Gaps in the implementation of Guidelines for CRM Devices in ESC country members
- The Case of Israel -

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Israeli Health System

• All 7 million Israeli citizens are insured under national health insurance law
• Payment for national health insurance is part of tax payment
• Health services are provided by four main HMOs that are paid by the government
• Health makes up 7.8% of GDP
• 23 hospitals provide ICD implantation, 15 provide CRTD, all have trained EP MDs
Israeli ICD Registry

• Launched in July 2010
• Organized and run by the Israeli Working Group of Pacing and EP
• Online reporting of every procedure in high power devices in all 23 centers in Israel
• >90 % correspondence with company data
How Many Patients are Eligible for ICD

Prior to MADIT I:
• 50-70 / million (Higgins 1999)

Following MADIT I:
• 50 / million (NICE 2000)
• 100/million (Plummer 2005)

Following MADIT II (>80% primary prevention):
• 510/million (Borleffs 2007)
• 453/million (Plummer 2005)
Back in 2000

Figure 1. First implantable cardioverter-defibrillator (ICD) implantation rates per million in 2000 or the most recent year available in European and associated countries.

Cunningham 2005
ICD implantation rate incl. CRT-D/ Mio

Median 99/ mio (Range 0,6- 470/ mio)

Source: EHRA Whitebook 2009
Current Status of ICD implantation

• 1250 new device (400 device replacements and revisions / year)
• New implantation rate = 180/ million
• 75% primary prevention indication
• 39% CRTD

Source: Israeli ICD registry
Main Obstacles to Widespread Use of ICDs for Primary Prevention

- Economic status of the country
- Guidelines acceptance and implementation
- Insurance and reimbursement issues
- Referring physician awareness and acceptance
- Availability of implanters and facilities
- Patient related issues:
  - Awareness of ICDs and SCD
  - Concerns about QOL, recalls, etc

Source: EHRA Whitebook 2009
Economical Status of Country

[Graph showing the relationship between healthcare spending (Euro/capita) and CRT/million population across various countries.]

Sheba Medical Center
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The Leviev Heart Center
Adoption of Guidelines by Medical Community

- Situation very different from 10 years ago
- All European cardiology communities adopt the ESC or similar guidelines
- Little difference from American guidelines
- Most physicians in Israel read English
- ICD guidelines were translated when adopted (2006)
Insurance and Reimbursement

• Clear local reimbursement policy that follows guidelines
• Insurance restrictions on implementation of guidelines:
  – Wide QRS in NICE guidelines for primary prevention
  – EPS required by the largest Israeli HMO for primary prevention
### HMO Differences in Israel

<table>
<thead>
<tr>
<th>HMO</th>
<th>% of population</th>
<th>% Primary prevention</th>
<th>Current / expected Implantation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (EPS required)</td>
<td>60</td>
<td>67</td>
<td>180 / 236</td>
</tr>
<tr>
<td>B-D (not required)</td>
<td>40</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>

Source: Israeli ICD registry 2010
Referring Physician Awareness and Acceptance

- Most physicians are currently aware of secondary prevention of SCD by ICDs
- Lack of awareness mainly affects implantations for primary prevention indications (Vester CREDIT Eur Heart J 2008)
- Even in the US there is 20-50% implementation of ICD guidelines due to lack of awareness among referring physicians (Hernandez JAMA 2007)
- Current situation is gradually improving in Israel by efforts of the Israel Heart Society and companies
Implanting Physician and Facilities

• There is some correlation between the number of implanting centers/population and ICD usage (Camm 2010)

• No correlation to the existence of accreditation program (Merkely 2010)

• Fully trained electrophysiologists spend increasing time doing (AF) ablations

• In Israel trained MD availability is not a significant factor
Patient Related Factors

• Level of patient awareness of SCD influences ICD usage
• Awareness creates demand and justified pressure on politicians
• Patient support groups and consumer organizations are much less developed in Europe including Israel than in the US
• A long way to go …
Future of ICD Implantation in Israel

- Negotiations with authorities and payers to accept guidelines with stronger involvement of cardiologists in decision making (e.g. no need for EPS)
- Education of referring physician
- Training more physicians to implant and follow up ICDS and CRTDS (device track)
- Improved patient awareness and education!
- Increasing use of registry data
Importance of ICD Registry

- Reflects true practice
- Exposes areas with low implant rates
- Exposes HMOs with lower implant rate
- Provides each medical center with information on its performance in comparison to others
- Enables retrospective analysis of indications and justification for implantation with a potential for better risk stratification
Thank You!