Was ist gesichert, was obsolet?
...bei der prähospitalen ACS-Therapie

Samstag, 13. Oktober 2018, 09:40-10:00 Uhr

Hannes Alber

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Anticoagulant and antiplatelet drugs used during and after myocardial revascularization (PCI or CABG).

Anticoagulant drugs:
- VKAs
- Apixaban
- Rivaroxaban
- Edoxaban
- Enoxaparin
- UFH
- Bivalirudin
- Dabigatran

Antiplatelet drugs:
- Aspirin
- DAPT
- Clopidogrel
- Prasugrel
- Ticagrelor
- Cangrelor
- Abciximab
- Eptifibatide
- Tirofiban

Platelet activation and clot formation:
- Tissue factor (tissue lesion) activates the coagulation cascade.
- Thrombin and Factor Xa activate platelets.
- Platelet glycoprotein IIb/IIIa receptor is activated.
- Clot-bound thrombin/FXa and soluble mediators (ADP, TxA₂) activate platelets.

Klasse I A/C-Empfehlungen bei STEMI, NSTE-ACS und sKHK

Neumann F-J, Sousa-Uva M et al. EHJ 2018; doi:10.1093/eurheartj/ehy394
Oxygen in MI

DETO2X–SWEDEHEART Trial,
Hofmann R et al., NEJM 2017

6,629 patients with suspected MI and an SO₂ ≥90% were randomized to receive either supplemental O₂ (6 liters/min for 6 to 12 hours) or ambient air.

AVOID Study,
Stub D et al., Circ. 2015

441 STEMI pts., SO2 not <94% 8 liters/min vs. ambient air
Early Intravenous Beta-Blockers in Patients With ST-Segment Elevation Myocardial Infarction Before Primary Percutaneous Coronary Intervention

Roolvink V et al., JACC 2016;67: 2705–15.)
RF = risk factors for shock:
age > 70yrs; RR < 120mmHg; HR > 110bpm; delay > 12h

Multivariate model:

BB before pPCI was associated with:

Shock: OR 1.40 (1.10-1.79),
Shock+Death: OR 1.30 (1.03-1.63),
but not Death: OR 1.21 (0.85-1.71)
STEMI: MONA Be Happy

**M** | morphin | -> | „**Titrated i.v. opioids should be considered**, aber verzögert APT-Resorption

**O** | oxygen | -> | nur bei SO2<90%, nicht routinemäßig

**N** | nitro | -> | „**no routine use**“

**A** | aspirin | -> | Ja: 75-250mg IV od. 150-300mg p.o.

**A** | DP-Rez.-Inh | -> | „**A potent P2Y12 inhibitor (prasugrel or ticagrelor), or clopidogrel if these are not available or are contraindicated, is recommended before (or at latest at the time of) PCI....“

**Be** | tablocker | -> | „**early administration of i.v. BB at the time of presentation followed by oral BB should be considered in haemodynamically stable patients undergoing pPCI.“

**Happy** | Heparin | -> | Ja: UFH (70IU/kg) od. Enoxaparin (0,5mg/kg IV)

STEMI GL 2017, Revasc.-GL 2018
Antithrombotic Treatment in ACS patients Undergoing PCI

**Treatment indication**
- NSTE-ACS
- STEMI

**DAPT (pre-) treatment**
- UFH
- Enox.
- Bival.

**AC for PCI**

**Time (months)**
- 1
- 3
- 6
- 12
- 30
- 36

**NSTE-ACS**

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**STEMI**

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**High Bleeding Risk**

- No
- Yes

**1 after DCB 6 months DAPT should be considered (IIa). 2 Clopidogrel if patient is not eligible for treatment with prasugrel or ticagrelor; or in a setting of DAPT de-escalation (class IIb). 3 Clopidogrel or Prasugrel if patient is not eligible for treatment with ticagrelor. 4 Pretreatment before PCI (or at latest at the time of PCI); clopidogrel if potent P2Y12 inhibitors are contraindicated or not available.**

EHJ 2018; doi:10.1093/eurheartj/ehy394
Antithrombotic Treatment in Patients Undergoing PCI

**Treatment indication**
- sCAD
- NSTE-ACS
- STEMI

**DAPT (pre-) treatment**
- A
- C
- T
- C
- A
- T
- P
- C

**NSTE-ACS – P2Y12i pretreatment**

For pre-treatment in patients with NSTE-ACS undergoing invasive management, ticagrelor administration (180 mg LD, 90 mg b.i.d.), or clopidogrel (600 mg LD, 75 mg daily) if ticagrelor is not an option, **should be considered as soon as the diagnosis is established.**

**EHJ 2018; doi:10.1093/eurheartj/ehy394**

1 after DCB 6 months DAPT should be considered (IIa). 2 Clopidogrel if patient is not eligible for treatment with prasugrel or ticagrelor; or in a setting of DAPT de-escalation (class IIb). 3 Clopidogrel or Prasugrel if patient is not eligible for treatment with ticagrelor. 4 Pretreatment before PCI (or at latest at the time of PCI); clopidogrel if potent P2Y12 inhibitors are contraindicated or not available.
Selection of NSTE-ACS treatment strategy and timing according to initial risk stratification

Invasive Evaluation in NSTE-ACS

**Very High-Risk**
- Haemodynamic instability/Cardiogenic shock
- Recurrent/Ongoing chest pain refractory to medical therapy
- Life-threatening arrhythmia or cardiac arrest
- Mechanical complication of MI
- Acute heart failure
- Recurrent dynamic ST-T wave changes\(^a\)

Immediate invasive (<2h)
IC

**High-Risk**
- Established diagnosis of NSTE-MI based on cardiac troponins
- Dynamic ST/T-changes (symptomatic or silent)
- GRACE score > 140

Early invasive (<24h)
IA

**Intermediate Risk**
- Diabetes mellitus
- Renal insufficiency\(^b\)
- LV-EF <40% or congestive heart failure
- Early post-infarction angina or prior PCI/CABG
- GRACE risk score >109 and <140 or recurrent symptoms/Ischaemia on non-invasive testing

Invasive (<72h)
IA

\(^a\) particularly intermittent ST-elevation; \(^b\) eGFR <60ml/min/1.73m\(^2\)); according to ESC NSTE-ACS 2015 guidelines

Neumann F-J, Sousa-Uva M et al. EHJ 2018; doi:10.1093/eurheartj/ehy394
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<th>Cangrelor recommendation in Myocardial Revascularization Guidelines 2018</th>
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CI: contraindication, MD: maintenance dose, LD: loading dose *CI for ticagrelor: previous ICH or ongoing bleeds. CI for prasugrel: previous ICH, ischaemic stroke or TIA or ongoing bleeds; prasugrel is generally not recommended for patients ≥75 years of age or with a bodyweight <60 kg.