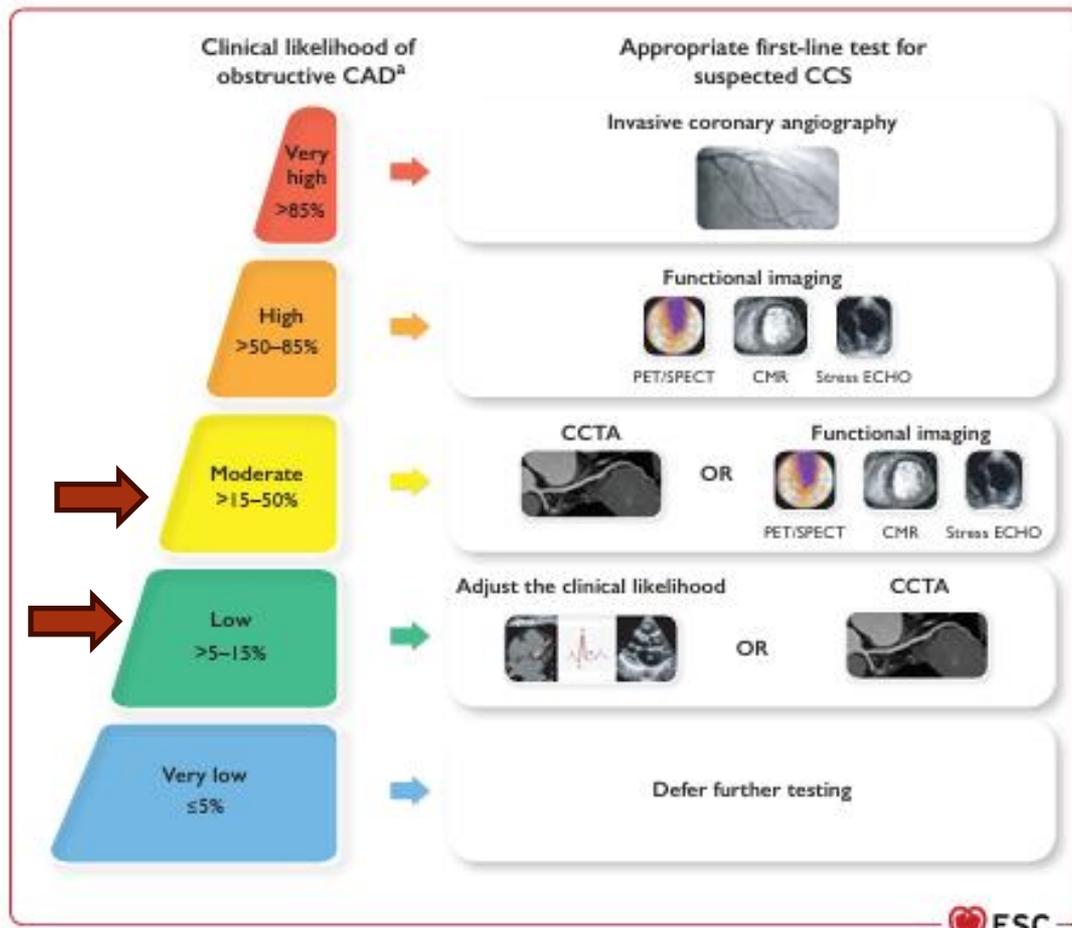


# CT koronarografie- stále více.....

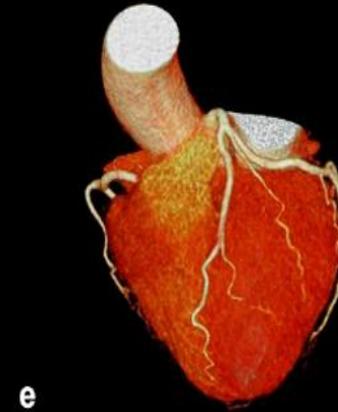
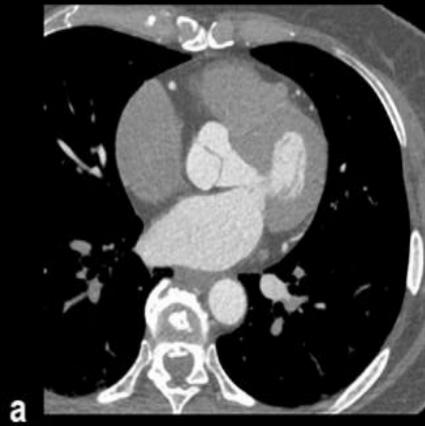


