Universitätsspital Basel

CRIB Cardiovascular Research Institute Basel

The patient with 30 min chest pain presenting at the ER two hours after onset of symptoms

Professor Christian Mueller

Disclosures

- **Swiss National Science Foundation**
-
  Schweizerische Herzstiftung
  Fondation Suisse de Cardiologie
  Fondazione Svizzera di Cardiologia
- University Hospital Basel

UNI BASEL

- Research support / travel support / consulting fees from several diagnostic and pharmaceutical companies

Patient case presentation #1

- **48 year** old gentleman
- Since **2 hours chest pain, «burning»,** duration > 30 minutes, VAS 9/10
- Transient radiation to both arms, 1st episode, concomitant slight **dyspnea**

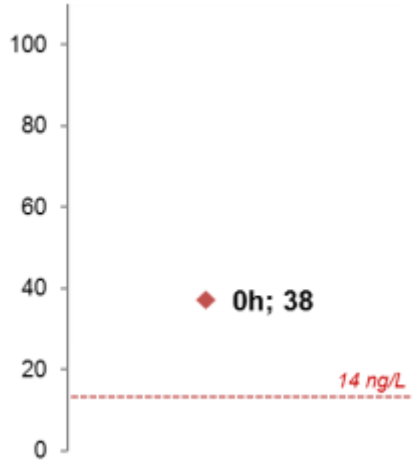
- **No medical history, no medication**
- **Risk factors**: heavy smoker, 60py
- **Hotel night manager**, married.

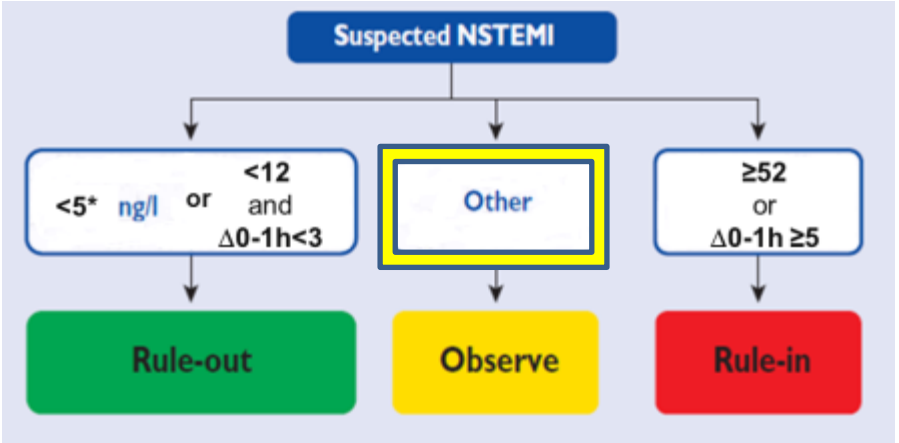
Patient case presentation #1

ECG at presentation

Patient case presentation #1

- **hs-cTnT Values**
  - 0h: 38ng/L





Patient case presentation #1

- **What would you do next?**

1. Monitor & 2nd hs-cTn at 3 hour
2. Monitor & 2nd hs-cTn at 1 hour
3. Go directly to cath lab
4. Coro-CT

Patient case presentation #1

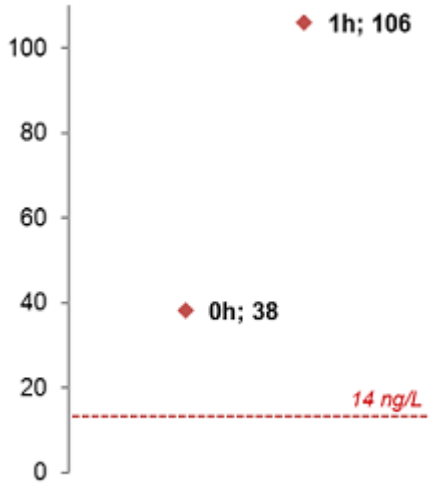
- **What would you do next?**

1. Monitor & 2nd hs-cTn at 3 hour
2. Monitor & 2nd hs-cTn at 1 hour
3. **Go directly to cath lab**
4. Coro-CT

Patient case presentation #1

Patient case presentation #1

- **hs-cTnT Values**
  - 0h: 38ng/L
  - 1h: 106 ng/L
  - 2h: 258 ng/L
  - 3h: 436 ng/L



