Section of Sports Cardiology

-ongoing science projects

Open lunch meeting- Europrevent
Stockholm 090509

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KU Leuven

1.Registry on ICD in Sports
Rationale & Concept

- Current recommendations on sports participation with ICD[1-4]
  - based on minimal data
- Preliminary data[5]
  - a wide variety of physician recommendations to ICD patients
- A Multicenter, Investigator-initiated, Registry
  - US initiated (Jan 2008)
    - Steering Committee: Lampert, Cannom, Olshansky, Lawless, Saarel
  - European extension (Jul 2008)
    - European Coordinator: Hein Heidbuchel (University of Leuven, Belgium)
    - Endorsed by:
      - EACPR Section on Sports Cardiology
      - EHRA Scientific Initiative Committee

1. Pelliccia et al, Eur Heart J 2005; 2. Maron, Zipes et al, JACC 2005; 3-4. Heidbüchel et al, EJCPR 2006; 5. Lampert et al, JCE 2006

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Registry on ICD in Sports
Research Plan

- Study Population
  - ICD patients, 10-60y: 880 worldwide, 150 in Europe
  - who, with or without the approval of their primary physicians, have made the decision to participate
    1. any level of competition in sports more vigorous than bowling or walking (ie, > IA) at, or
    2. in potentially dangerous sports (eg, skiing, surfing), or
    3. in vigorous recreational sports ('auto-competitive'), i.e. ≥3h/w with the aim to improve their personal achievements

- Primary endpoints:
  - tachyarrhythmic death or externally resuscitated arrest
  - significant injury due to syncopal arrhythmia or shock.

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Registry on ICD in Sports
Centers EU

- Recruiting:

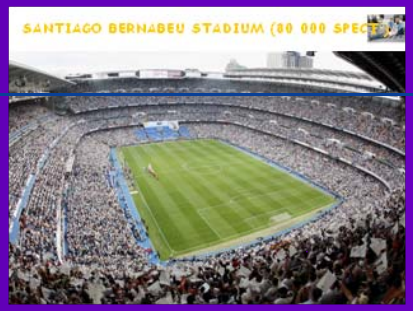
  Leuven, BE (Heidbuchel)
  Brussels, BE (Brugada)
  Antwerp, BE (Huybrechts)
  Aalst, BE (Geelen)
  Leipzig, GE (Wetzel)
  Madrid, ES (Lozano)
  Barcelona, ES (Mont)
  Rotterdam, NL (Jordaens)

- March 30, 2009: n=18

- In progress:

  Magdeburg, GE (Götte)
  Frankfurt, GE (Israel/Hohnloser)
  München, GE (Hoffmann)
  Rome, IT (Tondo)
  Mestre/Venice, IT (Giada)
  Conegliano, IT (Delise)
  Rome, IT (Calo)
  Oslo, NO (Solberg)
  Oslo, NO (Anfinsen)
  Trondheim, NO (Hegrenes)
  Saint-Denis, FR (Piot)
  Rennes, FR (Carré)
  Toulouse, FR (Boveda)
  (Rasmussen)
  Tel Aviv, IS (Yahalom)
  Maastricht, NL (Broers/Opstal)
  Leiden, NL (Schalij)
  Arlon, BE (Mairesse)
  Zurich, CH (Duru)
  Lodz, PO (Chudzik)
  Southampton, UK (Morgan)
  Uppsala, SE (Blomström)
  Valencia, ES (Quesada)
  Barcelona, ES (Moya)
  Bratislava, SK (Hatala)
  Prague, CZ (Kautzner)
  Copenhagen, DK

2. Arena Study- Background



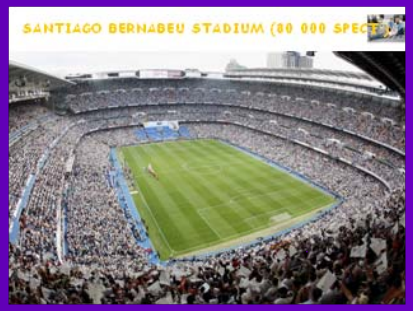
• No existing European recommendations on acute cardiavascular care at sports events

•Presumed highly different situation across Europe regarding arena safety

•Primary aim: To study current situation for Cardiovascular care at top European clubs/arenas
•Secondary aim: Approximate the incidence of SCA in one season in Europe

•Method: survey of top European clubs (venues)

