Hjerte CT i Svendborg. Imaging arb. Gruppe 13. Januar 16

Hjerte CT i Svendborg

- Optageområde på 225.000 indbyggere
- Startede i 2007
- 2 kardiologer (11 i alt), Level III certificeret
- 5 radiografer
- Radiologer beskriver det ekstrakardielle, men deltager ikke i beskrivelse af kononarkar
- 20 tider om ugen
  - Fordelt på 2 dage (Kliniske scanning)
  - Herudover 2 forskningsscanner dage
- Ny skanner fra 1/10-2015 (Revolution fra GE), doneret af Mærsk


16 4 2007

Patientflow I

- De 11 kardiologer stiller indikationen for Hjerte-CT enten:
  - Efter indlæggelse
  - I ambulatoriet
- Visitationerne ses af ”Hjerte-CT” sygeplejerske og indkaldes til undersøgelse
- Ved indkaldelse medsendes Procoralan 2 stk

Contents lists available at SciVerse ScienceDirect

Clinical Radiology

journal homepage: www.clinicalradiologyonline.net

Pre-treatment with a sinus node blockade, ivabradine, before coronary CT angiography: A retrospective audit

J. Lambrechtsen [a,b,*], K. Egstrup [a,b]

AIM: To evaluate whether a simple pre-treatment regimen of sinus node inhibition by ivabradine taken at home for only 1 day resulted in a lower pre-scanning heart rate (HR) and reduced the need for intravenous beta-blockers (BB) prior to coronary computed tomography angiography (CTA).

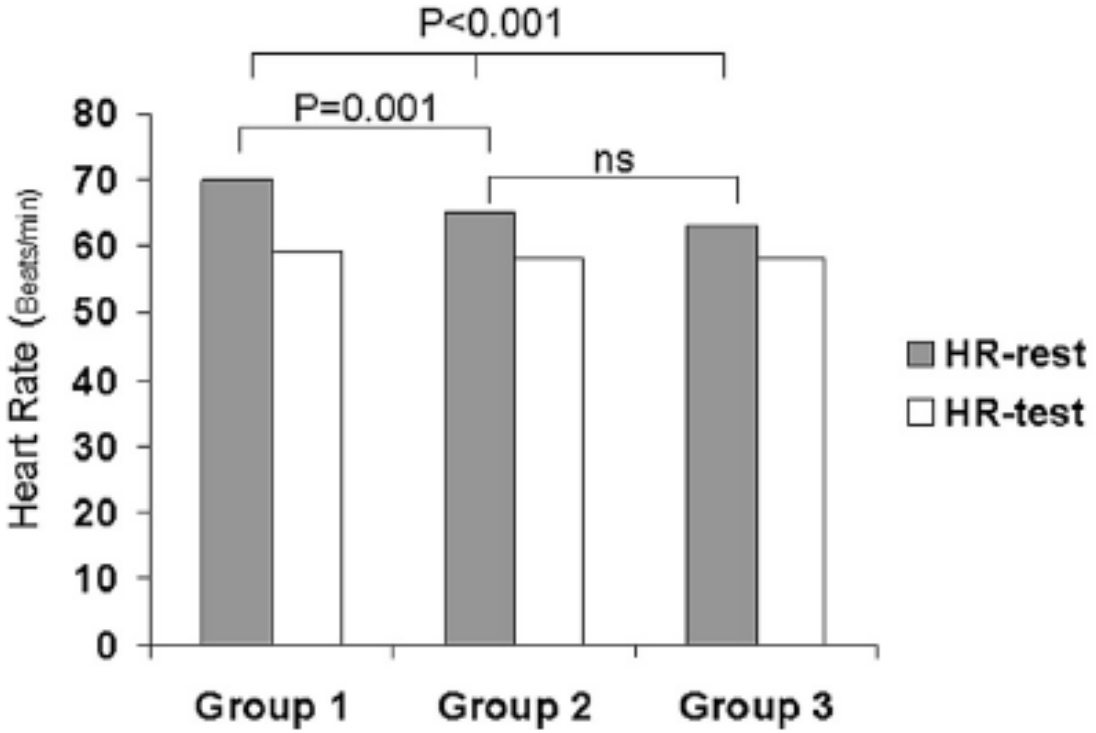


Figure 1 HR obtained at rest (HR-rest) and just prior to CTA (HR-test) shown for all groups.

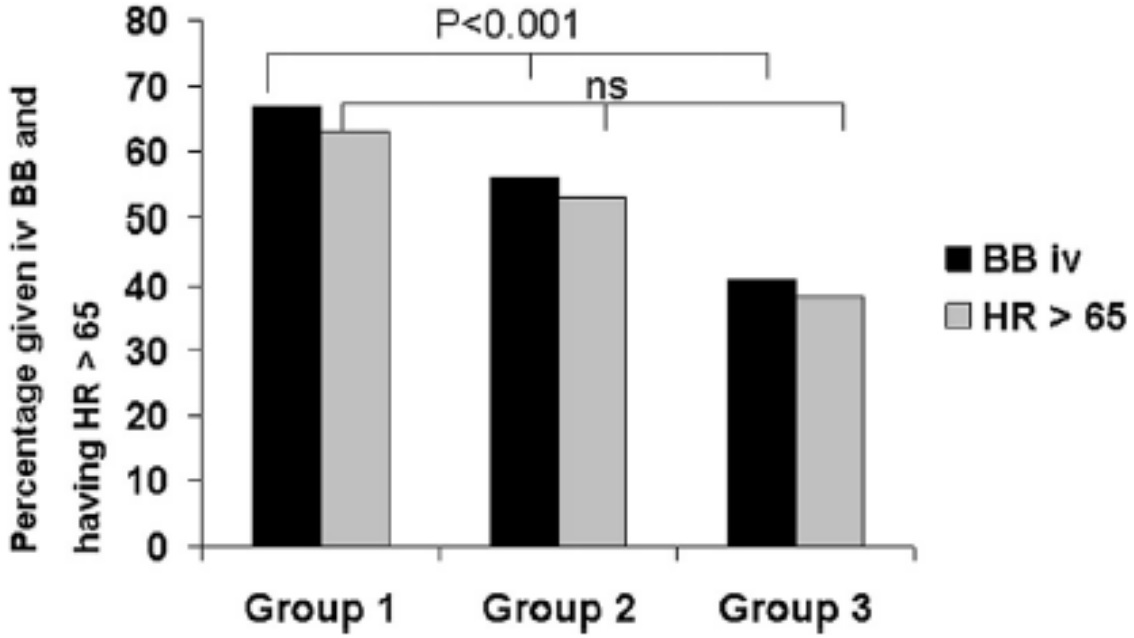


Figure 2 The percentage of patients receiving intravenous BBs and having a HR >65 is shown for all groups. Both significant ($p < 0.001$).

Procoralan - Brev

Patientflow II

- Pt. Møder i kard. Amb
  - Forberedes af spl.

Forbehandling

- Procoralan
  - 7,5 mg aftenen før
  - 7,5 mg samme morgen
  - 3 dage hos astma patienter
  - Fortsætter vanlig behandling
- IV BB ved sygeplejerske hvis HR>60
- IV BB ved radiografer hvis HR>60
- Scanner hvis HR er under 70

Forbehandling 2016

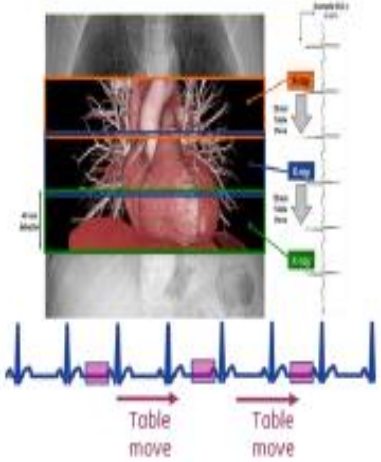
- Nitroglycerin
  - 2 pust sv.t. 0,8 mg gives som standard
- 2 patienter har ikke fået NTG pga Viagra beh.
- Radiograferne bruger 4 forskellige protokoller afhængig af BMI og HR (stabilitet og frekvens)


Se: 5
A: 57
DFOV
STND
R
8
0
9.1/M
kv 10
mA 5
Rot 0
0.6mr
Tilt: 0
09:56
W = 8
DoB: Jul 31 1934
Ex: Jan 12 2010
L
1
1
4
I 211