Patient case presentation #1

- **Take home message #1**
  - Young patient, no previous history of CV disease
  - Typical chest pain for 2 hours
  - Baseline hs-cTnT = 3-times 99th percentile
    - **PPV about 90% for AMI**
    - Go directly to cath lab

Roffi M, et al. Eur Heart J 2016
Mueller C, et al. Eur Heart J Acute Cardiovasc Care 2016
Möckel M, et al. Eur Heart J Acute Cardiovasc Care 2016

Patient case presentation #2

- **76 year** old gentleman
- chest pain after lunch, constant **«pressure»** for 1.5 hours, VAS 7/10, slight intermittent radiation to the neck, no dyspnea
- complete pain relief after iv morphine 3mg

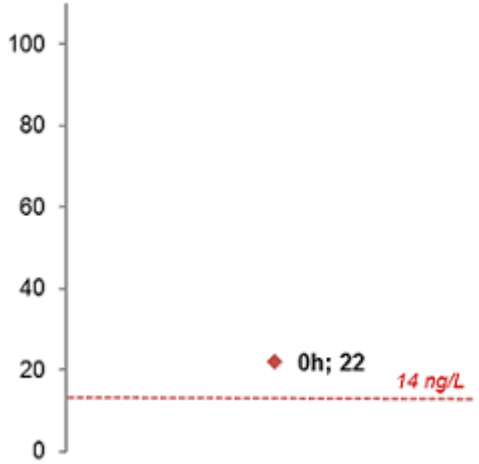
- In general **in good shape**, still working in car industry
- **Risk factors**: hypertension
- Medication: Alfuzosin (Alpha-1-Blocker)
- **Chronic renal impairment**
  - eGFR 46 ml/min (CKD-EPI)