MUDr. Škňouřil, MUDr. Nykl, MUDr. Vodzinská  
Nemocnice Agel Podlesí Třinec

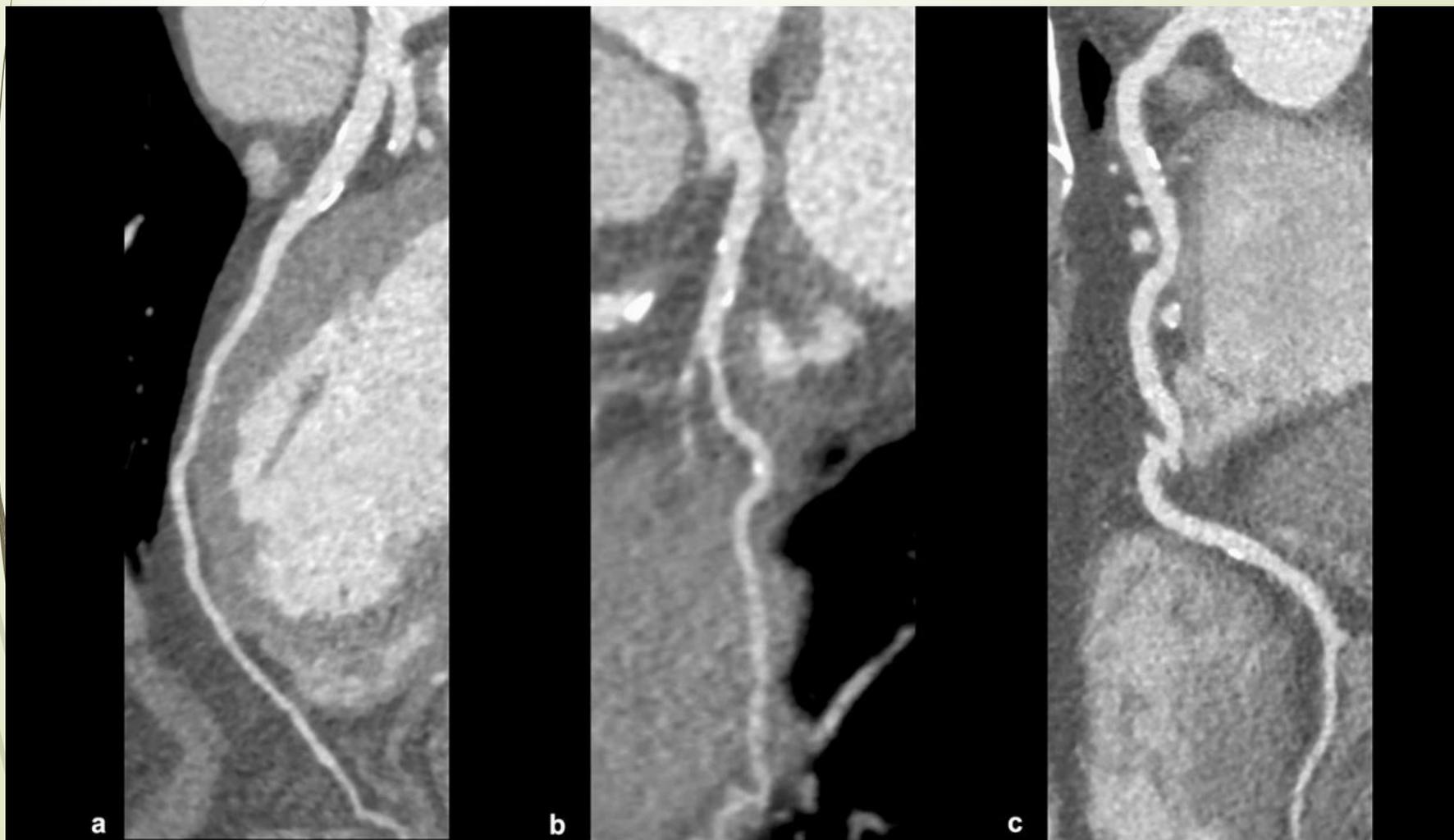
# CT koronarografie u chronických koronárních syndromů