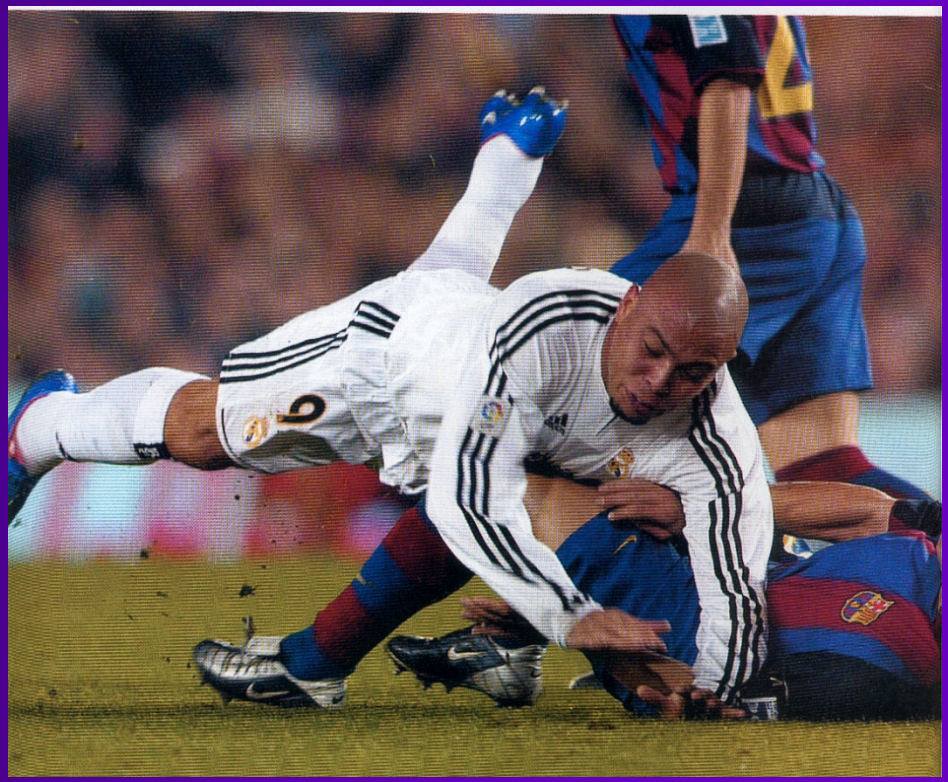
Survey questions



- Medical action plans available? Written form?
- Equipment: Defibrillators available?
- Treatment facilities?
- Communication systems?
- Transportation, distance to nearest hospital
- Personnel, training
- No of cardiac arrest at arena in 1 year (no of spectators known)

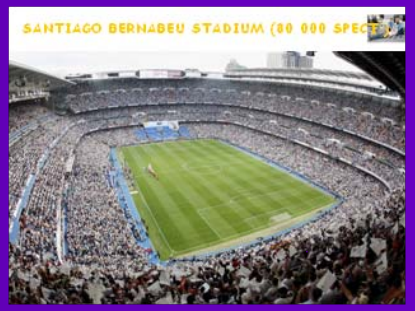
Participating arenas/clubs

- France, n=29
- England, 39
- Netherland, 25
- Norway, 14
- Sweden, 21
- Serbia, 9
- Greece, 16
- Spain, 24
- Austria, 8
- Italy, 5



Total: 190 (187 arenas)

Summary



- This is the first study of the level of cardiovascular care at major sports arenas in Europe.
- The level of care varies greatly, necessitating actions to optimize cardiovascular safety in this setting.
- Recommendations for cardiovascular safety at arenas is a task now started by the Section of Sports Cardiology

3. Position Stand: ECG interpretation in athletes

INTERPRETATION OF 12-LEAD ELECTROCARDIOGRAM IN THE ATHLETE

Domenico Corrado, MD, PhD (Chair); Antonio Pelliccia, MD (Co-Chair); Hein Heidbuchel, MD, PhD; Sanjay Sharma, MD, PhD; Alessandro Biffi, MD; Pietro Delise, MD; Cristina Basso,MD; Aris Anastassakis, M.D.; Mats Borjesson; MD, PhD; Hans Halvor Bjørnstad, M.D; François Carrè, M.D; Asterios Deligiannis, Dorian Dugmore, M.D.; M.D.; Erik Solberg, M.D., Klaus P. Mellwig, MD, Nicole Panhuyzen-Goedkoop, M.D; Gianfranco Buja, MD; William J McKenna, MD

On behalf of the Sections of Sports Cardiology of the European Association of Cardiovascular Prevention and Riabilitation; and the Working Group of Myocardial and Pericardial Disease of the European Society of Cardiology

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Table 1. Classification of abnormalities of the athlete's ECG.

Common and training-related ECG changes	Uncommon and training-unrelated ECG changes
• Sinus bradycardia; • First degree AV block; • Incomplete RBBB ; • Early repolarization; • Isolated QRS voltage criteria for left ventricular hypertrophy	• T-wave inversion; • ST-segment depression; • Pathological Q waves; • Left atrial enlargement; • Left axis deviation/left anterior hemiblock; • Right axis deviation/left posterior hemiblock; • Right ventricular hypertrophy; • Ventricular pre-excitation; • Complete LBBB or /RBBB; • Long or short QT interval; • Brugada-like early repolarization

RBBB=Right bundle branch block; LBBB=Left bundle branch block.