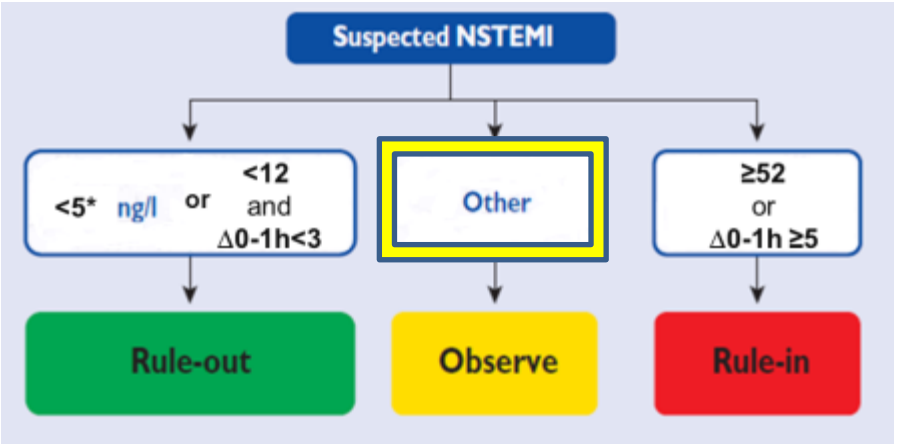
Patient case presentation #2

ECG at presentation

Patient case presentation #2

- **hs-cTnT Values**
  - 0h: 22 ng/L





Patient case presentation #2

- **What would you do next?**

1. Monitor & 2nd hs-cTn at 3 hour
2. Monitor & 2nd hs-cTn at 1 hour
3. Go directly to cath lab
4. Coro-CT

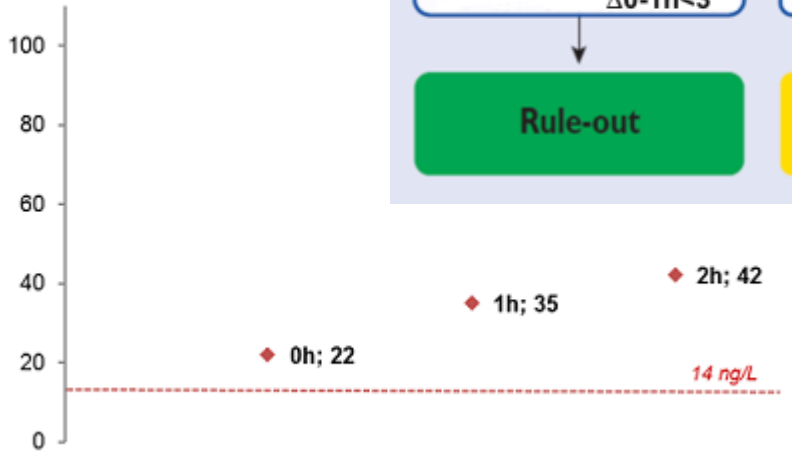
Patient case presentation #2

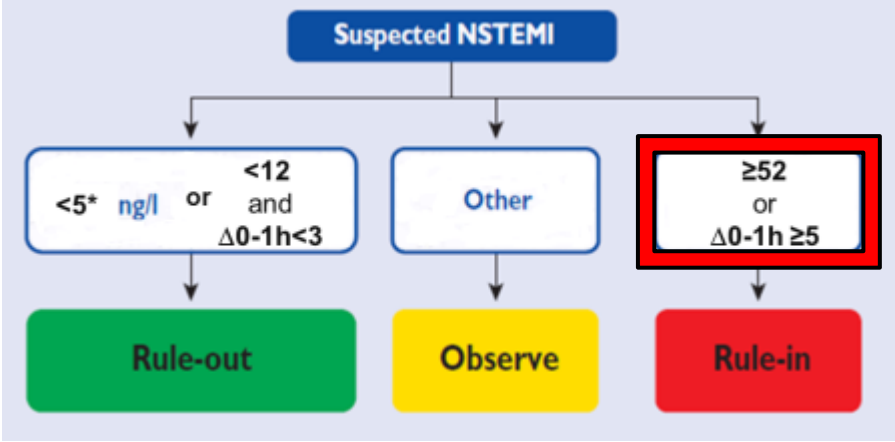
- **What would you do next?**

1. Monitor & 2nd hs-cTn at 3 hour
2. **Monitor & 2nd hs-cTn at 1 hour**
3. Go directly to cath lab
4. Coro-CT

Patient case presentation

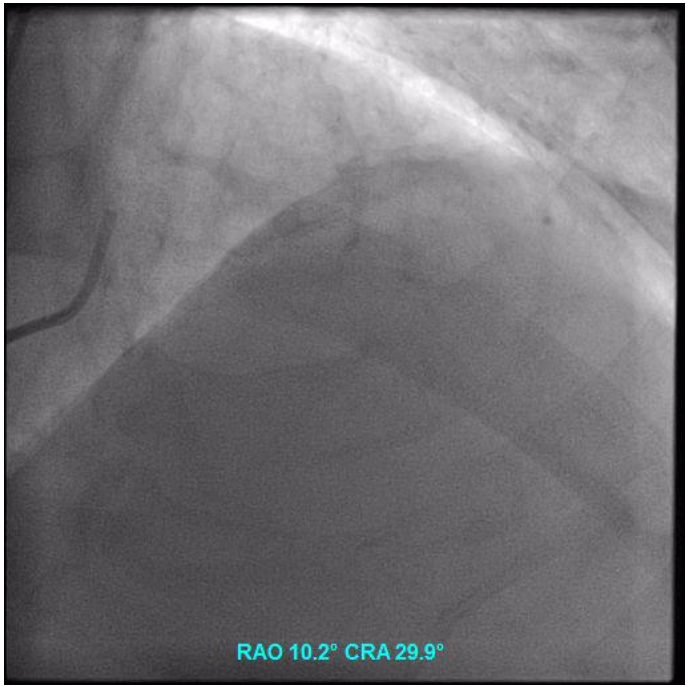
- **hs-cTnT Values**
  - 0h: 22 ng/L
  - 1h: 35 ng/L
  - 2h: 42 ng/L