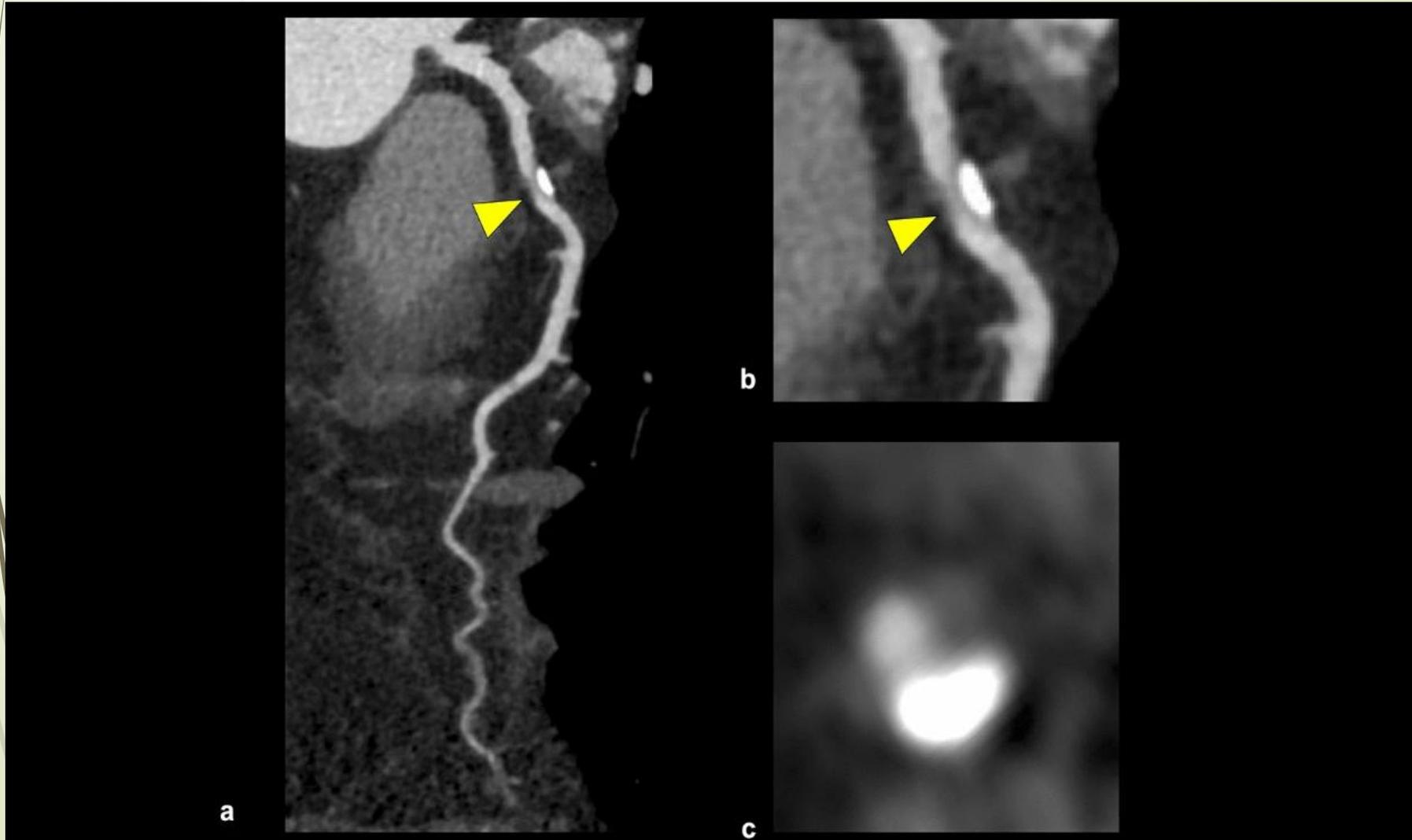
## CT koronarografie- základní vzhled



CT koronarografie- pláty ve věnčitých tepnách



CT koronarografie- hraniční stenosa věčité tepny



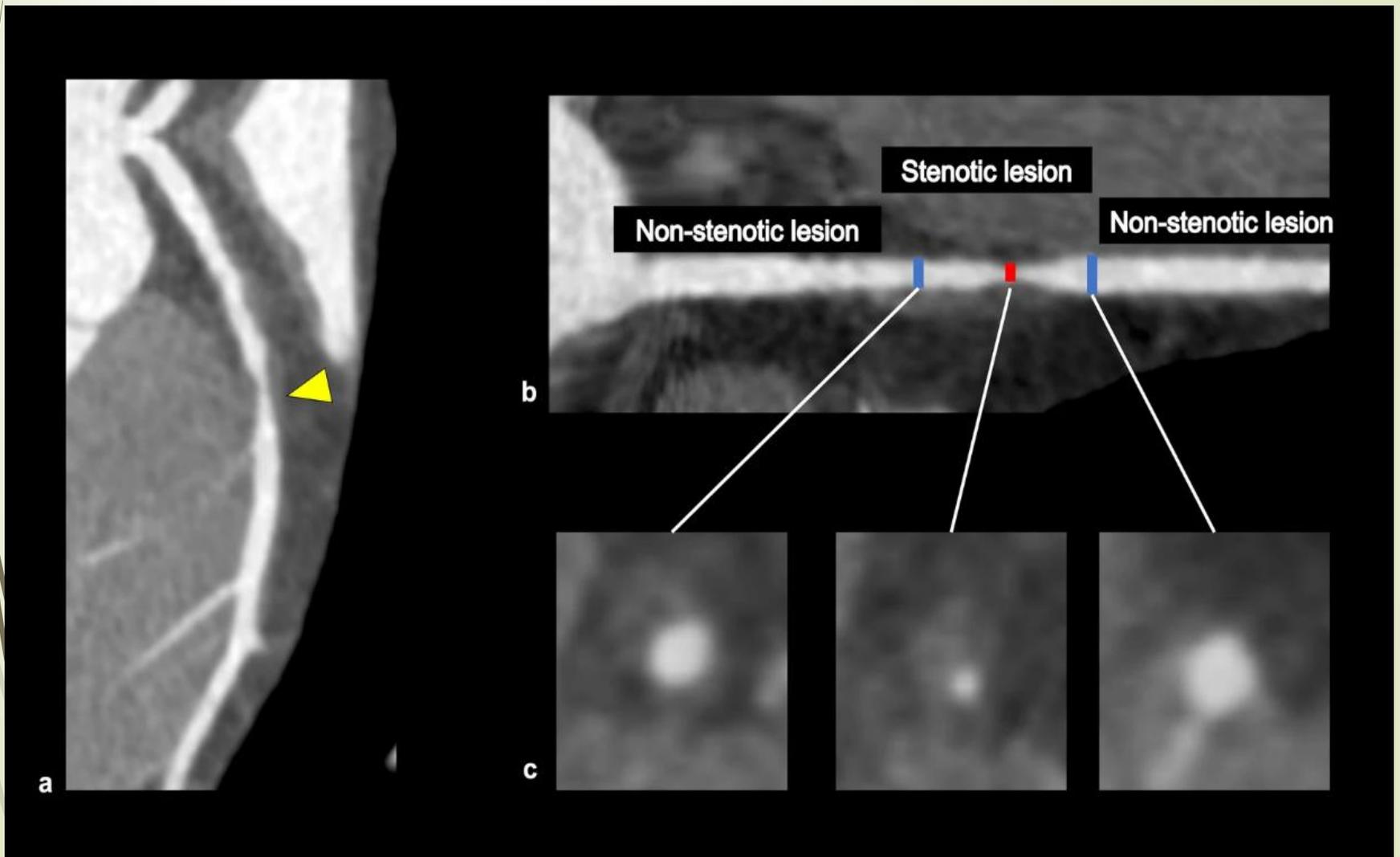
## CT koronarografie: skórování

### From: Coronary computed tomography angiography for clinical practice

Category	Degree of maximal coronary stenosis	Interpretation	Further cardiac investigation	Management considerations
CAD-RADS 0	0% (no plaque or stenosis)	Absence of CAD <sup>a</sup>	None	– Reassurance. Consider non-atherosclerotic causes of symptoms
CAD-RADS 1	1–24% (minimal stenosis or plaque with no stenosis <sup>b</sup> )	Minimal non-obstructive CAD <sup>b</sup>	None	– Consider non-atherosclerotic causes of symptoms  – P1: consider risk factor modification and preventive pharmacotherapy  – P2: risk factor modification and preventive pharmacotherapy  – P3 or P4: aggressive risk factor modification and preventive pharmacotherapy
CAD-RADS 2	25–49% (mild stenosis)	Mild non-obstructive CAD	None	– Consider non-atherosclerotic causes of symptoms  – P1 or P2: risk factor modification and preventive pharmacotherapy  – P3 or P4: aggressive risk factor modification and preventive pharmacotherapy
CAD-RADS 3	50–69%	Moderate stenosis	Consider functional assessment <sup>c</sup>	– P1, P2, P3 or P4: aggressive risk factor modification and preventive pharmacotherapy  – Other treatments (including anti-anginal therapy) should be considered per guideline-directed care <sup>d</sup>  – When modifier I+, consider ICA, especially if frequent symptoms persist after guideline-directed medical therapy