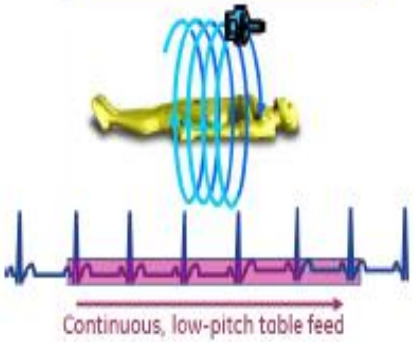
Wide Cone Cardiac Axial

Revolution Cardiac …

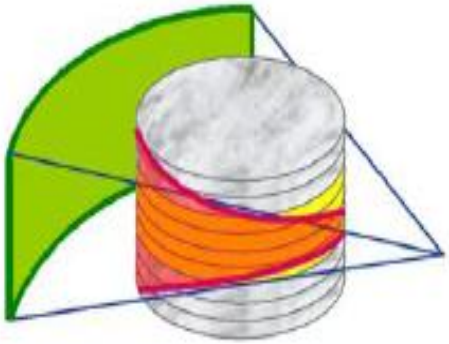
SS Pulse

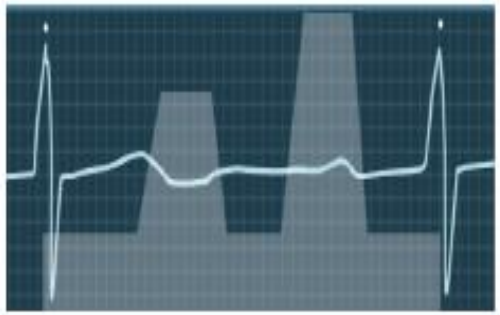


SS Segment



WC Cardiac Axial

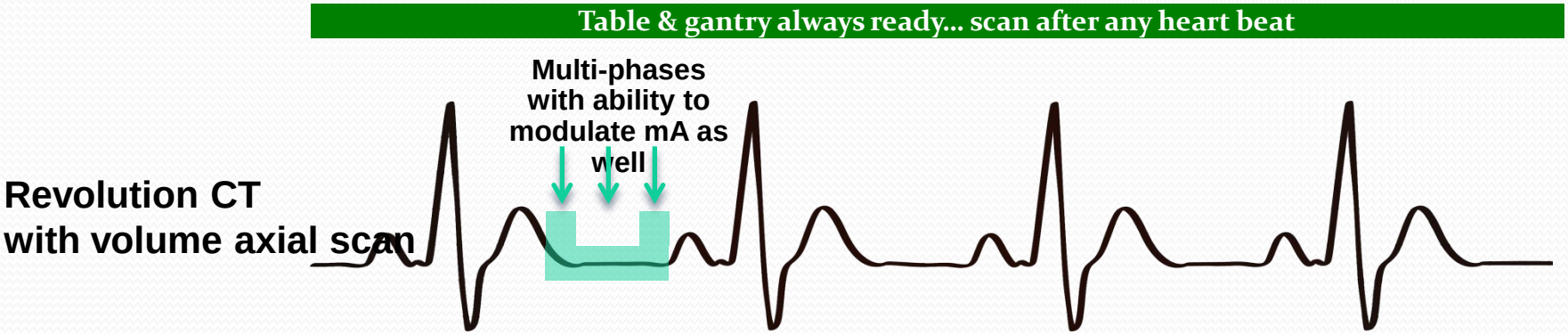




… the Best of both, ***and***

in a Single Beat !!

CT af hjertet I 1 rotation I forskellige faser



Source data on file

Kontrast Timing

- 2007: Smart-prep (ROI i ascendens)
- 2010: Test bolus
- 2015: Smart-prep (visuelt)

Svar på undersøgelsen

- Informeres om us. resultat pr brev eller ved opfølgning i kardiologisk amb.
- Breve til pt:
  - Brev 1
  - Brev 2
  - Indkaldelse

Egen Læge

Vi har i Kardiologisk Ambulatorium OUH Svendborg Sygehus set din patient til en hjerte-CT-skanning.

Vi finder alle forhold omkring hjertet normale.

Imidlertid undersøges der også de tilstødende organer og områder (de ekstrakardielle strukturer). Pga kapacitetsproblemer i Kardiologisk Ambulatorium har vi ikke mulighed for at indkalde patienten vedrørende svar på "mindre betydende ting", som måske alligevel kræver yderligere undersøgelser eller tiltag, og derfor vil vi bede dig om at se på de ekstrakardielle fund og tage videre handling herpå.

Der er dags dato sendt elektronisk svar på hjerte-CT-skanningen til din praksis.

Vi har sendt et brev til patienten, hvor der bedes om, at patienten retter henvendelse til dig.

Håber du har forståelse for vores prioritering.

Hjerte CT i Svendborg

	Skan-ner	Antal Us. Klin/for sk	Diff sygd om	Kontrast (ml)	DLP (mSV)	Invasiv %
2012	GE VCT-XT	856/260	1%	108	340	16
2013		820/200	5%	107	310	15
2014		700/220	17%	107	257	10
2015	Revolut ion#	174/20	16%	80	116	12

Kvaliteten af undersøgelsen

	Diagnostisk	Delvis diagnostisk	Ikke diagnostisk
2015 (960)	92,8 %	5 %	2,2 %

Beskrivelse af undersøgelsen

- Agatston score
- Laves som udgangspunkt på alle > 50 år (17%)

Agatston score	%
0	40
< 10	10
> 10 og < 100	20
> 100 og < 200	6
> 200 og < 1000	19
>1000	5

Forskning Hjerte-CT Svendborg

M.D, Ph.D Jess Lambrechtsen
Institute of regional research

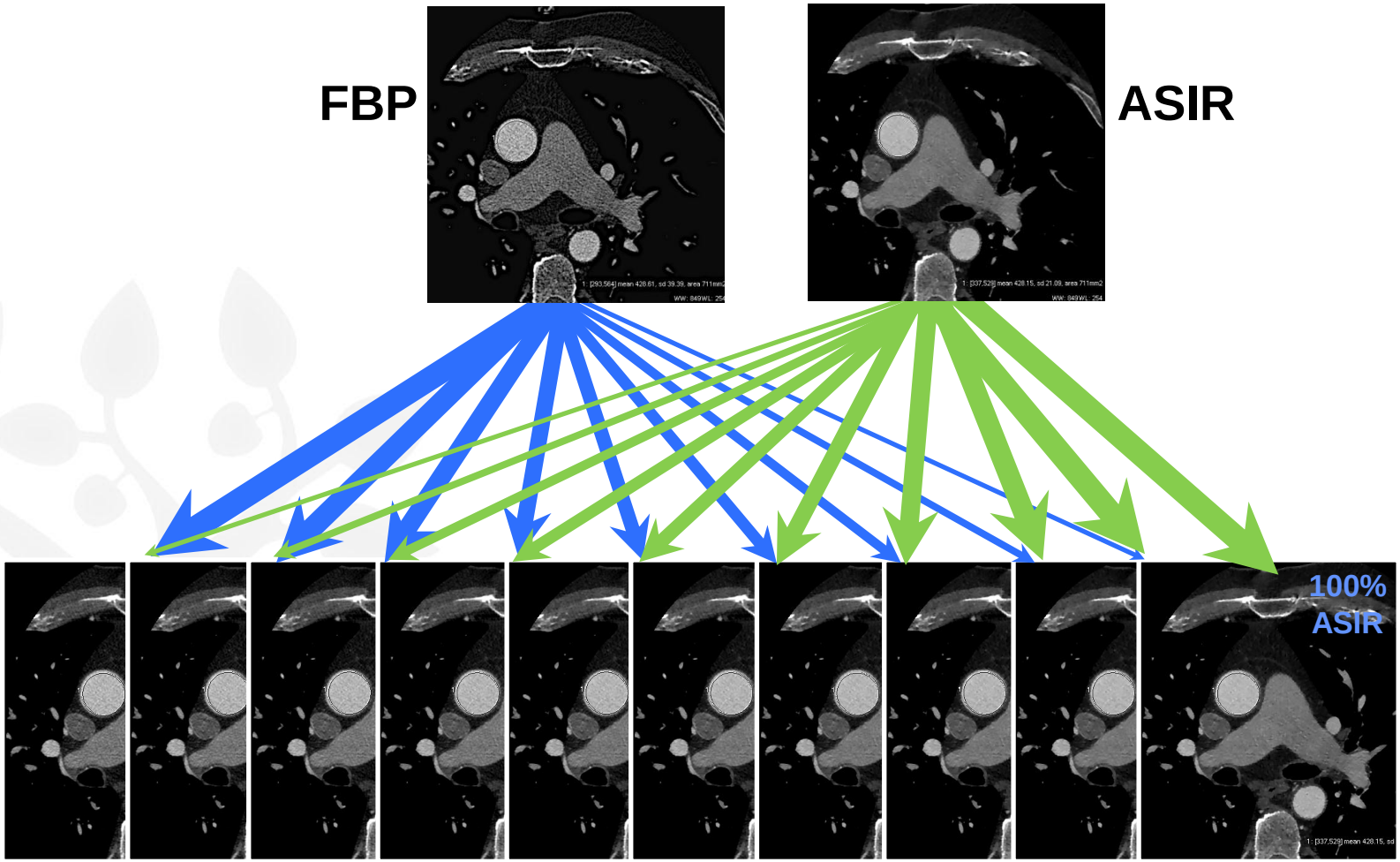
- Teknologi – software –billede optimering
- Klinisk forskning
- Samarbejde lokalt – nationalt - internationalt

University of Southern Denmark
Department of Medical Research Svendborg

Software optimering ved hjerte-CT med fokus på stråledosis, billedkvalitet og klinisk anvendelighed

