2010 ESC Guidelines: Atrial fibrillation

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My task

- To briefly highlight the main messages derived from the new 2010 ESC Guidelines for Atrial Fibrillation.
New ESC Guidelines for AF

- New data derived from recent clinical trials necessitate the update of the previous ESC atrial fibrillation Guidelines published in 2006.
- The new Guidelines represent a comprehensive document which concerns not only cardiologists but all physicians interested in the field.
There are a number of important main features that distinguish this Guidelines document from its predecessor.

First of all, based on the presentation and duration of the arrhythmia, five types of AF are clinically distinguished: first diagnosed, paroxysmal, persistent, long-standing persistent and permanent AF.
Concerning the initial management, it is stated that the clinical evaluation should include:

- A determination of the EHRA score of AF-related symptoms,
- an estimation of stroke-bleeding risk,
- and a check for conditions that predispose to AF and for complications of the arrhythmia.
## Symptom Score

<table>
<thead>
<tr>
<th>EHRA class</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHRA I</td>
<td>‘No symptoms’</td>
</tr>
<tr>
<td>EHRA II</td>
<td>‘Mild symptoms’; normal daily activity not affected</td>
</tr>
<tr>
<td>EHRA III</td>
<td>‘Severe symptoms’; normal daily activity affected</td>
</tr>
<tr>
<td>EHRA IV</td>
<td>‘Disabling symptoms’; normal daily activity discontinued</td>
</tr>
</tbody>
</table>
Antithrombotic Treatment

- The most important addition regarding antithrombotic treatment is the recommendation to use the CHA2DS2-VASc scoring system in patients with a CHADS2 score of 0-1.
- Specifically, the CHADS2 stroke risk stratification scheme is recommended as a simple means of assessing stroke risk, particularly suited to primary care doctors and non-specialists.
- In patients with a CHADS2 score of $\geq 2$, chronic OAC therapy is recommended, unless contraindicated. Where a more detailed stroke risk assessment is indicated, it is recommended to use the CHA2DS2-VASc score.
### New risk stratification scheme

**CHADS<sub>2</sub>**
- Congestive Heart Failure 1
- Hypertension 1
- Age > 75 years 1
- Diabetes Mellitus 1
- Prior Stroke or TIA 2

**CHA<sub>2</sub>DS<sub>2</sub>-VAS<sub>C</sub>**

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestive heart failure/LV dysfunction</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1</td>
</tr>
<tr>
<td>Age ≥ 75</td>
<td>2</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1</td>
</tr>
<tr>
<td>Stroke/TIA/TE</td>
<td>2</td>
</tr>
<tr>
<td>Vascular disease [prior myocardial infarcti]</td>
<td>1</td>
</tr>
<tr>
<td>Peripheral artery disease, aortic plaque</td>
<td></td>
</tr>
<tr>
<td>Age 65–74</td>
<td>1</td>
</tr>
<tr>
<td>Sex category [ie Female gender]</td>
<td>1</td>
</tr>
</tbody>
</table>

*Age gradation and vascular disease are parts of the risk score*
Approach to thromboprophylaxis in patients with AF

<table>
<thead>
<tr>
<th>Risk category</th>
<th>CHA$_2$DS$_2$-VASc score</th>
<th>Recommended antithrombotic therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>One ‘major’ risk factor or ≥2 ‘clinically relevant non-major’ risk factors</td>
<td>≥ 2</td>
<td>OAC$^a$</td>
</tr>
<tr>
<td>One ‘clinically relevant non-major’ risk factor</td>
<td>1</td>
<td>Either OAC$^a$ or aspirin 75–325 mg daily. Preferred: OAC rather than aspirin.</td>
</tr>
<tr>
<td>No risk factors</td>
<td>0</td>
<td>Either aspirin 75–325 mg daily or no antithrombotic therapy. Preferred: no antithrombotic therapy rather than aspirin.</td>
</tr>
</tbody>
</table>
Approach to thromboprophylaxis in patients with AF

1. **CHADS² score ≥2**: If yes, proceed with OAC. If no, consider other risk factors.

   - **Age ≥75 years**: If yes, proceed with OAC. If no, consider other risk factors.