				<ul style="list-style-type: none"> <li>– P1 or P2: risk factor modification and preventive pharmacotherapy</li> <li>– P3 or P4: aggressive risk factor modification and preventive pharmacotherapy</li> </ul>
CAD-RADS 3	50–69%	Moderate stenosis	Consider functional assessment <sup>c</sup>	<ul style="list-style-type: none"> <li>– P1, P2, P3 or P4: aggressive risk factor modification and preventive pharmacotherapy</li> <li>– Other treatments (including anti-anginal therapy) should be considered per guideline-directed care<sup>d</sup></li> <li>– When modifier I+, consider ICA, especially if frequent symptoms persist after guideline-directed medical therapy</li> </ul>
CAD-RADS 4	A: 70–99% stenosis or B: left main $\geq$ 50% or 3–vessel obstructive ( $\geq$ 70%) disease	Severe stenosis	<p>A: consider ICA<sup>e</sup> or functional assessment</p> <p>B: ICA is recommended</p>	<ul style="list-style-type: none"> <li>P1, P2, P3 or P4: aggressive risk factor modification and preventive pharmacotherapy</li> <li>– Other treatments (including anti-anginal therapy and options of revascularization) should be considered per guideline directed care<sup>c</sup></li> </ul>
CAD-RADS 5	100% (total occlusion)	Total coronary occlusion or sub-total occlusion	Consider ICA, functional, and/or viability assessment	<ul style="list-style-type: none"> <li>P1, P2, P3 or P4: aggressive risk factor modification and preventive pharmacotherapy</li> <li>– Other treatments (including anti-anginal therapy and options of revascularization) should be considered per guideline-directed care<sup>c</sup></li> </ul>
CAD-RADS N	Non-diagnostic study	Obstructive CAD cannot be excluded	Additional/alternative evaluation may be needed	