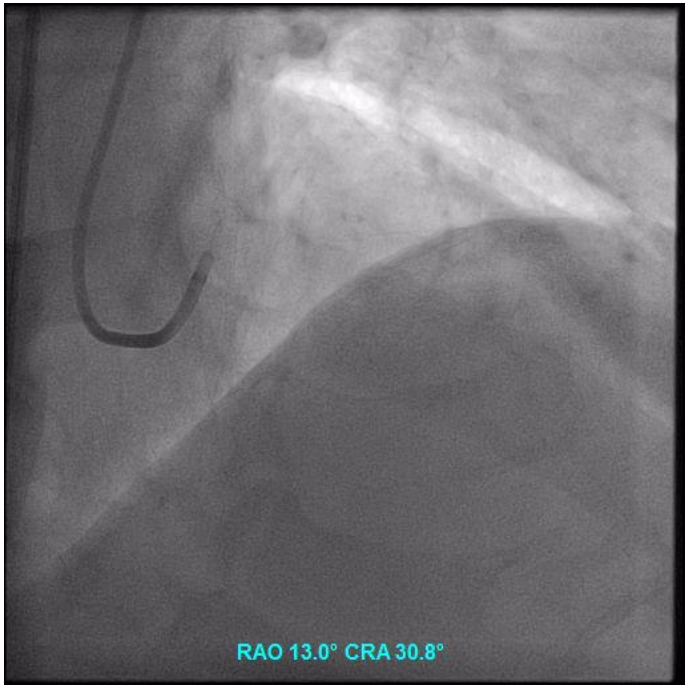




- CCU & Coronary Angiography

Patient case presentation #2





Patient case presentation #2

- **Take home message #2**
  - Older patient, possible cardiac comorbidities
  - Baseline hs-cTnT ≤ 2-times 99th percentile
    - **PPV about 60% for AMI**
  - 2nd hs-cTnT at 1 hour: Delta 7 ng/L
    - **PPV about 90% for AMI**

Roffi M, et al. Eur Heart J 2016
Mueller C, et al. Eur Heart J Acute Cardiovasc Care 2016
Möckel M, et al. Eur Heart J Acute Cardiovasc Care 2016

Patient case presentation #3

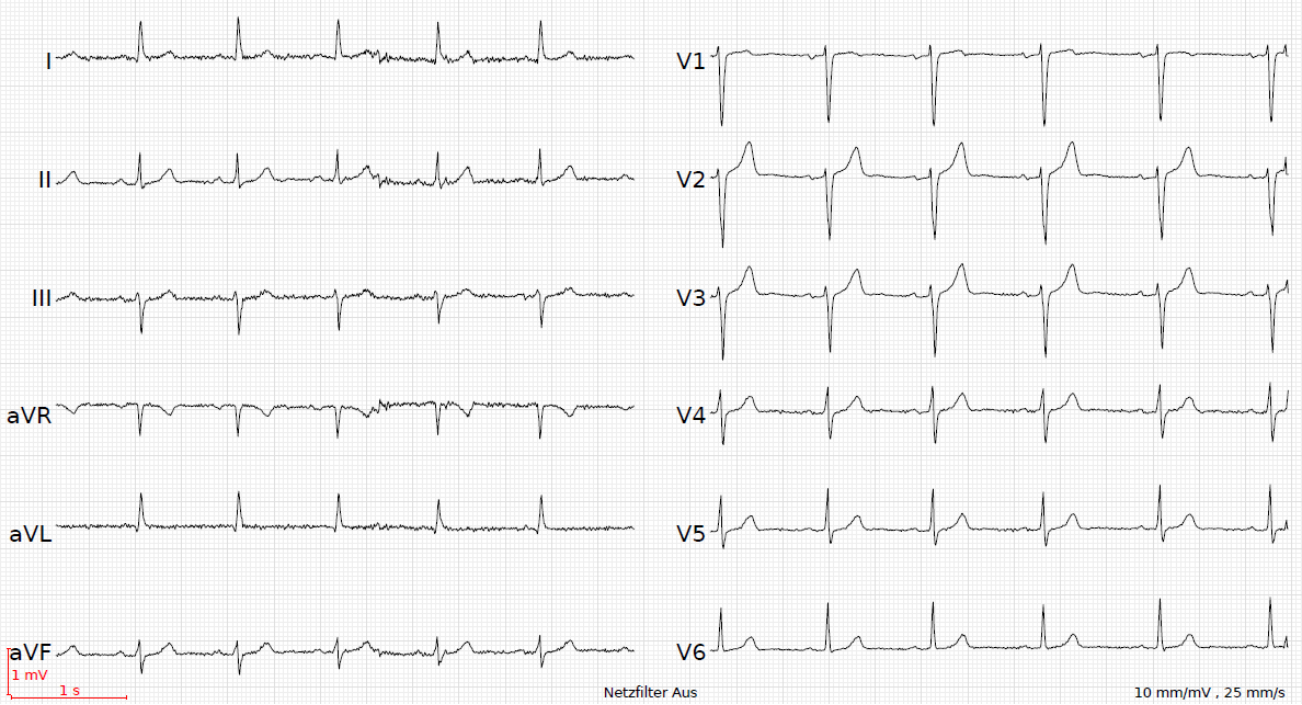
- **61 year** old gentleman,
- Since **2 hours chest pain, «pressure» ,** duration = 30 minutes, VAS 4/10
- Constant radiation to the left arm, relief of pain while lying down