Radiograf, M.Sc. & PhD studerende; Helle Precht

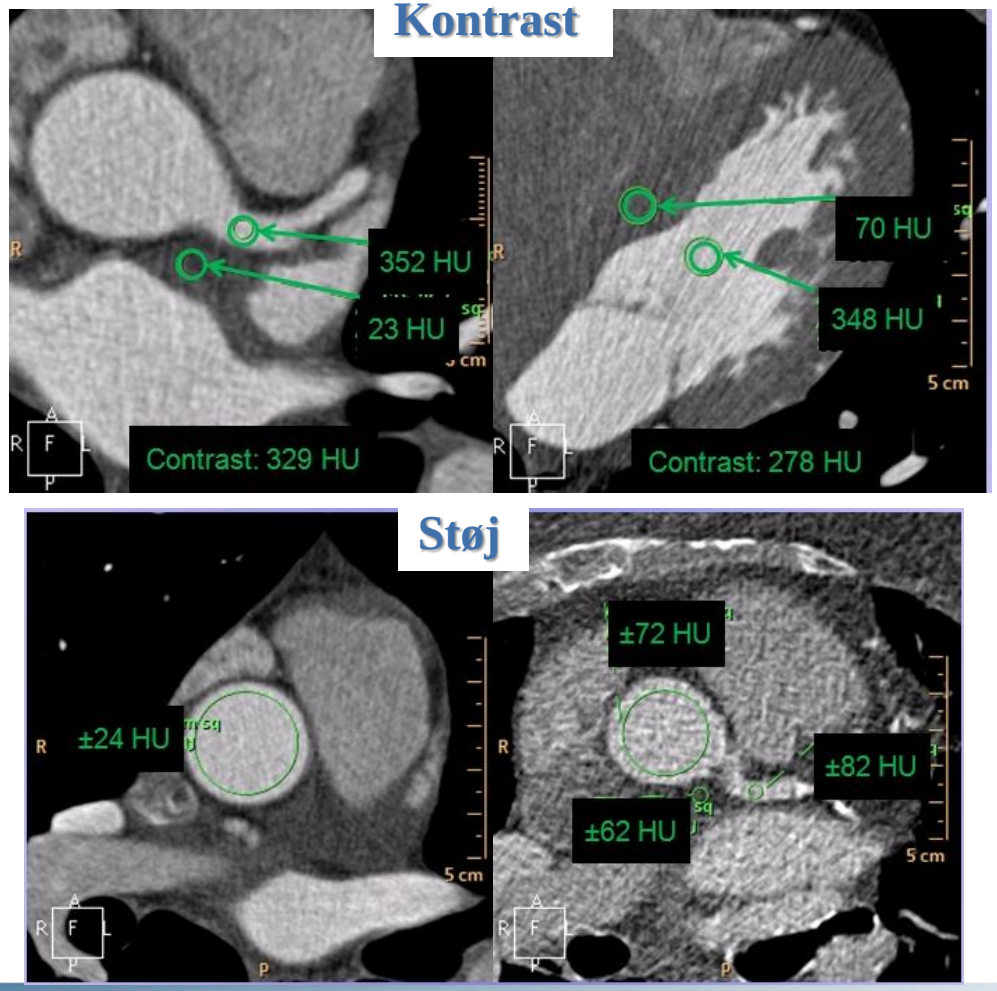
ASIR



Objektiv målt billedkvalitet

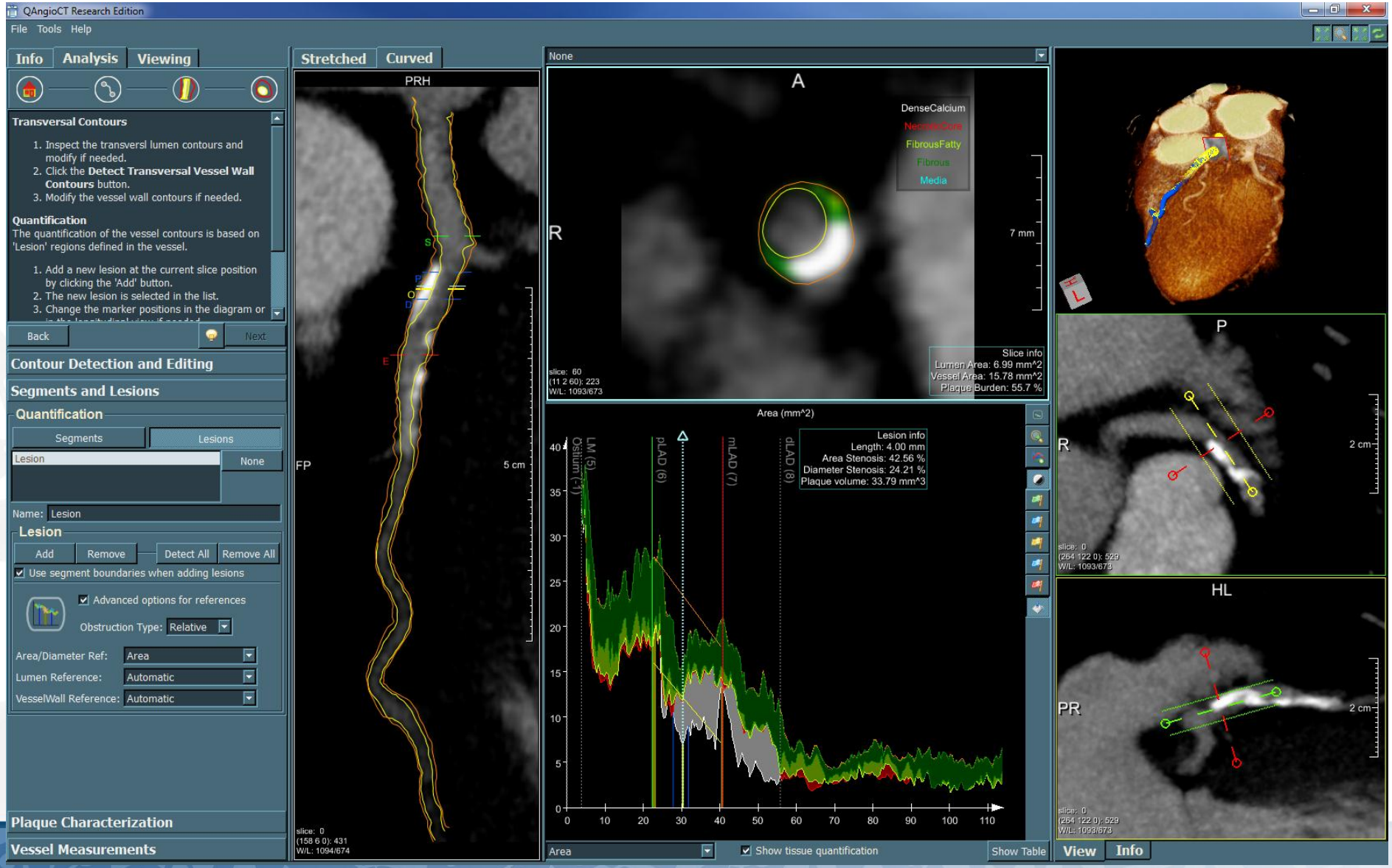
ROI målinger

- Kontrast
- Støj
- Kontrast-Støj forhold (CNR)

