (24%) Hypertension 85 (85%)
De Graaf 2010[40]	Total 53 With stents 53 (121 stents)	Patients with previous stent implantation, referred for evaluation of recurrent chest pain, who underwent both CT and ICA	(Supra)ventricular arrhythmias, renal failure (GFR <30 ml/minute, known allergy to iodinated contrast media, severe claustrophobia, pregnancy, HHR in the presence of contraindications to beta-blockade	*Stented*: Age (years) 65 ± 13 Male/female 37/16 BMI (kg/m^2) 27 ± 3 HR 59 ± 12 b.p.m. Diabetes mellitus 12 (23%) Family history of CAD 16 (30%) Hypertension 43 (81%) Hypercholesterolaemia 45 (85%) Previous MI 28 (53%) Previous bypass graft 8 (15%)
LaBounty 2010[38]	Total 81 With stents, unclear (54 stents)	NR	NR	NR

Study ID	Total participants (*n*), participant group (*n*)	Inclusion criteria	Exclusion criteria	Participant characteristics
Leber 2007)[43]	Total 90 HHR and/or AF 46	Patients referred for coronary angiography, who had negative or equivocal stress tests, no prior known CAD and intermediate pre-test probability of CAD[128]	Renal insufficiency, known allergy to iodinated contrast media, unstable clinical condition	*Total*: Age (years) 58 ± 8 Male/female 57/33 HR 73 (range 48 to 112) b.p.m. Diabetes mellitus 8 (8.9%) Family history of CAD 27 (30%) Hypertension 65 (72.2%) Hypercholesterolaemia 36 (40%) Angina 73 (81.1%) Permanent beta-blocker use 23 (25.6%)
Lin 2010[44]	Total 44 HHR 18	Patients suspected CAD and inconclusive cardiac stress test. Only patients with at least one significant stenosis on CT were advised to undergo ICA and these patients were eligible for inclusion in the study	Allergy to iodinated contrast material, renal insufficiency (creatinine level > 120 µmol/l), pregnancy, haemodynamic instability, previous coronary stent implantation or bypass, > 3 months between CT and ICA	*HR ≥ 70 b.p.m.*: Age (years) 59.2 ± 10.3 Male/female 13/5 BMI (kg/m²) 26.6 ± 2.6 HR 80.1 ± 10.4 b.p.m. Diabetes mellitus 4 (22.2%) Family history of CAD 4 (22.2%) Hypertension 7 (38.9%) Angina 13 (72.2%)
Marwan 2010[47]	Total 60 AF 60	Patients with AF and absence of previously known CAD	Renal insufficiency (serum creatinine > 1.4 mg/dl), inability to maintain adequate breath hold, rapid AF non-responsive to beta-blockers and calcium channel blockers (mean HR > 100 b.p.m.)	*AF*: Age (years) 71 ± 7 Male/female 34/26 BMI (kg/m²) 29 ± 5 HR 70 ± 15 b.p.m. Diabetes mellitus 16 (27%) Family history of CAD 10 (17%) Hypertension 56 (93%) Long-term beta-blockers 46 (77%) High likelihood of CAD 24 (40%) Intermediate likelihood of CAD 21 (35%)
Meng 2009[48]	Total 109 HHR 50 HCS 17	Patients with suspected CAD	Allergy to iodinated contrast media, thyroid disorder, renal insufficiency (creatinine level > 120 µmol/l), pregnancy, haemodynamic instability, previous stent implantation or bypass graft	*Total:* Age (years) 63 ± 9 Male/female 68/41 BMI (kg/m²) 26.9 ± 3.3 CCS (Agatston units) 226.5 HR 71.8 ± 13.2 b.p.m. Diabetes mellitus 15 (13.7%) Hypertension 75 (68.8%)
Oncel 2007[49]	Total 15 AF 15	Patients with AF who were suspected of having co-existing CAD and were scheduled to undergo ICA	Unstable clinical condition, known allergy to iodinated contrast media, elevated serum creatinine level (> 1.5 mg/dl > 132.6 µmol/l), previous stent implantation or bypass graft, inability to follow breath-hold instructions	*AF*: Age (years) 58.5 ± 9.1 Male/female 9/6 HR 83.7 ± 8.9 b.p.m.