- **Intermittent AF, PVI 4 years ago**, known mitral regurgitation
- **Risk factors**: history of smoking, hypercholesterolemia

- **Medication**: None

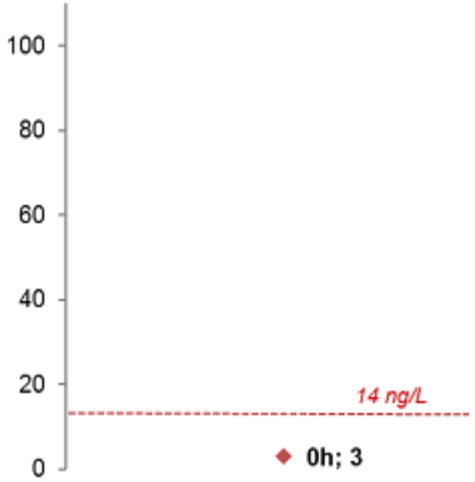
Patient case presentation #3

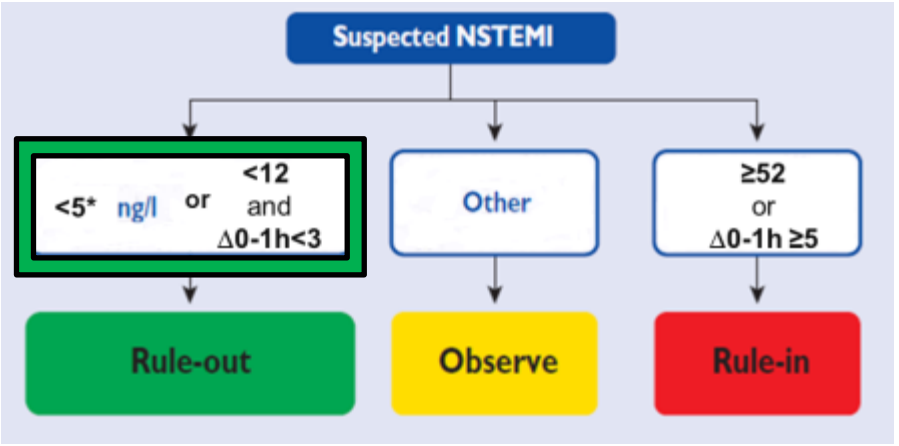
ECG at presentation



Patient case presentation #3

- **hs-cTnT Values**
  - 0h: 3 ng/L





Patient case presentation #3

- **What would you do next?**

1. Monitor & 2nd hs-cTn at 3 hour
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3. Go directly to cath lab
4. Coro-CT