# CT koronarografie- významná stenosa věnčité tepny



# CT koronarografie- charakteristika plátů

**a**

**Positive remodeling**

4.5 mm    6.0 mm    4.5 mm

$\frac{6.0}{4.5} = 1.3 > 1.1$  times the reference vessel outer diameter

**c**

**Napkin-ring sign**

Central low CT attenuation

Peripheral high CT attenuation

**Low attenuation plaque**

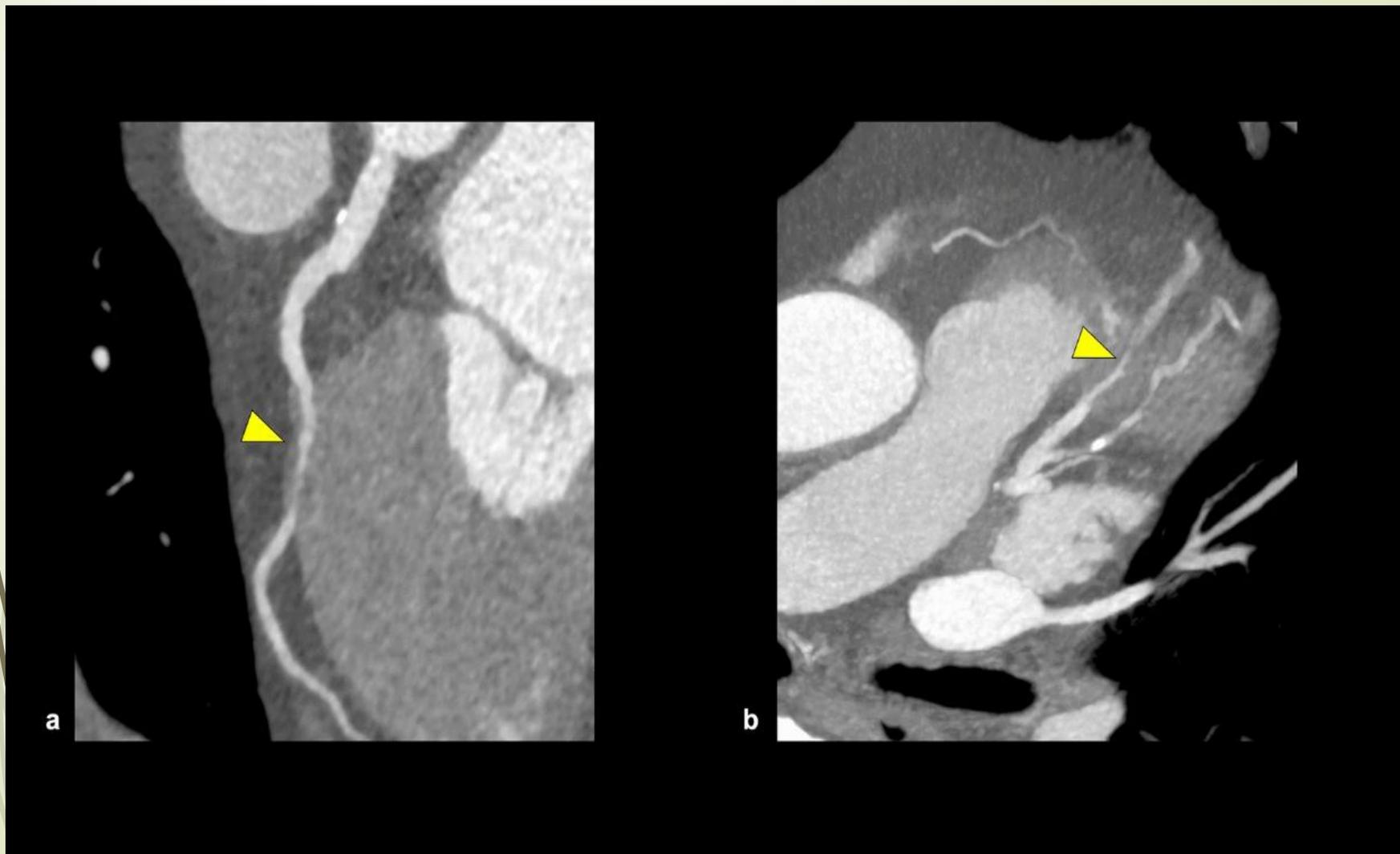
22 HU

Plaque CT attenuation is less than 30 HU

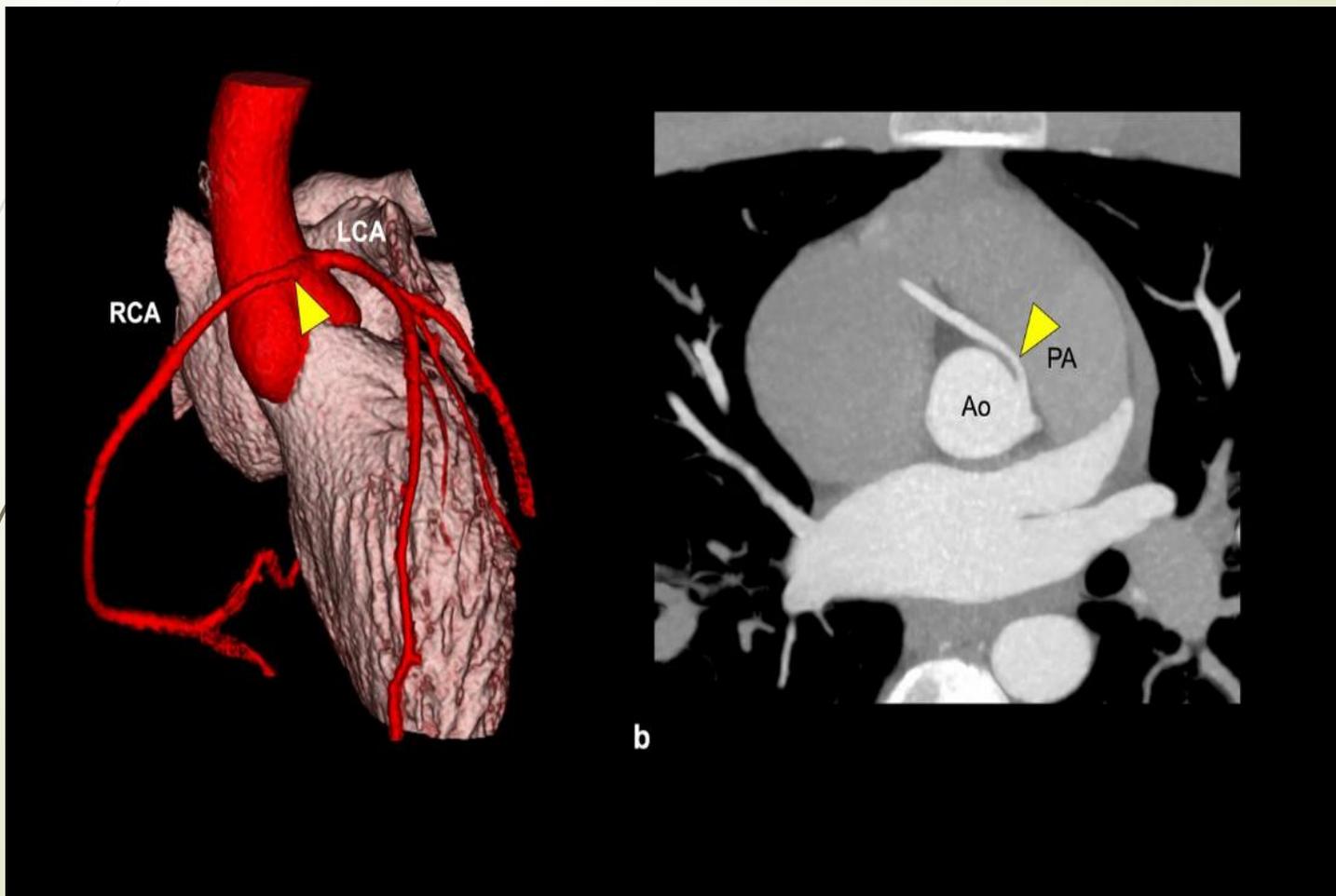
**Spotty calcification**

Small focal calcifications (< 3 mm)

