Atrial Fibrillation in the Athlete

Dr. David Solomon

- Atrioventricular block
- Premature atrial contractions
- Premature ventricular contractions
- Ventricular tachycardia
- Acute myocardial infarction
- Cardiac arrest

Electrocardiogram:

- Abnormal QRS complexes
- ST segment elevation
- T wave inversion

The ECG shows atrial fibrillation with wide QRS complexes.
Several studies have reported a significant increase in incidence, prevalence, and relative risk of AF in athletes versus the general population.

Atrial fibrillation (AF) is the most common cardiac arrhythmia in athletes.

Same studies have demonstrated that athletes who engage in endurance sports such as runners, cyclists, and skiers are more prone to AF than other athletes.
When an athlete reports palpitations it is important to exclude underlying structural heart disease.

- Arrhythmogenic right ventricular dysplasia (ARVD)
- Hypertrophic cardiomyopathy (HCM)
- Brugada Syndrome, LONG QT, SHORT QT
- Wolff-Parkinson-White syndrome or concealed atrioventricular bypass tracts.
**Why It’s a problem**

- The quality of life and exercise capacity are impaired in patients with AF
  - In a study by Hoogsteen, 60% of the athletes had moderate or severe symptoms from AF and required termination of all sporting activities
  - Furlanello et al. documented a significantly reduced maximal effort capacity in athletes with AF of 176 ± 21 W compared with 207 ± 43 W in athletes without AF
- Treating athletes who have AF may be more challenging than treating the general population

**Management**

- Rate control (β-blockers, CCB and digoxin) in athletes may prove challenging due to decreased medication efficacy and poorly tolerated adverse effects
- 1C antiarrhythmic agents such as flecainide or propafenone are recommended as initial antiarrhythmic therapy because these drugs generally are tolerated well and carry relatively little risk of toxicity
- For patients with symptomatic recurrent AF that occurs monthly to yearly, an as-needed or “pill-in-the-pocket”
- The use of amiodarone is not advised because of the young age of the athletes and the long-term toxicity of amiodarone

**Mardy Fish: Left Tennis Because of Atrial Fibrillation**

“I was completely panicking. I thought I was going to die.”

**Management**

- Anticoagulation recommendations for AF in the athlete are the same as in the nonathlete and are based on the risk of thromboembolism (CHA$_2$DS$_2$-VASc score)
Management

- Catheter ablation may be a better treatment option for athletes with atrial fibrillation than antiarrhythmic drugs (AADs)

### Risk Factors

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Score</th>
<th>CHA2DS2-VASc score</th>
<th>Stroke Risk per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestive Heart Failure/LV dysfunction</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>Age ≥ 75 years</td>
<td>2</td>
<td>2</td>
<td>2.2%</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>1</td>
<td>3</td>
<td>3.2%</td>
</tr>
<tr>
<td>Stroke/TIA/Thromboembolism</td>
<td>2</td>
<td>4</td>
<td>4.0%</td>
</tr>
<tr>
<td>Vascular Disease</td>
<td>1</td>
<td>5</td>
<td>6.7%</td>
</tr>
<tr>
<td>Age 65 – 74</td>
<td>1</td>
<td>6</td>
<td>9.8%</td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
<td>7</td>
<td>9.6%</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>9</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

**36th Bethesda Conference Eligibility Recommendations**

1. Athletes with asymptomatic AF in the absence of structural heart disease who maintain a ventricular rate that increases and slows appropriately and is comparable with that of a normal sinus response in relation to the level of activity, while receiving no therapy or therapy with AV nodal-blocking drugs, can participate in all competitive sports. Note that the use of β-blockers is prohibited in some competitive sports (namely, rifle).

2. Athletes who have AF in the presence of structural heart disease who maintain a ventricular rate comparable with that of an appropriate sinus tachycardia during physical activity while receiving no therapy or therapy with AV nodal-blocking drugs can participate in sports consistent with the limitations of the structural heart disease.

3. Athletes who require anticoagulation should not participate in sports with danger of bodily collision.

4. Athletes without structural heart disease who have elimination of AF by an ablation technique, including surgery, may participate in all competitive sports after 4 to 6 wk without a recurrence or after an electrophysiologic study has confirmed noninducibility (20).

**ESC Recommendations**

1. When a “pill-in-the-pocket” approach with sodium channel blockers is used, sport cessation should be considered for as long as the arrhythmia persists and until 1 to 2 half-lives of the antiarrhythmic drug used have elapsed. Class IIa level C evidence.

2. Isthmus ablation should be considered in competitive or leisure-time athletes with documented atrial flutter, especially when therapy with flecainide or propafenone is intended. Class IIa level C evidence.

3. Where appropriate, AF ablation should be considered to prevent recurrent AF in athletes. Class IIa level C evidence.

4. When a specific cause for AF is identified in an athlete (such as hyperthyroidism), it is not recommended to continue participation in competitive or leisure-time sports until correction of the cause. Class III level C evidence.

5. It is not recommended to allow physical sports activity when symptoms due to hemodynamic impairment (such as dizziness) are present. Class III level C evidence (5).

AV, atrioventricular.
המילון שלובו צירבה
לפלוגיה שבורה צירבה של פוטון פורוציאים (PVAI)
ממור בברבר סים, אסימטומתי.