   - **≥2 other risk factors**: If yes, proceed with OAC. If no, consider other risk factors.

     - **1 other risk factor**: If yes, proceed with OAC (or aspirin). If no, proceed with Nothing (or aspirin).

   - **No other risk factors**:
     - Yes: Proceed with OAC (or aspirin).
     - No: Proceed with Nothing (or aspirin).

*Congestive heart failure, Hypertension, Age ≥75 years, Diabetes, Stroke/TIA/thrombo-embolism (doubled).

*Other clinically relevant non-major risk factors: age 65–74, female sex, vascular disease.
Approach to thromboprophylaxis in patients with AF

- New OAC drugs, which may be viable alternatives to a VKA, may ultimately be considered.

- For example, should both doses of dabigatran etexilate receive regulatory approval for stroke prevention in AF, dabigatran may be considered, as an alternative to adjusted dose VKA therapy.
Bleeding Risk Assessment

- The Guidelines also highlight the importance of bleeding risk assessment prior to the initiation of anticoagulation.

- For this reason the HAS-BLED bleeding risk score is recommended and a score of ≥3 is considered indicative of ‘high risk’, patients who require caution and regular review following the initiation of antithrombotic therapy.
HAS-BLED bleeding risk score

<table>
<thead>
<tr>
<th>Letter</th>
<th>Clinical characteristic</th>
<th>Points awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>Hypertension</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>Abnormal renal and liver function (1 point each)</td>
<td>1 or 2</td>
</tr>
<tr>
<td>S</td>
<td>Stroke</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>Bleeding</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>Labile INRs</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Elderly (e.g. age &gt;65 years)</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>Drugs or alcohol (1 point each)</td>
<td>1 or 2</td>
</tr>
</tbody>
</table>

Maximum 9 points
Another important issue covered in the Guidelines is the choice of antiarrhythmic therapy for recurrent AF.

The main motivation to initiate rhythm control therapy is relief of AF-related symptoms.

Conversely, asymptomatic patients (or those who become asymptomatic with adequate rate control therapy) should not generally receive antiarrhythmic drugs.

Camm et al. ESC AF guidelines 2010 Eur Heart J 2010
The following illustrates principles of antiarrhythmic drug therapy to maintain sinus rhythm in AF:

- Efficacy of antiarrhythmic drugs to maintain sinus rhythm is modest.
- Clinically successful antiarrhythmic drug therapy may reduce rather than eliminate recurrence of AF.
- If one antiarrhythmic drug ‘fails’, a clinically acceptable response may be achieved with another agent.
- Drug-induced proarrhythmia or extra-cardiac side effects are frequent.
- Safety rather than efficacy considerations should primarily guide the choice of antiarrhythmic agent.

Camm et al. ESC AF guidelines 2010 Eur Heart J 2010
In new ESC guidelines the recommendations are on the basis of choosing safer, although possibly less efficacious medication prior to resorting to more effective but less safe therapy.

The completion of a number of important clinical trials with dronedarone made it possible to include for the first time in the AF Guidelines the recommendations for the appropriate use of this drug in AF.

Camm et al. ESC AF guidelines 2010 Eur Heart J 2010
Choice of antiarrhythmic drug according to underlying pathology

**Minimal or no heart disease**

- ? Prevention of remodelling
- ACFI/ARB/statin
- β blockade where appropriate

**Significant underlying heart disease**

- Treatment of underlying condition and ? prevention/reversal of remodelling - ACFI/ARB/statin
- β blockade where appropriate

**HT**

- No LVH
  - Dronedarone / Flecaïnide / Propafenone / Sotalol
  - Amiodarone

**LVH**

- Dronedarone

**CAD**

- Dronedarone
  - Sotalol
  - Amiodarone

**CHF**

- Stable NYHA I/II
- NYHA III/IV or unstable NYHA II
  - Dronedarone
  - Amiodarone
## Choice of Antiarrhythmic Therapy

Amiodarone is more effective in maintaining sinus rhythm than sotalol, propafenone, flecainide (by analogy), or dronedarone (LoE A), but because of its toxicity profile should generally be used when other agents have failed or are contraindicated (LoE C).