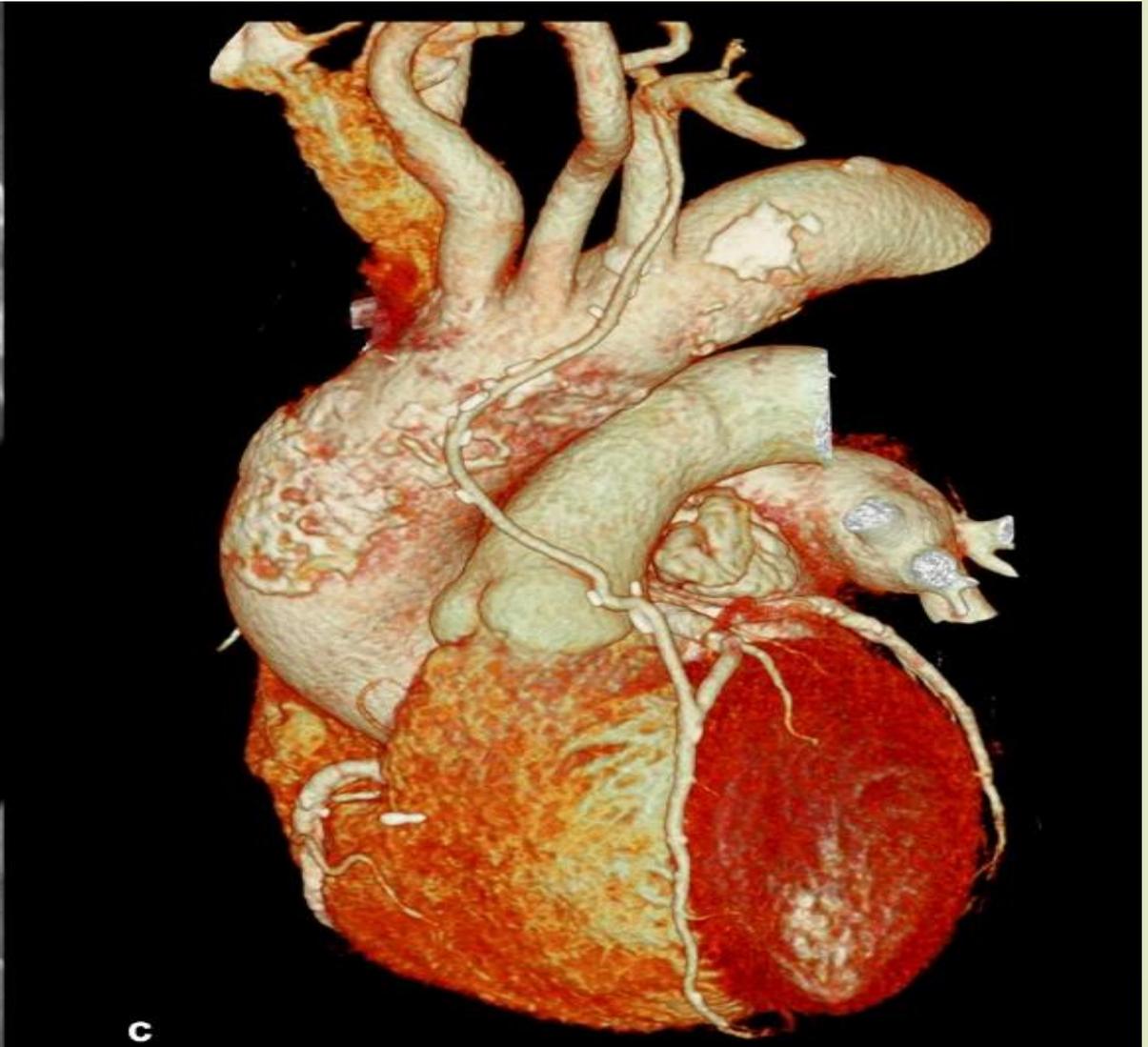
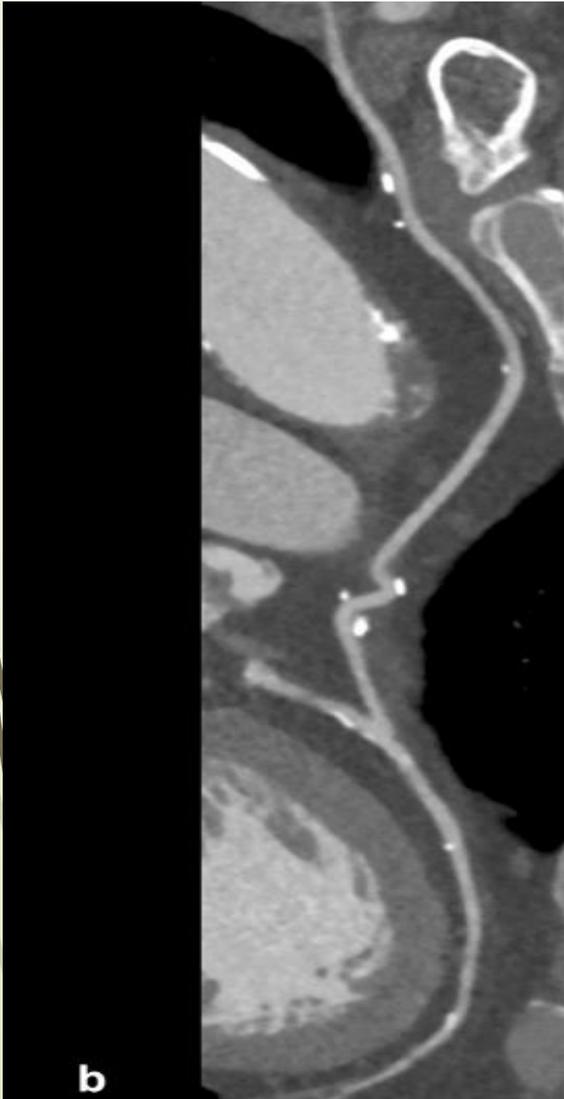
## CT koronarografie- svalový můstek



## CT koronarografie- anomálie.....



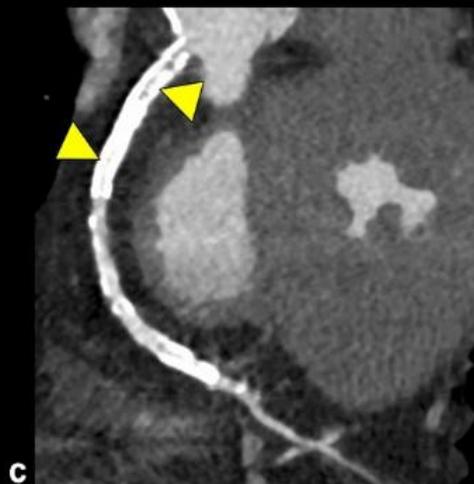
## CT koronarografie- bypassy



## CT koronarografie- artefakty, stenty, kalcifikace...



a



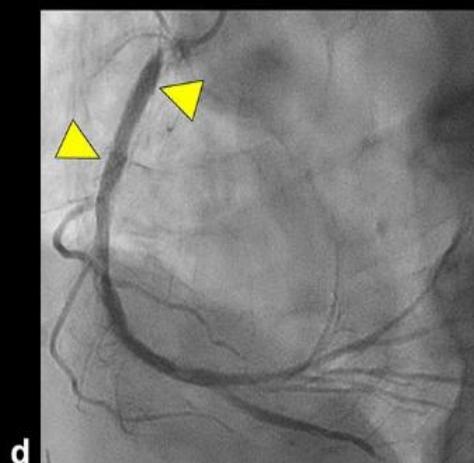
c



e



b



d



f



## CT koronarografie- výběr pacientů....

- Spolupráce
- Obezita
- Renální funkce
- Tepová frekvence- neurovnaná- FS, četné ES, možnost podání bradykardizující medikace....