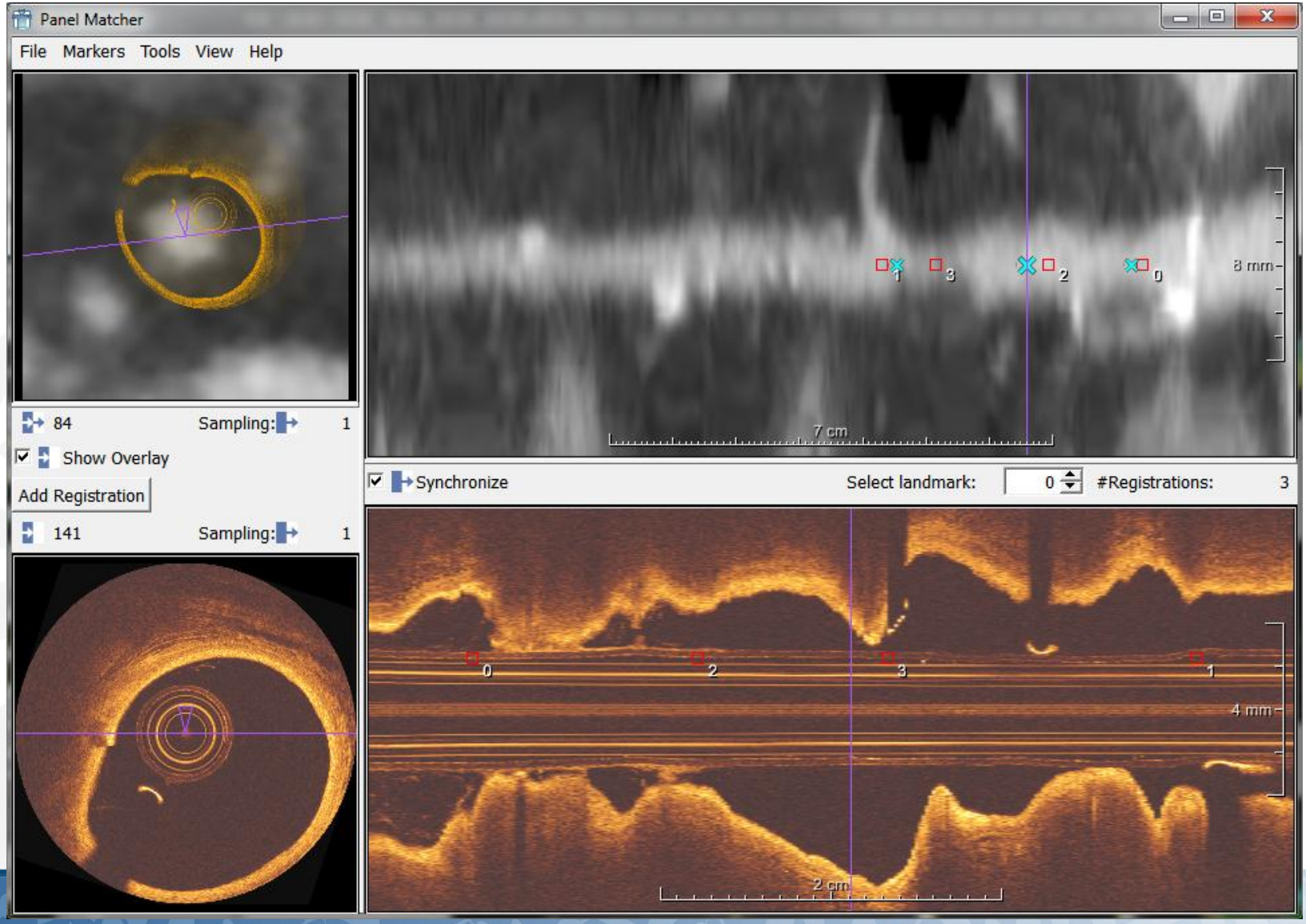


Ref: Weigold, G (2010); presentation: Balancing radiation dose and image quality. Presented at 5th annual scientific meeting of the SCCT, afholdt i Las Vegas, July 2010.

Plaque analyse

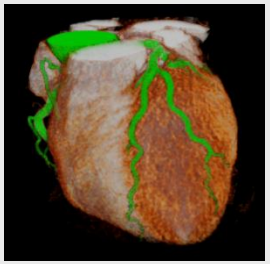


Matchene tilsvarende slices/billeder



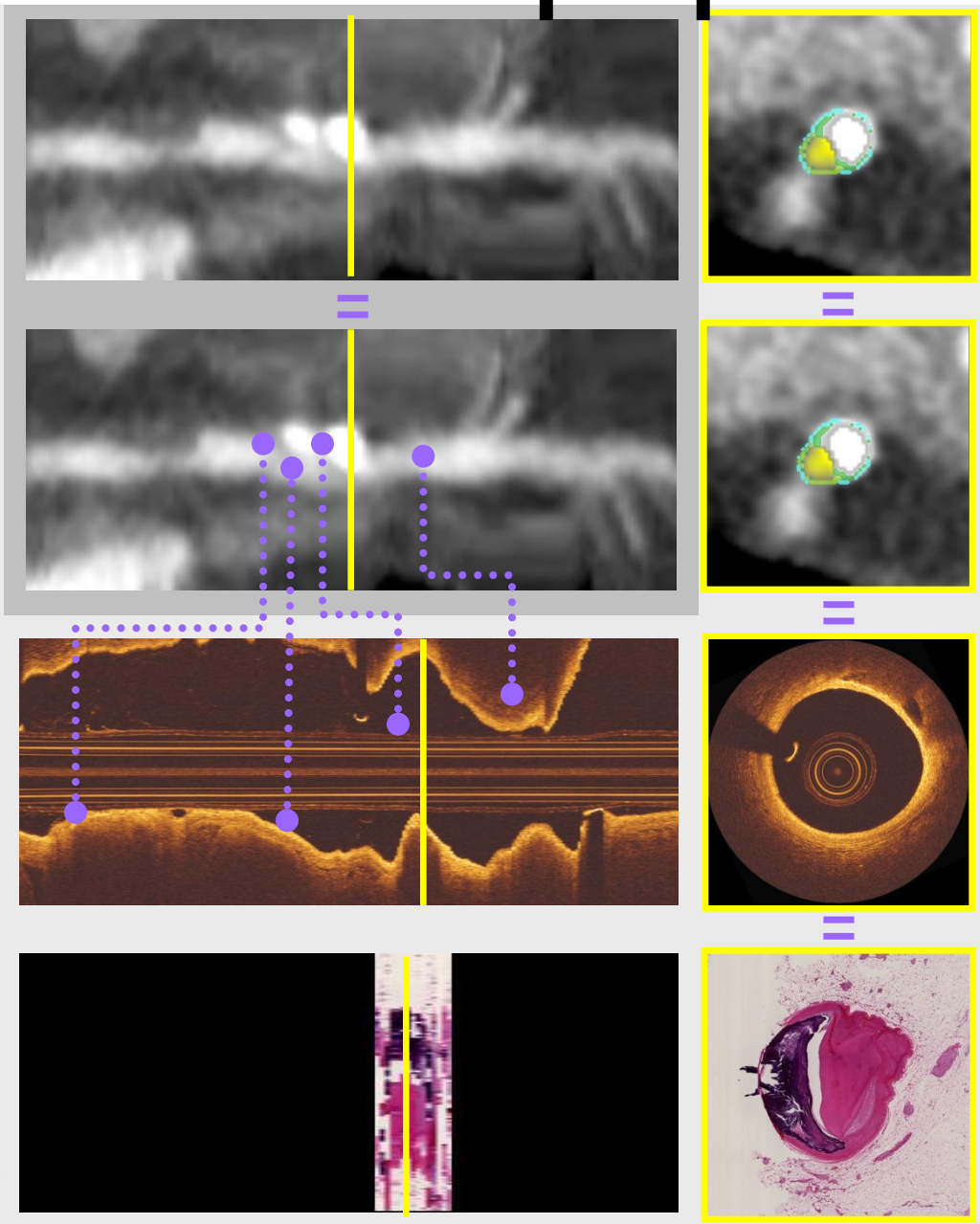
Postmortem plaque karakteristik

multiple MDCT



OCT

Histo-pathology



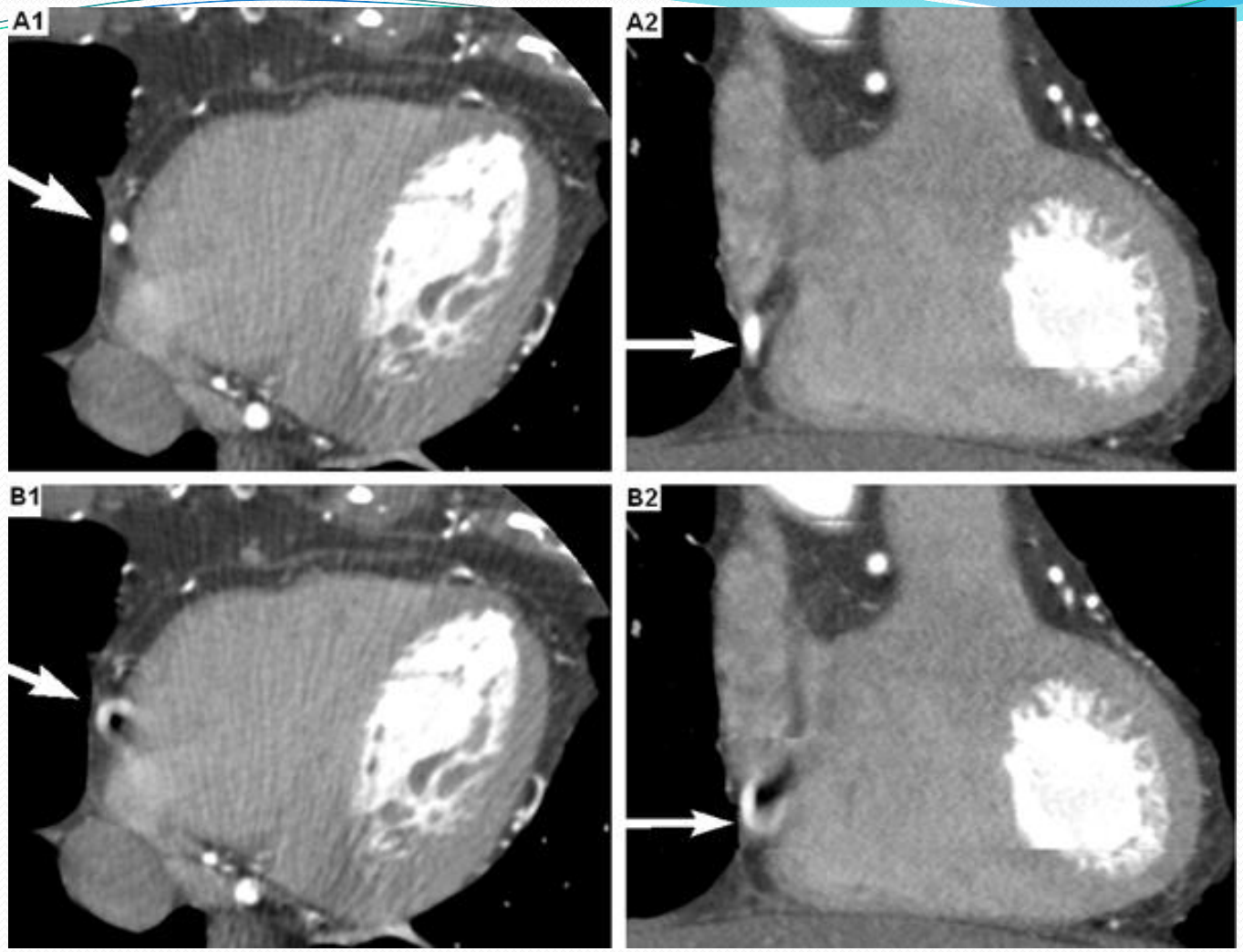
I II III IV

Impact of a motion correction algorithm on quality and diagnostic utility in unselected patients undergoing coronary CT angiography

Hussam Mahmoud Sheta MD, Kenneth Egstrup MD, Mirza Husic MD, Laurits Juhl Heinsen MS, Jess Lambrechtsen MD.