Patient case presentation #3

- **What would you do next?**

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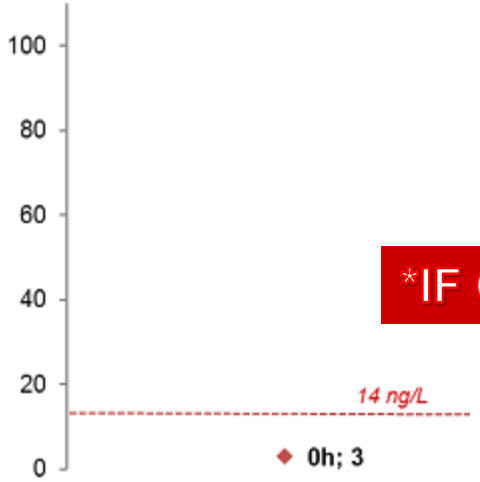
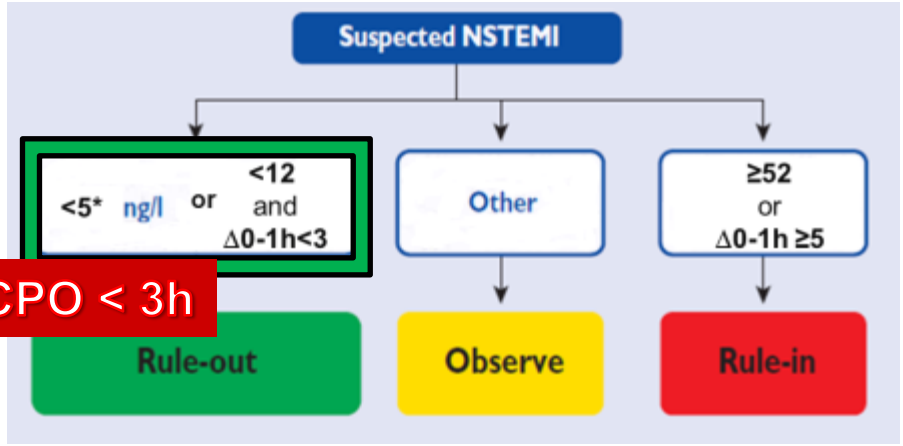
Patient case presentation #3

