Overview

• Definition of NIV and AHF
• NIV related changes in mortality
• NIV related patient benefits
• Clinical summary and cases
• NIV in AHF in Switzerland, a short questionnaire
Definition of NIV and AHF

AHF = gradual or rapid change in heart failure signs and symptoms resulting in a need for urgent therapy.

NIV = Administration of ventilatory support without using an invasive artificial airway. NIV includes CPAP and NPPV.

NIV adaptation

**Patient instruction**

Offline:
- Setup ventilator
- Capnography if hypercarbia

**Contraindications?**

- Definite NIV use
- Start CPAP
- Possible switch of therapy
Mechanical Ventilation in acute heart failure 2nd to myocardial infarction

8 years retrospective analysis
Inclusion: STEMI and NSTEMI, single center study

1610 Patients, 136 NIV, 157 ETI

More STEMI in ETI than NIV
Trend to higher Trop in ETI

Fig 1. Adjusted mortality curves by ventilation modality.

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The 3CPO trial

Multicenter UK Study
1:1:1 randomization

There may be no differences in survival

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NIV in ARF, acute response (1h)
Chr. Horvath et al, St. Gallen

A) 

B) 

C) 

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Overview

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Treatment recommendations


USE NIV FOR respiratory rate > 20/min (ESC)

Clinical Case

80 y o female
Normal weight non-smoker
Dyspnea, Denial of chest pain

Arrival via ambulance
Prefers to sit, but may lay back.

ECG: no specific signs of acute myocardial ischemia

eFAST: absence of pneumothorax, kerley B- lines

Nitro transdermal 20 mg, furosemide

NIV was considered

23.06.2016
Indications and contraindications against NIV in AHF

• **Symptomatic persistent AHF**
  - Persistent hypoxia
  - Hypercarbia
  - Tachypnea
  - Severe Dyspnea

• **Comorbidities**
  - GCS <10,
  - severe agitated person
  - GI (e.g. vomiting)
  - Pneumothorax
  - Metabolic acidosis / cause for dyspnea

• **Relative CI:**
  - hypotension,
  - facial abnormalities,
 Clinical Case

80 y o female
Normal weight non-smoker
Dyspnea, Denial of chest pain

Arrival via ambulance
Prefers to sit, but may lay back.

ECG: no specific signs of acute myocardial ischemia

eFAST: absence of pneumothorax, kerley B- lines

Nitro transdermal 20 mg, furosemide

Trop positive

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<tr>
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<tr>
<td>pCO2</td>
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<td>VAS</td>
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<tr>
<td>Support</td>
<td>-</td>
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</table>
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- **NIV in AHF in Switzerland, a short questionnaire**
Use of NIV on Swiss Eds
Bingisser / Rüdiger

Methods: formalized surveymonkey questionair to all educating Swiss EDs (2 Ti, 10 F, 55 G)
- use of NIV / CPAP
- usefulness
- resources involved
- Knowledge about current CHOP issues
Demographic differences in Switzerland

Responses:
- Swiss German
- Swiss Romand

NIV Use
- Swiss German
- Swiss Romand
### Value of NIV in AHF

<table>
<thead>
<tr>
<th>Statement</th>
<th>n</th>
<th>Totally agree</th>
<th>Agree</th>
<th>Indifferent</th>
<th>Not agreed</th>
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<tbody>
<tr>
<td>Cornerstone therapy</td>
<td>27</td>
<td>44%</td>
<td>41%</td>
<td>11%</td>
<td>4%</td>
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<tr>
<td>Important treatment option</td>
<td>24</td>
<td>54%</td>
<td>46%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Patients profit from NIV</td>
<td>26</td>
<td>46%</td>
<td>54%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>NIV needs considerable amount of resources</td>
<td>23</td>
<td>22%</td>
<td>22%</td>
<td>39%</td>
<td>39%</td>
</tr>
</tbody>
</table>

- **80-100% agreement**
- **44 versus 39%**
Do you know about CHOP 93.9E? (NIV outside ICU reimbursement)

80% are **unaware** that the CHOP code created to cover additional expenses of NIV outside of the Intensive Care Units / Intermediate Care Units.
Summary

Non-invasive ventilation in acute heart failure

• ... mostly symptomatic, time matters
• ... is a powerful but demanding tool
• ... Should be considered in short term persistant severe dyspnea, hypoxemia, hypercapnia
• ... appears to be better implemented by Swiss romands