La cardioversione nel paziente con fibrillazione atriale in Pronto Soccorso: Quali opzioni?
Atrial fibrillation (AF): facts

• Common (~ 1% general population)
• ↑ stroke × 5
• ↑ mortality × 2 ♀, × 1.5 ♂
• High costs, low QOL


• AC ↓ stroke to 1.5% + ↓ mortality
• No ↓ with rate control
Anticoagulation (AC) in cardioversion (CV)

• **AC recommended:** AF > 48 h / unknown
• **CV without AC:** common if AF < 48 h
• **AC recommend:** AF < 48 h + risk factors

- Recommendations based **mainly** on consensus
- **No** randomized trials are available...

Relationship between atrial tachyarrhythmias and symptoms

- 48 pts with history of AF + pacemaker (PM)
- PM-detected AF VS patient symptoms
- Follow-up 12 mths

**Clinically silent**
AF > 90%

**Symptoms PPV 17%**

CV of nonrheumatic AF. Reduced TE complications with 4 weeks of AC are related to atrial thrombus resolution.


TEE study
VKA ≥4 wks

Complete resolution 90%
CV for non-valvular AF: underestimated risk for thromboembolic complications?

X 3-6 symptomatic TE after ECV in pts on AVKA @ 30 days

New silent embolic lesions (MRI): ~ 5%

Predictors:
- Age
- Large left atrium

Klein HH. Dtsch MedWochenschr 2013;138:1309-11
What if no AC after CV of AF < 48 h?

<table>
<thead>
<tr>
<th>Author</th>
<th>n</th>
<th>% TE</th>
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<tbody>
<tr>
<td>Weigner et al. 1997</td>
<td>224</td>
<td>0.9</td>
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<tr>
<td>Michael et al. 1999</td>
<td>217</td>
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<td>Burton et al. 2005</td>
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<td>Gallagher et al. 2002</td>
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<td>Stiell et al. 2010</td>
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<tr>
<td>Xavier Scheuermeyer et al. 2010</td>
<td>104</td>
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</table>
Thromboembolic Complications After Cardioversion of Acute Atrial Fibrillation

The FinCV (Finnish CardioVersion) Study

3.143 pts
AF < 48 h

TE @ 30 days

No AC
before / after CV

Retrospective

Thromboembolic Complications After Cardioversion of Acute Atrial Fibrillation
The FinCV (Finnish CardioVersion) Study

TE rate 0.7%

Thromboembolic Complications After Cardioversion of Acute Atrial Fibrillation

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TE rate 0.7%

HF: TE 3.3%

No HF: TE 0.6%

Thromboembolic Complications After Cardioversion of Acute Atrial Fibrillation
The FinCV (Finnish CardioVersion) Study

TE rate 0.7%

HF: TE 3.3%

Diabetes: TE 9.8%

No diabetes: TE 1.4%

Thromboembolic Complications After Cardioversion of Acute Atrial Fibrillation
The FinCV (Finnish CardioVersion) Study

TE rate 0.7%

No HF: TE 0.6%

> 60 yrs: TE 1.0%

< 60 yrs: TE 0.2%

Thromboembolic Complications After Cardioversion of Acute Atrial Fibrillation

The FinCV (Finnish CardioVersion) Study

Thromboembolic risk in 16,274 atrial fibrillation patients undergoing direct current cardioversion with and without oral anticoagulant therapy

HR 2.2 (95% CI 1.4-3.5)

Thromboembolic risk in 16,274 atrial fibrillation patients undergoing direct current cardioversion with and without oral anticoagulant therapy

<table>
<thead>
<tr>
<th>Group</th>
<th>HR (95% CI)</th>
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<tr>
<td>No prior/no subsequent</td>
<td>2.47 (1.49–4.27)</td>
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<tr>
<td>No prior/with subsequent</td>
<td>0.97 (0.33–2.86)</td>
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<tr>
<td>With prior/no subsequent</td>
<td>0.78 (0.39–1.55)</td>
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<tr>
<td>With prior/with subsequent Reference</td>
<td>Reference</td>
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**CHA2DS2-VASc ≥2 HR 7**