Study ID	Total participants (*n*), participant group (*n*)	Inclusion criteria	Exclusion criteria	Participant characteristics
Oncel 2008[50]	Total 35 With stents 35 (48 stents)	Patients with suspected in-stent restenosis, based on symptoms or laboratory findings, who were scheduled to undergo ICA	Unstable clinical condition, known allergy to iodinated contrast media, renal insufficiency (serum creatinine level >1.5 mg/dl), inability to follow breath-hold instructions	*With stents*: Age (years) 65 ± 8.2 Male/female 25/10 BMI (kg/m²) 27.2 ± 3.6 Diabetes mellitus 8 (23%) Family history of CAD 18 (52%) Hypertension 21 (59%) Hypercholesterolaemia 24 (68%) Angina 22 (63%) Serum creatinine 1 ± 0.29 mg/dl
Pflederer 2009[51]	Total 112 With stents 112 (150 stents)	Patients with previous stent implantation, who were referred for ICA because of suspected progression of CAD	Known allergy to iodinated contrast media, renal insufficiency (serum creatinine >1.5 mg/dl), possible pregnancy, in non-sinus rhythm, lesions with more than one implanted stent (two or more stents implanted in bifurcation lesions, contiguous or slightly overlapping stents, and stent-in-stent implantation), any stent diameter <3.0 mm, and stents implanted in bypass grafts	*With stents*: Age (years) 65 ± 11 Male/female 70/42 BMI (kg/m²) 28.0 ± 3.9 HR 60 ± 9 b.p.m.
Pflederer 2010[34]	Total 55 Revascularised 55 (42 bypass grafts and 78 stents)	Patients with previous revascularisation who were scheduled for ICA	NR	*Total*: HR 58 ± 7 b.p.m.
Pugliese 2008[52] and 2007[53]	Total: 100 Stent: 100 Stent + high HR: 31	Patients with chest pain and prior stent implantation	Serum creatinine level >120 µmol/l, irregular heart rhythm, known allergy to iodinated contrast media	*All*: Age (years) 62 ± 10 Male/Female 78/22 Obesity (BMI ≥ 30 kg/m²) 23 (23%) Diabetes mellitus 21 (21%) Family history of CAD 29 (29%) Hypertension (≥ 160/95 or ongoing treatment) 45 (45%) Hypercholesterolaemia (> 200 mg/dl (5.18 mmol/l) 51 (51%)
Rist 2009[54]	Total 68 AF 68	Patients with chronic AF who were referred for CT coronary angiography	Hyperthyroidism (TSH level <0.3 mU/l), renal insufficiency (serum creatinine level >1.5 mg/dl), known allergy to iodinated contrast media, treatment with metformin, women who were nursing or in whom pregnancy could not be excluded	*AF*: Age (years) 64 ± 11 Male/female 55/13 HR 77 ± 25 b.p.m.
Rixe 2009[35]	Total 30 AF 30	Patients with AF and suspected CAD	NR	*AF*: Age (years) 64.9 ± 14 Male/female 21/9 HR 73 ± 16 b.p.m.