<table>
<thead>
<tr>
<th>I</th>
<th>A</th>
<th>C</th>
<th>IIa</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>In patients with severe heart failure, NYHA class III and IV or recently unstable (decompensation within the prior month) NYHA class II, amiodarone should be the drug of choice.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dronedarone should be considered in order to reduce cardiovascular hospitalizations in patients with non-permanent AF and cardiovascular risk factors.

<table>
<thead>
<tr>
<th>I</th>
<th>B</th>
<th>III</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dronedarone is not recommended for treatment of AF in patients with NYHA class III and IV, or with recently unstable (decompensation within the prior month) NYHA class II heart failure.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Experimental and clinical investigations that elucidate the molecular mechanisms of atrial remodeling have shown that:

- ACE inhibitors and ARBs
- Statins
- Low dose steroids
- N-3 polyunsaturated fatty acids (PUFAs)

May have a beneficial effect to prevent AF.
## Recommendations for primary prevention of AF with “upstream’ therapy”

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class(^a)</th>
<th>Level(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEIs and ARBs should be considered for prevention of new-onset AF in patients with heart failure and reduced ejection fraction.</td>
<td>Ila</td>
<td>A</td>
</tr>
<tr>
<td>ACEIs and ARBs should be considered for prevention of new-onset AF in patients with hypertension, particularly with left ventricular hypertrophy.</td>
<td>Ila</td>
<td>B</td>
</tr>
<tr>
<td>Statins should be considered for prevention of new-onset AF after coronary artery bypass grafting, isolated or in combination with valvular interventions.</td>
<td>Ila</td>
<td>B</td>
</tr>
</tbody>
</table>

\(^a\)Class of recommendation (I: strong; II: weak)  
\(^b\)Level of evidence (A: high; B: moderate; C: low)  

Camm et al. ESC AF guidelines 2010 Eur Heart J 2010
# Recommendations for left atrial ablation

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ablation of common atrial flutter is recommended as part of an AF ablation procedure if documented prior to the ablation procedure or occurring during the AF ablation.</td>
<td>I</td>
<td>B</td>
</tr>
<tr>
<td>Catheter ablation for paroxysmal AF should be considered in symptomatic patients who have previously failed a trial of antiarrhythmic medication.</td>
<td>IIa</td>
<td>A</td>
</tr>
<tr>
<td>Ablation of persistent symptomatic AF that is refractory to antiarrhythmic therapy should be considered a treatment option.</td>
<td>IIa</td>
<td>B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter ablation of AF in patients with heart failure may be considered when antiarrhythmic medication, including amiodarone, fails to control symptoms.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>Catheter ablation of AF may be considered prior to antiarrhythmic drug therapy in symptomatic patients despite adequate rate control with paroxysmal symptomatic AF and no significant underlying heart disease.</td>
<td>IIb</td>
<td>B</td>
</tr>
</tbody>
</table>
Choice between ablation and AAD for patients with and without structural heart disease

Relevant underlying heart disease

- CHF
  - NYHA III/IV or unstable NYHA II
  - Dronedarone
  - Amiodarone
- CAD
  - Stable NYHA I/II
  - Dronedarone Sotalol
  - Catheter ablation for AF
- Hypertension with LVH
  - Dronedarone
  - Catheter ablation for AF

No or minimal heart disease (including HT without LVH)

- Paroxysmal AF
  - Dronedarone
  - Catheter ablation for AF
- Persistent AF
  - Dronedarone
  - Flecaïnidé
  - Propafenone
  - Sotalol
  - Amiodarone
Conclusions

- There has been no marked progress in the pharmaceutical cure of AF. Dronedarone seems to be effective in AF patients with mild or no HF.

- Although the evolving techniques of ablation are maturing and seem to be promising, they are not yet recognized as a first line treatment.

- Could an early initiation of rhythm control therapy (drugs, ablation, and “upstream therapy”) result in a slower progression of AF and can, in the long term, AF-related complications be prevented by such a therapy?
Conclusions

- The ESC has as a strategic priority, not only the production of high-quality guidelines, but also their correct implementation.

- The national societies have shown interest and understanding with regard to the need for implementation.

- What is needed is systematic and organised collaboration between national societies and the ESC and an assessment of the results on an annual basis.