## CT koronarografie- limitace...

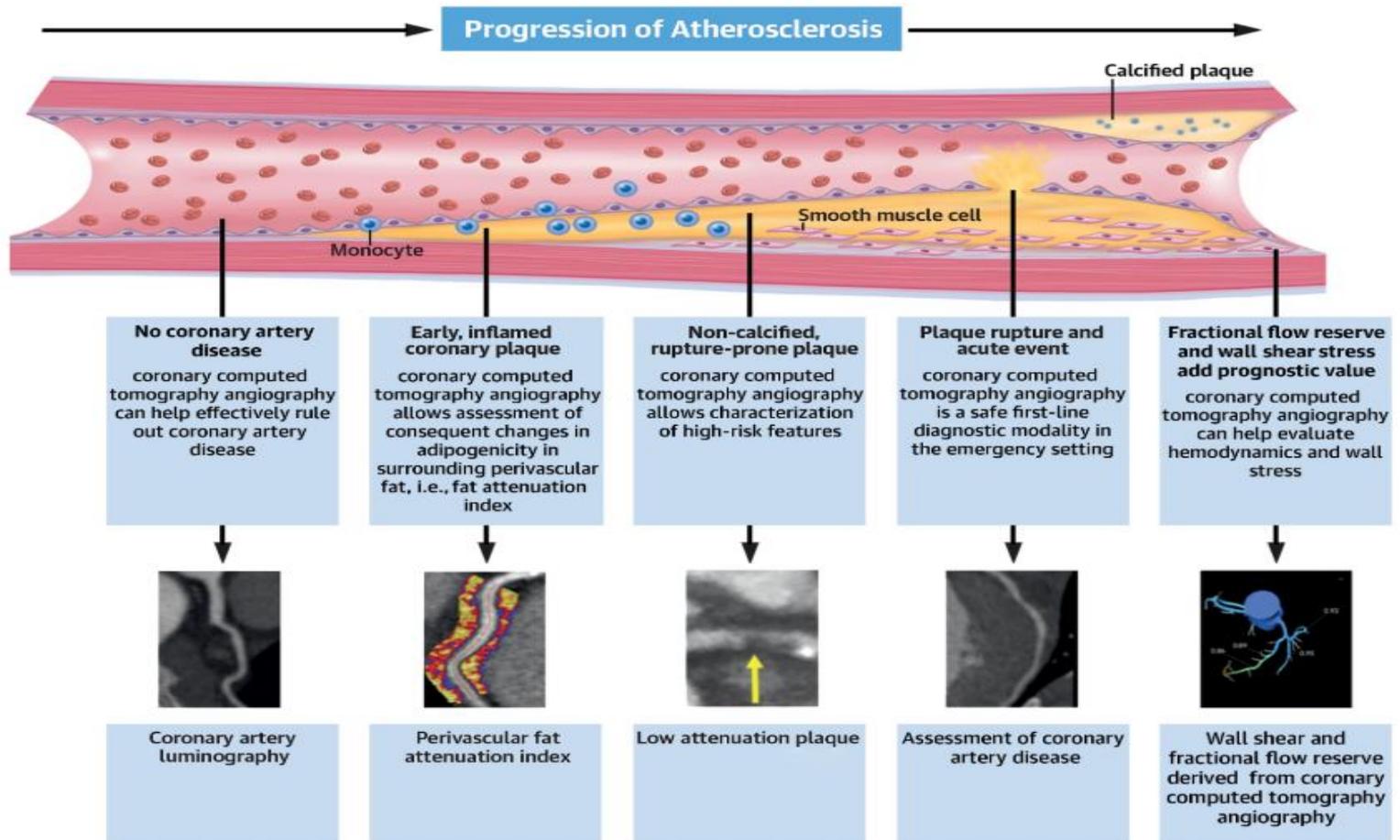
- masivní kalcifikace
- mnohočetné stenty
- zatím jenom možnost posouzení anatomie
- alergie na iodovou kontrastní látku
- ionizační záření ( mladé ženy)

Parameters	DSCTA (n = 406)	SSCTA (n = 233)	P value (95% CI)
Effective dose (mSv), mean ± SD	2.88 ± 0.85	7.15 ± 3.4	< 0.0001* (3.64–4.89)
Gender, (male,%)	24 (30.7)	9 (47.4)	0.14 (– 4.57 to 38.55)
Age (years), mean ± SD	65.5 ± 9.6	68.3 ± 10.2	0.06 (– 9.79 to – 0.60)
BMI (kg/m <sup>2</sup> ), mean ± SD	23.4 ± 3.6	22.9 ± 5.5	0.58 (– 2.3 to 1.32)

\*Statistically significant at the *p* value < 0.05

# CT koronarografie- budoucnost.....

## CENTRAL ILLUSTRATION: Utility of Coronary Computed Tomography Angiography in Coronary Artery Disease





Děkuji za pozornost.