DOACS
Post-hoc analysis of registrative trials
# Dabigatran Versus Warfarin in Patients With Atrial Fibrillation

An Analysis of Patients Undergoing Cardioversion

<table>
<thead>
<tr>
<th></th>
<th>D110</th>
<th>D150</th>
<th>Warfarin</th>
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<tbody>
<tr>
<td>Stroke/SE</td>
<td>0.8</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Major bleeding</td>
<td>1.7</td>
<td>0.6</td>
<td>0.6</td>
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<tr>
<td>Death</td>
<td>nr</td>
<td>nr</td>
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N = 1270

30-day outcome

mCHA2DS2-VASc: 2.1

Outcomes After Cardioversion and Atrial Fibrillation Ablation in Patients Treated With Rivaroxaban and Warfarin in the ROCKET AF Trial

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<thead>
<tr>
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<th>Rivaroxaban</th>
<th>Warfarin</th>
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<tbody>
<tr>
<td>Stroke/SE</td>
<td>1.9</td>
<td>1.9</td>
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<tr>
<td>MB+NMCORB</td>
<td>18.7</td>
<td>13.4</td>
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<tr>
<td>Death</td>
<td>1.9</td>
<td>3.7</td>
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</table>

N = 321

30-day outcome

mCHA2DS2-VASc: 3.5

## Efficacy and Safety of Apixaban in Patients After Cardioversion for Atrial Fibrillation
Inights From the ARISTOTLE Trial

<table>
<thead>
<tr>
<th></th>
<th>Apixaban</th>
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<tbody>
<tr>
<td>Stroke/SE</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Major bleeding</td>
<td>0.3</td>
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<tr>
<td>Death</td>
<td>0.6</td>
<td>0.5</td>
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</table>

N = 540 

30-day outcome

mCHa2DS2-VASc: 2.1

Cardioversion of Atrial Fibrillation in ENGAGE AF-TIMI 48

<table>
<thead>
<tr>
<th></th>
<th>E60</th>
<th>E30</th>
<th>Warfarin</th>
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</thead>
<tbody>
<tr>
<td>Stroke/SE</td>
<td>0</td>
<td>1.8</td>
<td>0</td>
</tr>
<tr>
<td>Major bleeding</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Death</td>
<td>0.7</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

N = 365  30-day outcome

mCHA2DS2-VASc: 2.1

DOACS
Ad-hoc trials
Rivaroxaban vs. vitamin K antagonists for cardioversion in atrial fibrillation

- $n = 1504$, NVAF > 48 h
- Randomized 2:1
- Early (1-5 d) vs delayed (3-8 wks) CV
- CHA2DS2-VASc $\geq 2$: 64%

ECV “on time” 77% vs 36%

Edoxaban versus enoxaparin–warfarin in patients undergoing cardioversion of atrial fibrillation (ENSURE-AF) a randomised, open-label, phase 3b trial

• $n = 2199$, NVAF $> 48$ h
• Randomized 1:1
• TEE vs standard CV (enoxaparin + warfarin)
• mCHA2DS2-VASc: 2.6

ECV “on time”
No difference

Apixaban compared to heparin/vitamin K antagonist in patients with atrial fibrillation scheduled for cardioversion: the EMANATE trial

- $n = 1500$, NVAF $> 48$ h
- Randomized 1:1
- Loading dose vs standard
- mCHA2DS2-VASc: 2.4

If loading dose CV $-22.3$ days

Bottom line

• FA → CV: AC importante!
• Durata: <48 vs > 48 h
• DOAC sovrapponibili a VKA
  • Efficacia
  • Sicurezza (ma ↓ eventi emorragici)
  • QOL
La cardioversione nel paziente con fibrillazione atriale in Pronto Soccorso: quali opzioni?

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