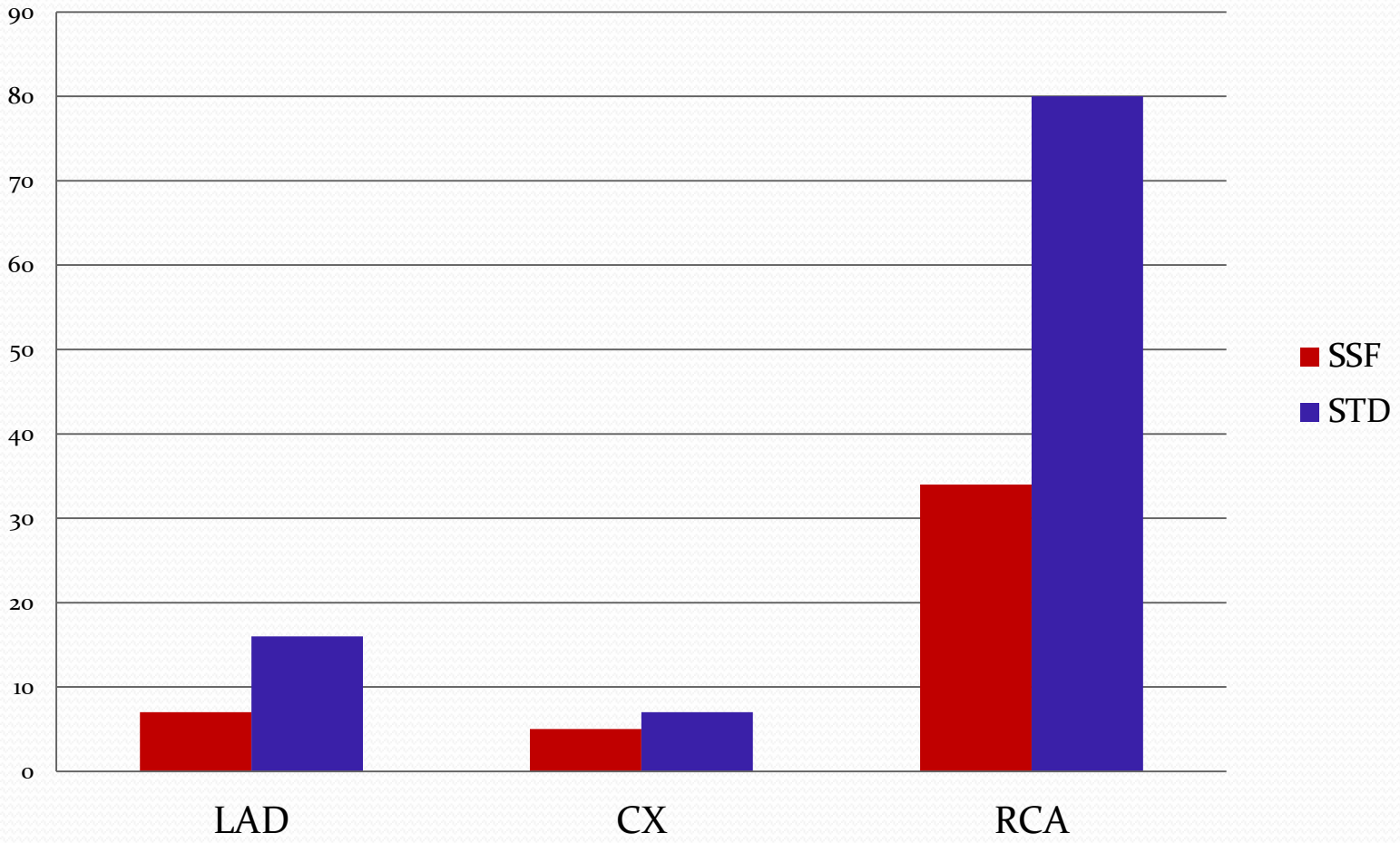
Institute of regional health research, OUH Svendborg General Hospital
Denmark

Region Syddanmark



This shows the axial and coronal reformats of the right coronary artery using SSF (A1, A2) and STD (B1, B2).
The arrow shows the effect of SSF on the motion artifacts.

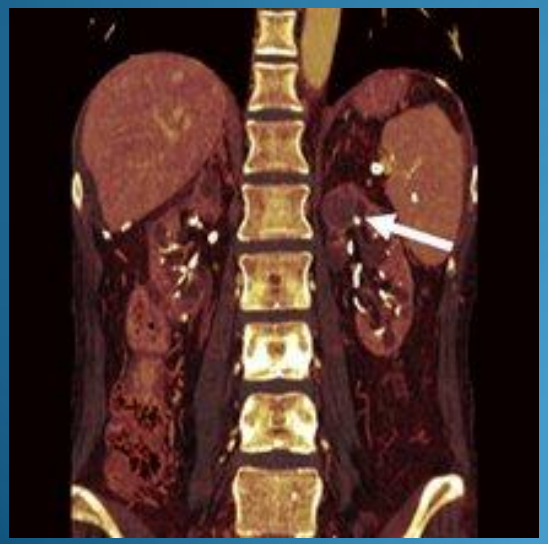
Presence of motion artifacts in images obtained by the SSF and STD algorithms



SSF: Snapshot Freeze motion correction reconstruction algorithm. STD: traditional reconstruction algorithm. LAD: left anterior descending coronary artery. CX: circumflex artery, RCA: right coronary artery.

