EUROACTION
A European Society of Cardiology
Demonstration Project
in
Preventive Cardiology

FINAL RESULTS

Professor David Wood
on behalf of the EUROACTION Group
EUROACTION

8 countries 24 centres 9062 subjects
A CLUSTER RANDOMISED CONTROLLED TRIAL

Randomisation

**Identification**

**Initial assessment**

**Intervention**

**One year assessment**

**INT**

- 2951 PATIENTS
- 1633 PARTNERS
- 2179 PATIENTS
- 898 PARTNERS
- PROGRAMME
  - 16 week hospital
  - 1 year primary care
- 1965 PATIENTS
- 626 PARTNERS

**UC**

- 2846 PATIENTS
- 638 SUB-SAMPLE
- 1999 PATIENTS
- 698 PARTNERS

**2951 PATIENTS**

**1633 PARTNERS**

**2846 PATIENTS**

**1632 PARTNERS**

**2179 PATIENTS**

**898 PARTNERS**

**638 SUB-SAMPLE**

**1999 PATIENTS**

**698 PARTNERS**

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EUROACTION
Subjects

Hospital programme
Coronary patients & families
• ACS and stable angina pectoris

General practice programme
High risk patients & families
• SCORE ≥ 5% over 10 years
• Treated hypertension or dyslipidaemia
  • Diabetes mellitus
Primary endpoints

Proportions of patients and families achieving lifestyle, risk factor and therapeutic targets for cardiovascular disease prevention

- **Lifestyle management:** smoking (breath CO), diet, physical activity
- **Other risk factor management:**
  - Overweight/obesity (BMI, waist circumference)
  - Blood pressure
  - Total cholesterol and LDL cholesterol
  - Diabetes
- **Cardioprotective drug therapies:** anti-platelet, beta-blockers, ACE inhibitors/ARB’s, lipid lowering drugs
SMOKING

Goal: ZERO
Hospital
Smoking cessation at one year in coronary patients who were smokers*

+ 10% (~0.3% to +21%)

p = 0.06

*Smoking in month prior to index event

General Practice
Non-smoking at one year in high risk patients

+ 0.8% (~13% to +15%)

p = 0.9
DIET

GOALS:

- Saturated fat: <10% total energy
- Fruit and vegetables: ≥400g/day
- Fish: ≥20g/day
- Oily fish: ≥3 times/week
Proportions of patients achieving the European targets for a healthy diet

**Hospital**

- Saturated fat < 10% of total energy
  - Intervention: 55%
  - Usual Care: 40%
  - p = 0.009

- Fruits and vegetables >400 g/day
  - Intervention: 72%
  - Usual Care: 35%
  - p = 0.004

- Fish > 20 g/day
  - Intervention: 79%
  - Usual Care: 67%
  - p = 0.62

- Oily fish > 3 times/week
  - Intervention: 16%
  - Usual Care: 8%
  - p = 0.04

**General Practice**

- Fruits and vegetables >400 g/day
  - Intervention: 78%
  - Usual Care: 39%
  - p = 0.005

- Fish > 20 g/day
  - Intervention: 83%
  - Usual Care: 67%
  - p = 0.07

- Oily fish > 3 times/week
  - Intervention: 11%
  - Usual Care: 6%
  - p = 0.13
Proportions of partners achieving the European targets for a healthy diet

**Hospital**

- Saturated fat < 10% of total energy: 60% (Intervention) vs. 42% (Usual Care), p = 0.31
- Fruits and vegetables >400 g/day: 72% (Intervention) vs. 37% (Usual Care), p = 0.002
- Fish > 20 g/day: 78% (Intervention) vs. 63% (Usual Care), p = 0.68
- Oily fish > 3 times/week: 11% (Intervention) vs. 8% (Usual Care), p = 0.71

**General Practice**

- Saturated fat < 10% of total energy: 77% (Intervention) vs. 54% (Usual Care), p = 0.002
- Fruits and vegetables >400 g/day: 81% (Intervention) vs. 66% (Usual Care), p = 0.46
- Fish > 20 g/day: 20% (Intervention) vs. 7% (Usual Care), p = 0.05
PHYSICAL ACTIVITY

Goal:
30-45 minutes of physical activity at 60-75% of the average maximum heart rate on four-five days of the week
Proportion of patients achieving European Guidelines for physical activity

**Hospital**
- Intervention: 54
- Usual Care: 20
- Increase: + 36% (+20% to + 51%)

**General Practice**
- Intervention: 50
- Usual Care: 22
- Increase: + 29% (+11% to + 48%)

**P = 0.002**

**P = 0.01**
Proportion of partners achieving European Guidelines for physical activity

Hospital
+ 19% (-0.6% to +38%)

General Practice
+ 27% (+4% to +50%)

$P = 0.06$

$P = 0.03$
WEIGHT AND SHAPE

Goals:

BMI < 25 kg/m²
WAIST < 94 cm men
< 80 cm women
Proportion of patients achieving ≥ 5% weight reduction

Hospital
+ 6% (-7% to +19%)

General Practice
+ 10% (+5% to +16%)

P = 0.28*
p = 0.005*

*Patients with a BMI ≥ 25 kg/m²
Proportion of patients achieving the ideal waist circumference

**Hospital**
+ 9% (-3% to +20%)

**General Practice**
+ 8% (-2% to +18%)

\[ p = 0.11 \]
\[ p = 0.10 \]
RISK FACTOR MANAGEMENT

Goals:

- Blood pressure <140/90 mmHg
  (<130/85 mmHg in diabetes)
- Total cholesterol <5 mmol/l
- LDL cholesterol <3 mmol/l
- Diabetes: good glycaemic control
Proportion of patients achieving the European target for blood pressure

Hospital
+ 10% (+ 0.6% to + 20%)

General Practice
+ 17% (+ 2% to + 32%)

$P = 0.04$

$p = 0.03$
Proportion of patients achieving the European lipid targets

**Hospital**

- **TC < 5 mmol/l**
  - Intervention: 78%
  - Usual Care: 71%
  - Difference: TC + 7% (-6% to +19%)
  - P=0.23

- **LDL-C < 3 mmol/l**
  - Intervention: 81%
  - Usual Care: 74%
  - Difference: LDL-C + 7% (0.9% to +15%)
  - P=0.07

**General Practice**

- **TC < 5 mmol/l**
  - Intervention: 36%
  - Usual Care: 32%
  - Difference: TC + 7% (-6% to +19%)

- **LDL-C < 3 mmol/l**
  - Intervention: 45%
  - Usual Care: 35%
  - Difference: LDL-C + 7% (0.9% to +15%)
Change in proportion of high risk patients achieving the European lipid targets

<table>
<thead>
<tr>
<th></th>
<th>Total cholesterol</th>
<th>LDL cholesterol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LDL cholesterol</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>22 IA</td>
<td>26 IA</td>
</tr>
<tr>
<td>1 YR</td>
<td>36 1 YR</td>
<td>44 1 YR</td>
</tr>
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<td></td>
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<td>36 1 YR</td>
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</tr>
</tbody>
</table>

IA = initial assessment  1 YR = one year assessment
Change in proportion of high risk patients achieving the European lipid targets

- **Total cholesterol**
  - Intervention: IA = initial assessment, 1 YR = one year assessment
  - Usual Care

- **LDL cholesterol**
  - Intervention: IA = initial assessment, 1 YR = one year assessment
  - Usual Care
Change in proportion of high risk patients achieving the European lipid targets

**Total cholesterol**
+ 13% (+2% to +23%) p = 0.025

**LDL cholesterol**
+ 17% (+7% to +27%) p = 0.008
Proportion of patients with self-reported diabetes mellitus which is controlled (HbA1c <7%)

**Hospital**
+ 11% (-13% to +34%)
p = 0.29

**General Practice**
+ 12% (-5% to +29%)
p = 0.12
Distribution of HbA1c in patients with diabetes

**Hospital**

<table>
<thead>
<tr>
<th>HbA1c</th>
<th>Intervention</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6%</td>
<td>36</td>
<td>21</td>
</tr>
<tr>
<td>6-6.9%</td>
<td>24</td>
<td>29</td>
</tr>
<tr>
<td>7-7.9%</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>&gt;=8%</td>
<td>17</td>
<td>29</td>
</tr>
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</table>

**General Practice**

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<th>Intervention</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6%</td>
<td>42</td>
<td>25</td>
</tr>
<tr>
<td>6-6.9%</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>7-7.9%</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>&gt;=8%</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>
CARDIOPROTECTIVE DRUG THERAPIES
Proportion of patients on cardiovascular protective drug therapy

**Hospital**

- Anti-platelet drugs: 93% (Intervention), 92% (Usual Care) | p=0.28
- Beta blockers: 76% (Intervention), 80% (Usual Care) | p=0.16
- ACE inhibitors: 52% (Intervention), 56% (Usual Care) | p=0.26
- Ca antagonists: 21% (Intervention), 19% (Usual Care) | p=0.53
- Statins: 86% (Intervention), 80% (Usual Care) | p=0.04

**General Practice**

- Anti-platelet drugs: 0% (Intervention), 0% (Usual Care) | p=0.06
- Diuretics: 0.19% (Intervention), 0.19% (Usual Care) | p=0.91
- B-blockers: 33% (Intervention), 18% (Usual Care) | p=0.02
- ACE: 17% (Intervention), 16% (Usual Care) | p=0.24
- CA: 29% (Intervention), 20% (Usual Care) | p=0.03
- Statins: 13% (Intervention), 10% (Usual Care) | p=0.03

Legend:
- □ Intervention
- ■ Usual Care
LIMITATIONS

- Statistical power
  - Statistical power was reduced because of patient numbers and heterogeneity in the differences between intervention and usual care between countries

- Under estimation
  - Usual care was being audited
    - One quarter of usual care patients were clinically assessed at baseline
    - One fifth of patients in usual care received cardiac rehabilitation

- Over estimation
  - Selective drop out - patients in intervention did not attend at one year
CONCLUSIONS
Conclusions

EUROACTION has achieved its overall aim by raising standards of preventive cardiology care for coronary and high risk patients and their families in everyday clinical practice.
Conclusions

The nurse-led multidisciplinary EUROACTION family based programme achieved significantly better lifestyle changes for coronary and high risk patients and partners in terms of a more healthy diet, and increased physical activity, compared to usual care.
Conclusions

The EUROACTION programme improved coronary and high risk patients:

- **blood pressure control** compared to usual care
- **blood lipid control** compared to usual care
- **blood glucose control** in patients with diabetes mellitus
The EUROACTION programme increased prescribing for statins in coronary patients and for ACE inhibitors and statins in high risk people compared to usual care.
Conclusions

EUROACTION has set new standards of preventive cardiology care for coronary and high risk patients and their families in everyday clinical practice.
EUROACTION

Steering Group

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National Co-ordinators
&
Primary Care Leaders
EUROACTION
Steering Group

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EUROACTION

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www.escardio.org/euroaction