Study ID	Total participants (*n*), participant group (*n*)	Inclusion criteria	Exclusion criteria	Participant characteristics
Ropers 2007[39]	Total 100 HHR 44	Consecutive patients recruited for a first diagnostic angiogram for suspected CAD	Renal insufficiency (creatinine level >1.5 mg/dl), in non-sinus rhythm, previously known CAD, previous stent implantation or bypass graft, acute coronary syndrome, haemodynamic instability	*HHR*: Age (years) 60 Male/female 29/15 BMI (kg/m²) 28 HR 76 ± 9 b.p.m.
Ropers 2008[37]	Total 78 With bypass graft 78 (195 grafts)	Patients with previous bypass graft(s). No further details reported	NR	Age (years) 64 range 40–87 No further details reported
Scheffel 2006[55]	Total 30 HHR 13 HCS 15	Patients who had undergone ICA for suspected CAD. Patients with irregular heart rates were not excluded	Known allergy to iodinated contrast media, renal insufficiency (creatinine level >120 µmol/l), pregnancy, haemodynamic instability, previous stent implantation or bypass graft	*HHR*: Age (years) 62.9 ± 13.3 Male/female 9/4 BMI (kg/m²) 27.6 ± 3.5 HR 84.2 ± 8.4 b.p.m. Calcium score 674 ± 780 *HCS*: Age (years) 63.4 ± 8.9 Male/female 14/1 BMI (kg/m²) 28.5 ± 4.4 HR 70.0 ± 15.1 b.p.m Calcium score 1483 ± 893 *Total*: Age (years) 63.1 ± 11.3 Male/female 24/6 BMI (kg/m²) 28.3 ± 3.9 Obesity 23 (77%) HR 70.3 ± 14.2 b.p.m. Calcium score 821 ± 904 Diabetes mellitus 19 (63.3%) Family history of CAD 16 (53.3%) Hypertension 23 (76.7%) Angina 21 (70%)
Tsiflikas 2010[56] and Drosch 2008[57]	Total: 44 Arrhythmia: 44	Patients scheduled for ICA because of suspected or known CAD without stable sinus rhythm	Elevated serum creatinine levels of >1.5 mg/dl, unstable angina, thyroid disease, pregnancy, or patients with previous allergic reactions to iodinated contrast media	*Arrhythmia*: Age (years): 68 ± 9 Male/Female 31/13 BMI (kg/m²) 27.9 ± 4.3 Obesity 26 (59%) HR 69 ± 14 b.p.m. Calcium score 762 (range 0 to 4949.7) AF 25 (57%) Diabetes mellitus 9 (20%) Hypertension 38 (86%) Family history of CAD 31 (70%) Previous stent implantation 19 (41%) Previous bypass graft 5 (11%) Beta-blocker use 35 (85%)

Study ID	Total participants (*n*), participant group (*n*)	Inclusion criteria	Exclusion criteria	Participant characteristics
Van Mieghem 2007[36]	Total: 33 Stents: 33	Symptomatic patients, scheduled for ICA, who had previous PCI with large diameter (≥3 mm) stents	Previous bypass graft	NR
Weustink 2009[58]	Total: 52 CABG: 52 CABG + high HR: NR	Symptomatic patients after surgical revascularisation with sinus heart rhythm, able to breath-hold for 15 seconds, and no previous coronary intervention	Allergy to iodinated contrast media, impaired renal function (serum creatinine level >120 µmol), AF, logistic inability to undergo a CT scan before ICA	*CABG*: Age (years) 66 ± 13.2 Male/Female 41/11 BMI (kg/m²) 27.2 ± 5.8 HR 64.4 ± 14.3 b.p.m. Diabetes mellitus 19 (37) Family history of CAD 21 (40%) Hypertension 16 (31) Previous MI 22 (42%) Long-term beta-blockers 47 (90) Single bypass graft 11(21) Two bypass grafts 31 (60) Three bypass grafts 9 (17)
Weustink 2009[45]	Total 927 Intermediate HR: 170 HHR: 85	Symptomatic patients with suspected or known CAD	Previous surgical revascularisation, AF with fast ventricular response, known allergy to iodinated contrast media, impaired renal function (serum creatinine level >120 µmol)	*Intermediate HR group*: Age (years): 61.0 ± 11.4 Male/Female 193/140 HR 71.9 ± 3.7 b.p.m. Long-term beta-blocker use 134 (40.2%) *High HR group:* Age (years) 56.2 ± 10.3 Male/Female 88/83 HR 88.8 ± 8.4 b.p.m. Long-term beta-blocker use 53 (31.0%)
Zhang 2010[59]	Total: 113 HCS: 12 Medium HR: 31 HHR: 39	Patients with suspected CAD no allergy to iodine-containing contrast medium; sufficient renal function (creatinine level ≥120 mol/l), haemodynamic stability, non-pregnant status for women of child-bearing age, and without previous stent or bypass surgery. Patients with non-sinus rhythm, obesity, or high coronary calcium were not excluded	Failure to undergo CCA due to occluded iliac arteries, chest pain during examination	*Total*: Age (years) 64 ± 12 Male/Female 82/31 Atypical angina 46 (40.7%) Typical angina 37 (32.7%) Unstable CAD 30 (26.5%)

GFR, glomerular filtration rate; NR, not reported.