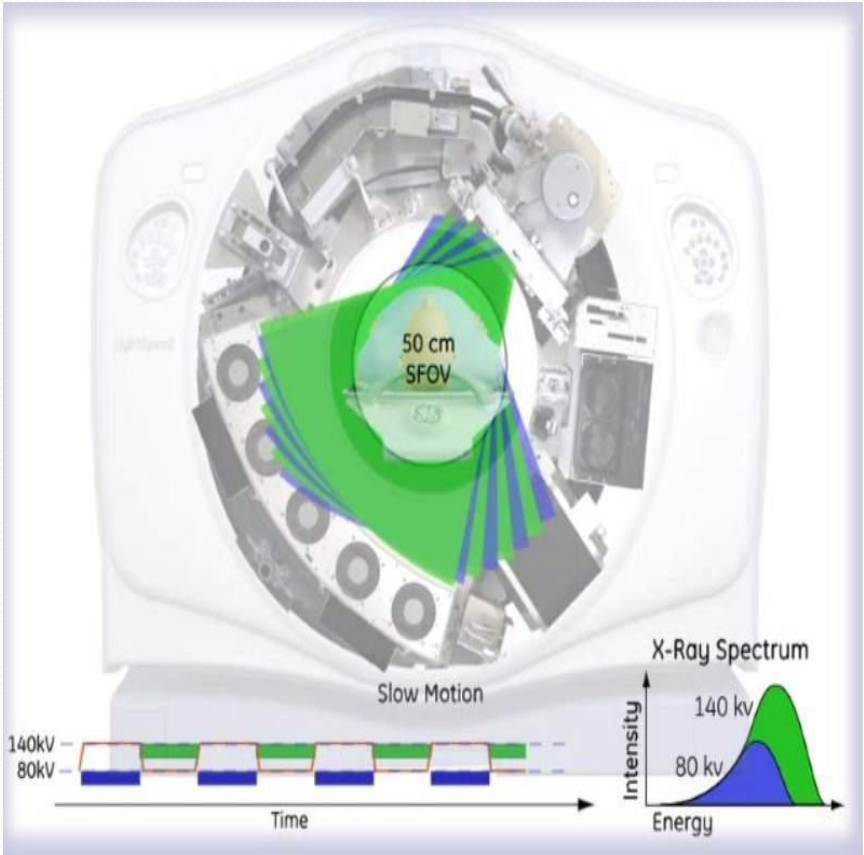
KLINISK FORSKNING

Dual Energy Hjerte CT



Teknikken

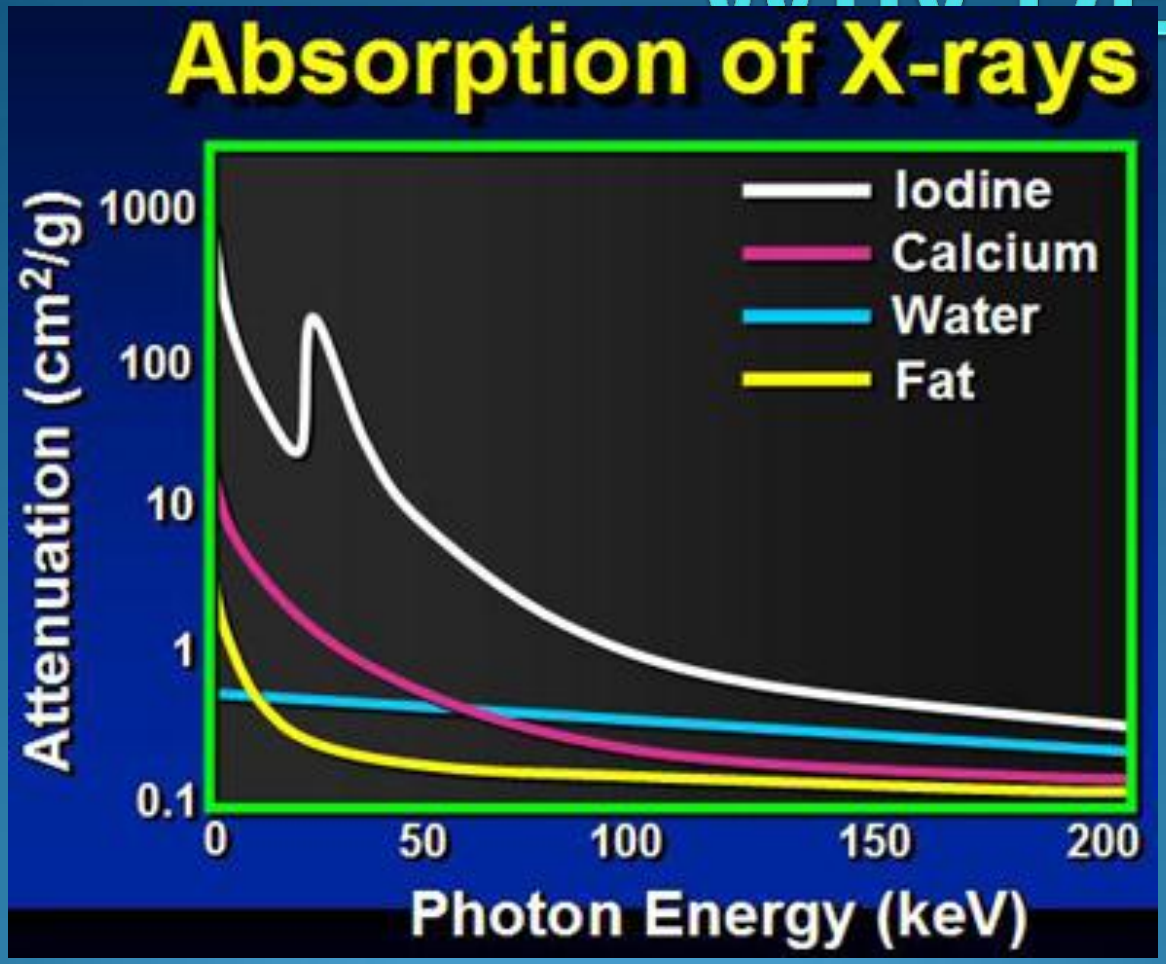
- 80 kVp
- 140 kVp



1 tube & 1 detector
Fast kVp switching

imagination at work

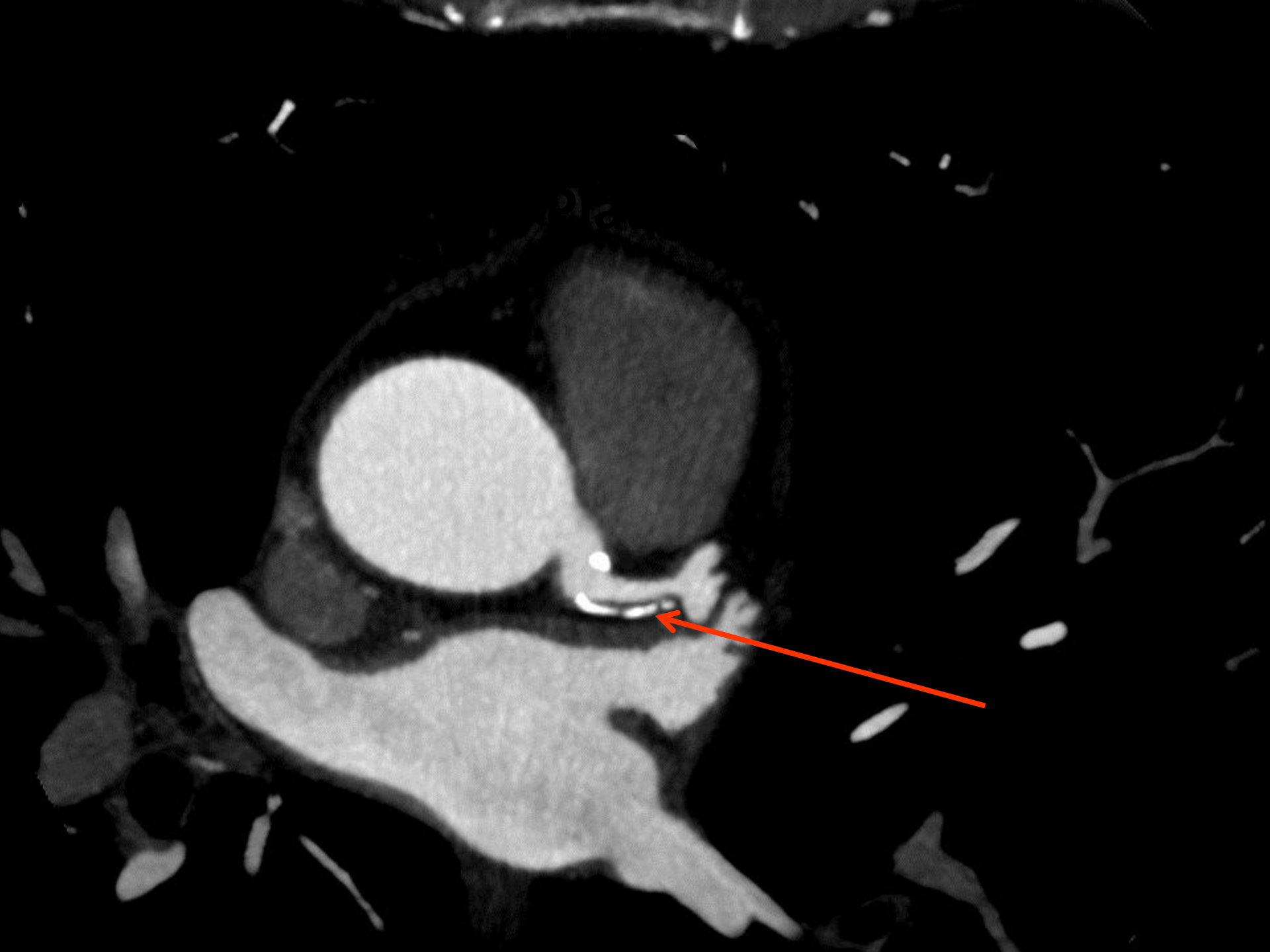
Why DECT?



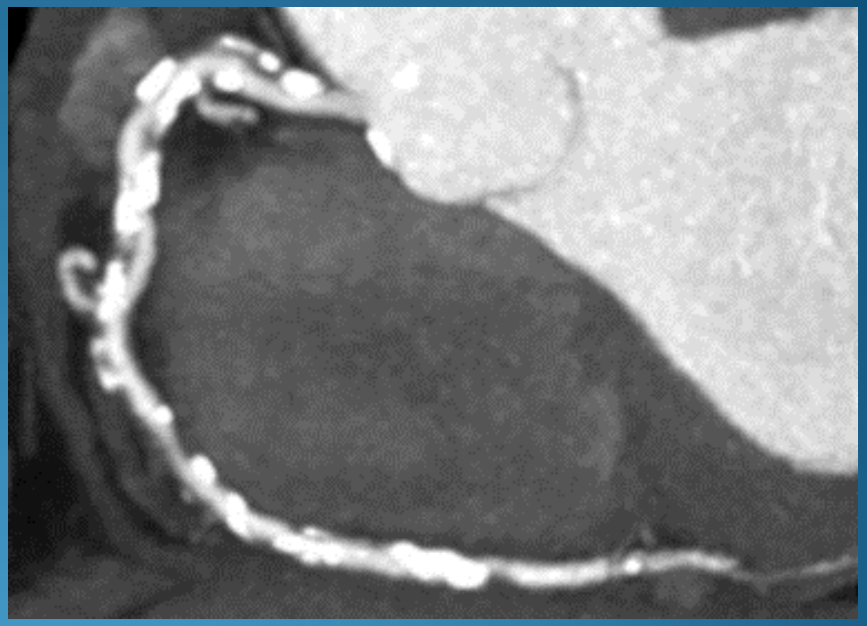
- Materials (iodine, water) attenuate differently at different energies
- This difference allows to separate materials into different images

Hvorfor?