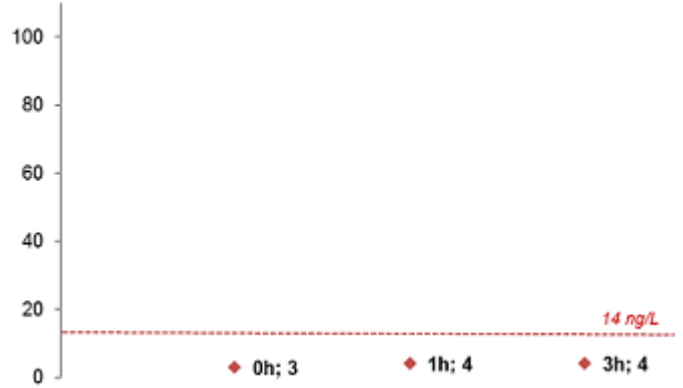
- **hs-cTnT Values**
  - 0h: 3 ng/L



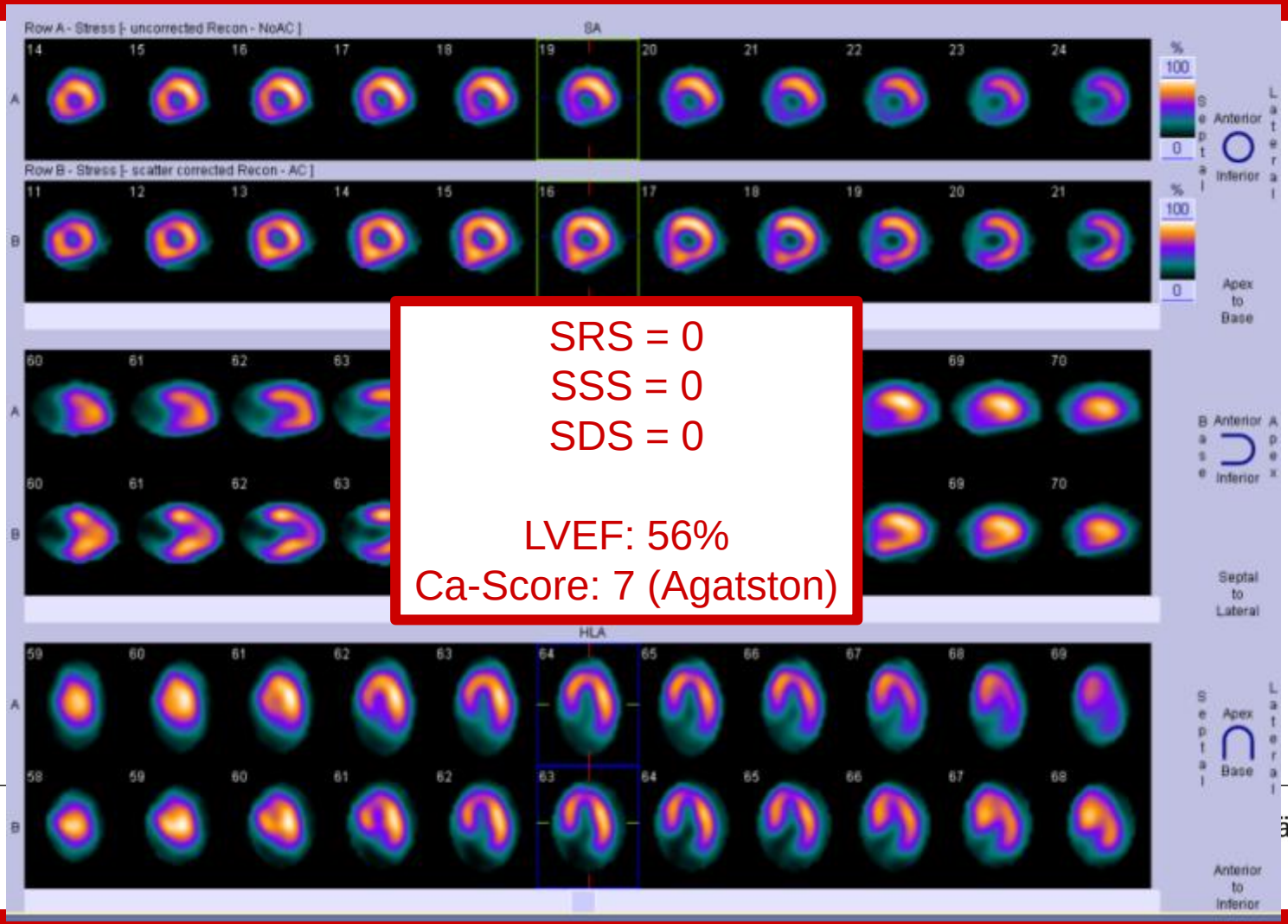


Patient case presentation #3

- **hs-cTnT Values**
  - 0h: 3 ng/L
  - 1h: 4 ng/L
  - 3h: 4 ng/L



- Patient discharged, 7 days later myocardial perfusion imaging (MPI)


Row A - Stress [- uncorrected Recon - NoAC]
SA
Row B - Stress [- scatter corrected Recon - AC]
SRS = 0
SSS = 0
SDS = 0
LVEF: 56%
Ca-Score: 7 (Agatston)
HLA
Anterior
Inferior
Septal
Lateral
Apex
Base
Apex to Base
Septal to Lateral
Anterior to Inferior

Patient case presentation #3

- **Take home message #3**
  - Baseline hs-cTnT ≤ 3 ng/L is very low
    - **PPV <5% for AMI**
  - Would allow immediate rule out if CPO ≥ 3 hour
  - **CPO is 2 hour, rule out at 1 hour**

Roffi M, et al. Eur Heart J 2016; Shah AS, et al; Lancet 2015
Mueller C, et al. Eur Heart J Acute Cardiovasc Care 2016
Möckel M, et al. Eur Heart J Acute Cardiovasc Care 2016