- Giver mulighed for at identificere forskellige komponenter I det arteriosclerotiske plaques (kalk, fedt, fibrøst)
- Vulneable plaques???



Why DECT?



Which plaque is vulnerable?

CHALLENGE

A single center prospective randomized trial.

280 pt with NSTEMI

140 pt with at least one ”non-flow limiting” plaque

Vulnerable plaques – High risk plaques

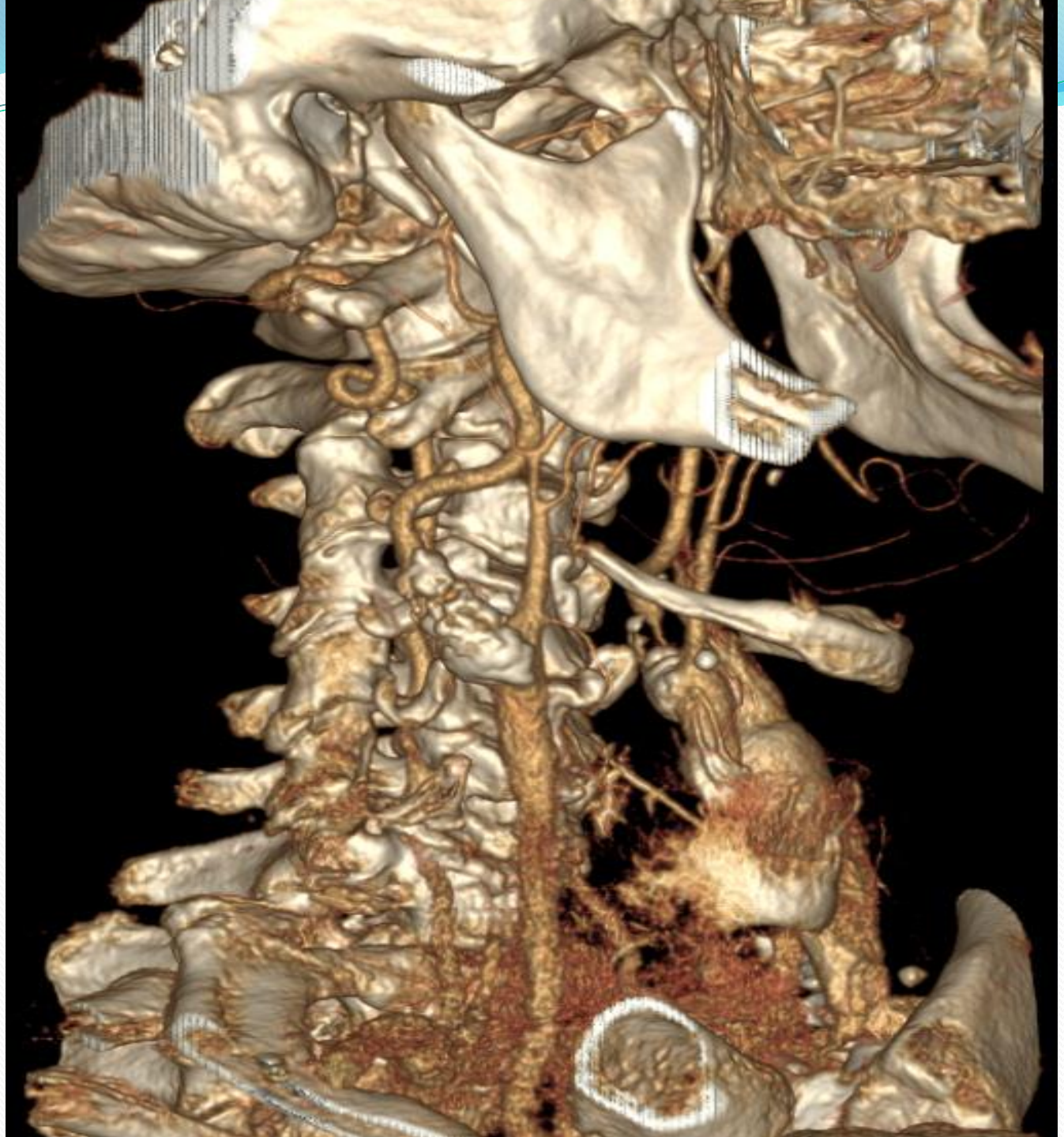
TABLE 5. Markers of Vulnerability at the Plaque/Artery Level

Plaque

Morphology/Structure

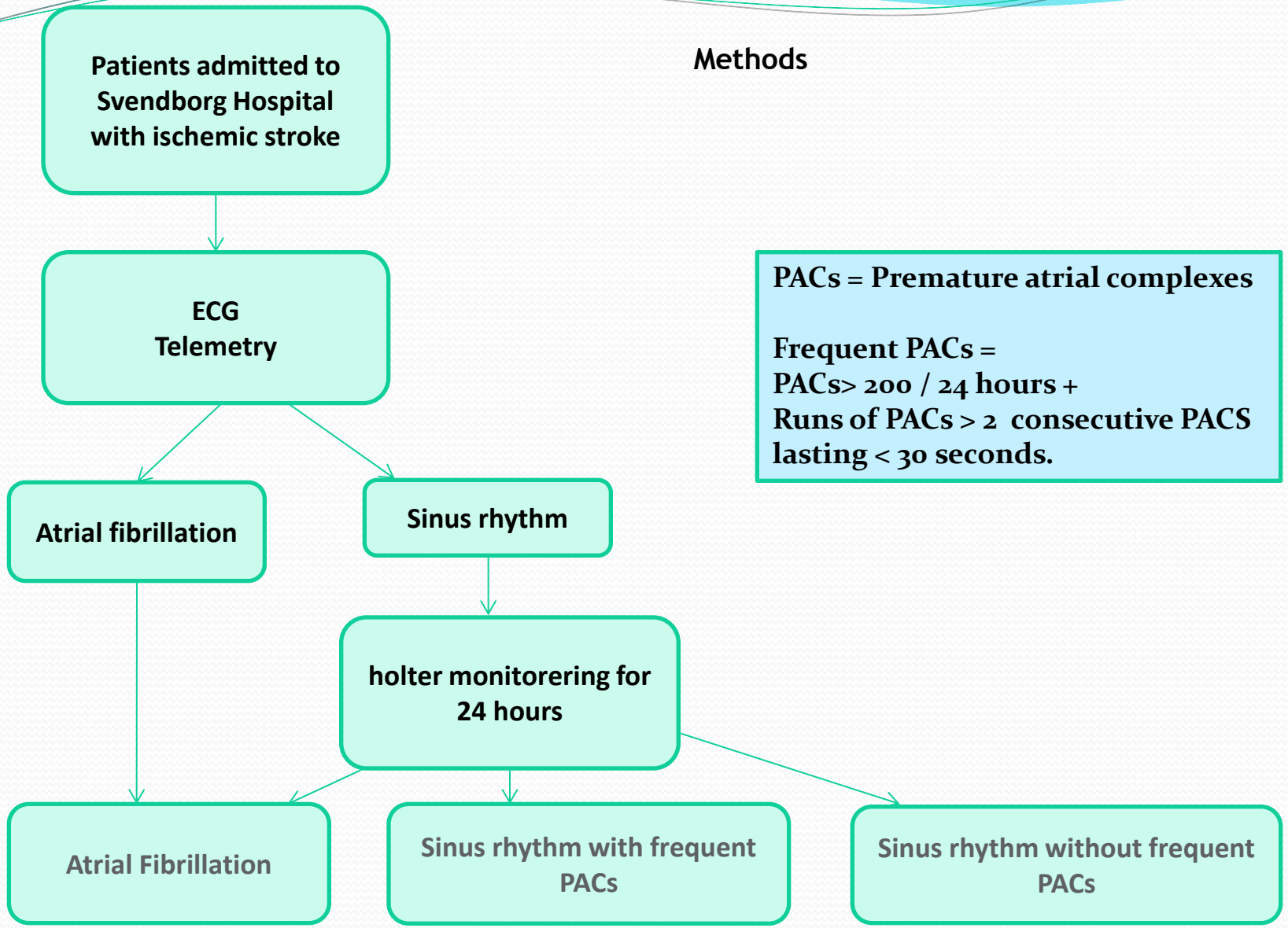
- Plaque cap thickness
- Plaque lipid core size
- Plaque stenosis (luminal narrowing)
- Remodeling (expansive vs constrictive remodeling)
- Color (yellow, glistening yellow, red, etc)
- Collagen content versus lipid content, mechanical stability (stiffness and elasticity)
- Calcification burden and pattern (nodule vs scattered, superficial vs deep, etc)
- Shear stress (flow pattern throughout the coronary artery)

Activity/Function




:5
44.47 (coi)
OV 15.0cm
TAIL/+
P
V 65
~630

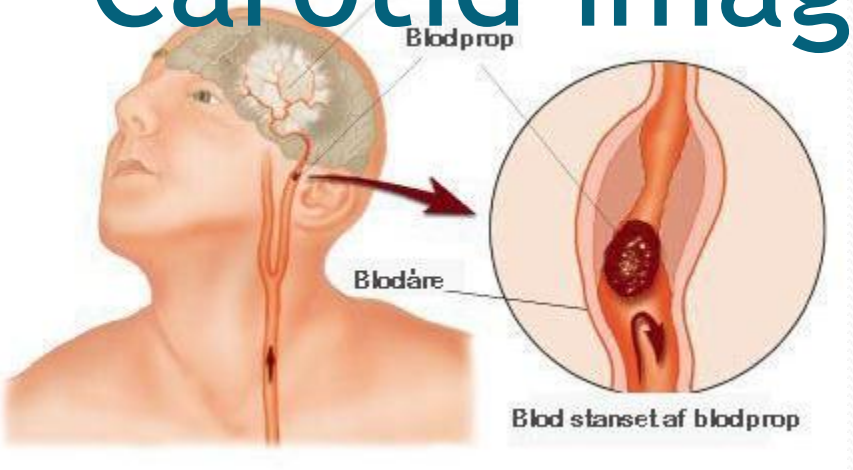
Methods



PACs = Premature atrial complexes

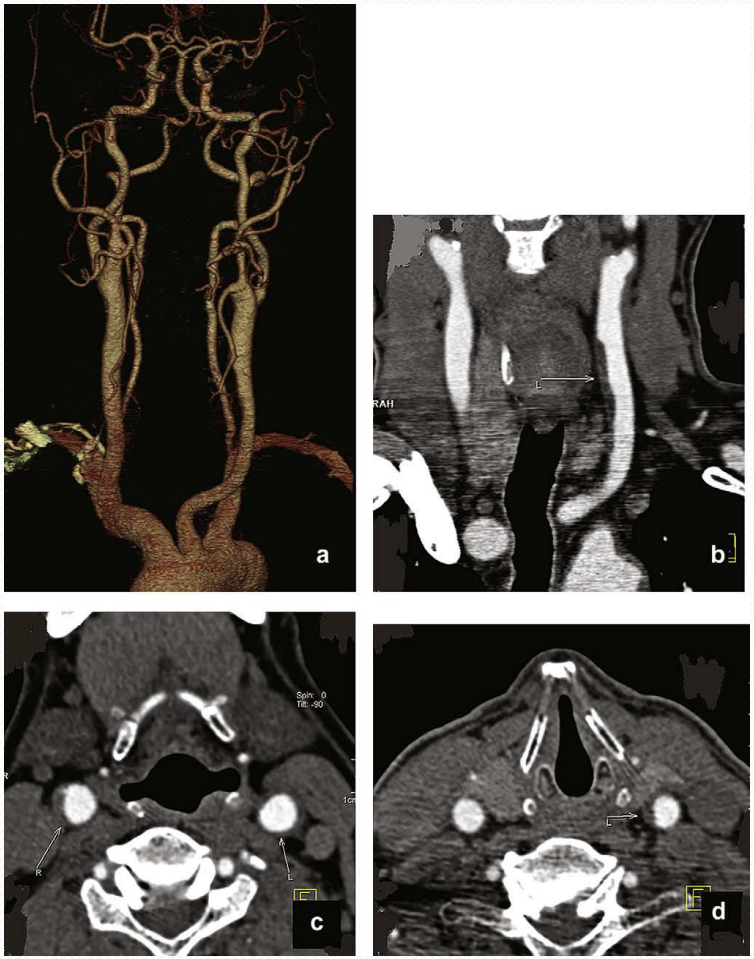
Frequent PACs =
PACs> 200 / 24 hours +
Runs of PACs > 2 consecutive PACS lasting < 30 seconds.

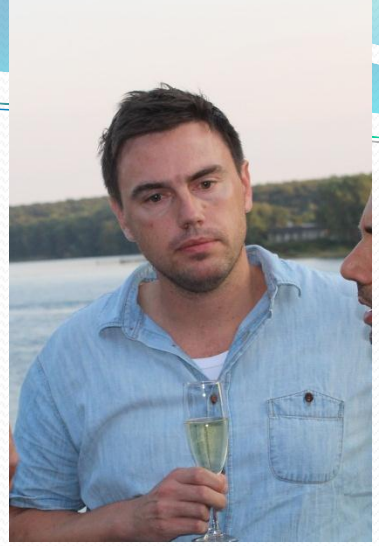
Carotid imaging analysis



- Duplex ultrasound scan
  - Degree of stenosis
  - Intima media thickness
- Dual energy CT
  - Degree of stenosis
  - Plaque volume
  - Plaque morphology
  - Remoduling index

THE VULNERABLE PLAQUE





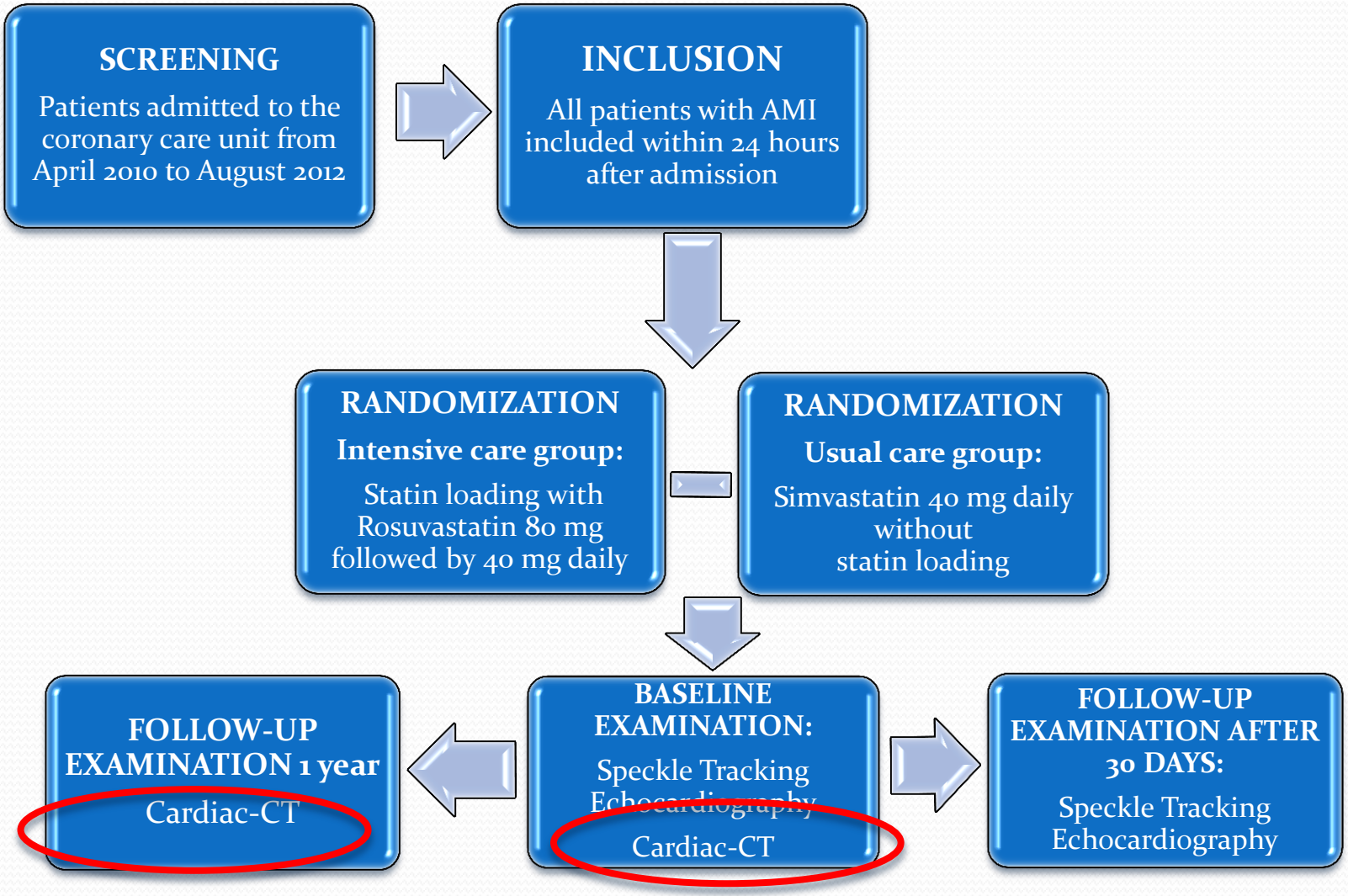
Early intensive treatment with statins improves regional longitudinal systolic strain in patients with acute myocardial infarction

Søren Auscher, MD

University of Southern Denmark

02/09 2013

Methods


SCREENING
Patients admitted to the coronary care unit from April 2010 to August 2012
INCLUSION
All patients with AMI included within 24 hours after admission
RANDOMIZATION
Intensive care group:
Statin loading with Rosuvastatin 80 mg followed by 40 mg daily
RANDOMIZATION
Usual care group:
Simvastatin 40 mg daily without statin loading
BASELINE EXAMINATION:
Speckle Tracking Echocardiography
Cardiac-CT
FOLLOW-UP EXAMINATION 1 year
Cardiac-CT
FOLLOW-UP EXAMINATION AFTER 30 DAYS:
Speckle Tracking Echocardiography

- 3 nye phd studerende starter forår 2016
- Med i DANCAVAS