Is it worth offering cardiovascular disease prevention to the elderly?

Prof. Dr. Helmut Gohlke
Herz-Zentrum
Bad Krozingen, Germany
Is it worth offering cardiovascular disease prevention to the elderly?

There are no disclosures related to this presentation!
The demographic issue

Life expectancy is increasing

→ Patients are getting older:
  80 + -year old patients with unstable angina are not unusual any more.
“who is old?”

Clinical guidelines have started considering older adults in 3 age ranges* —

65 to 74 years: young-old
75 to 84 years: middle old
≥85 years: old-old

The demographic issue II

there are limited data on the risk-benefit ratio of treatment modalities in the elderly

→ uncertainty about benefit and risk of newer – but also of established -therapies and strategies in those with advanced age.
Is it worthwhile to worry about secondary prevention in a 65 yrs old patient?

Is there enough life expectancy for secondary prevention to be effective?
Is it worth offering cardiovascular disease prevention to the elderly?

- **Life expectancy at age 65 and age 80**
- **Smoking cessation after CABG***
- **Lipid lowering after ACS and in the elderly (65-82yrs)**
- **Exercise in stable CAD and in CHF**
- **Mediterranean diet**
- **Influenza vaccination***
- **Too late: dialysis patient**

*aspects of costeffectiveness will be covered
Question 1
The average life expectancy of a 65 year old European man (in 2006) is:

1. 7-9 years
2. 10-12 years
3. 13-16 years
4. 17-19 years  
   *Germany*  17,2 yrs
   *France*    18,2 yrs
5. 20-23 years

OECD Health Data
What is the average life expectancy of an 80 year old European person?

- male: 8.0 - 8.5
- female: 9.0 - 11.0

Thus: There is enough time for preventive measures to take effect, even in an 80 year old person!
Saving lives by changing life!
Is it ever too late for prevention?

• Life expectancy at age 65 and age 80
• **Smoking cessation after CABG***
• Lipid lowering after ACS and in the elderly (65-82yrs)*
• Exercise in stable CAD and in CHF
• Mediterranean diet
• Influenza vaccination*
• Too late: dialysis patient

*aspects of costeffectiveness will be covered
Three life-years gained from smoking cessation after coronary artery bypass surgery: A 30-year follow-up study

Ron T. van Domburg, PhD, Wilma Scholte op Reimer, PhD, Sanne E. Hoeks, Msc, Arie Pieter Kappetein, MD, PhD, and Ad J.J.C. Bogers, MD, PhD  Rotterdam, The Netherlands
<table>
<thead>
<tr>
<th>Age</th>
<th>Life expectancy (y)</th>
<th>Life expect.(y)</th>
<th>Gain</th>
<th>% of LE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>20.0</td>
<td>17.0</td>
<td>3.0</td>
<td>15%</td>
</tr>
<tr>
<td>&lt;50 yrs</td>
<td>21.7</td>
<td>18.2</td>
<td>3.5</td>
<td>16%</td>
</tr>
<tr>
<td>50-60 yrs</td>
<td>16.4</td>
<td>13.6</td>
<td>2.8</td>
<td>17%</td>
</tr>
<tr>
<td>&gt;60 yrs</td>
<td>14.2</td>
<td>12.5</td>
<td>1.7</td>
<td>12%</td>
</tr>
</tbody>
</table>

Van Domburg et al  Am Heart J 2008;156:473-6
Conclusions

Smoking cessation turned out to have a greater effect on reducing the risk of mortality than any other intervention or treatment..

....and it saves money!*

Van Domburg et al  Am Heart J 2008;156:473-6

Statins at higher age

Is it really beneficial for the elderly vascular patient to have his/her LDL-Cholesterol lowered by statins?
Statins for Secondary Prevention in Elderly Patients

A Hierarchical Bayesian Meta-Analysis

Jonathan Afilalo, MD,* Gustavo Duque, MD, PhD,*† Russell Steele, PhD,‡
J. Wouter Jukema, MD, PhD,§ Anton J. M. de Craen, PhD,¶ Mark J. Eisenberg, MD, MPH*¶
Montreal, Canada; and Leiden, the Netherlands

19,569 patients
with an age range of 65 to 82 years

Afilalo et al JACC 2008;51:37–45
# Statins for Secondary Prevention in Elderly Patients: 65-82yrs

Bayesian Forest Plot for

**All-Cause Mortality**

<table>
<thead>
<tr>
<th>Study</th>
<th>Statin</th>
<th>Placebo</th>
<th>No. Events/Total No. of Patients</th>
<th>Posterior Median Relative Risk (95% Credible Interval)</th>
<th>Favors Statin</th>
<th>Favors Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>4S</td>
<td>67 / 518</td>
<td>96 / 503</td>
<td></td>
<td>0.75 (0.59, 0.89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CARE</td>
<td>77 / 640</td>
<td>108 / 643</td>
<td></td>
<td>0.76 (0.61, 0.90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLARE</td>
<td>2 / 179</td>
<td>6 / 187</td>
<td></td>
<td>0.74 (0.47, 0.97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPS</td>
<td>963 / 5366</td>
<td>1089 / 5331</td>
<td></td>
<td>0.87 (0.80, 0.93)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIPID</td>
<td>287 / 1741</td>
<td>365 / 1773</td>
<td></td>
<td>0.80 (0.71, 0.90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIPS</td>
<td>23 / 324</td>
<td>32 / 299</td>
<td></td>
<td>0.75 (0.55, 0.94)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLAC I</td>
<td>1 / 42</td>
<td>2 / 52</td>
<td></td>
<td>0.76 (0.51, 1.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROSPER</td>
<td>110 / 934</td>
<td>128 / 899</td>
<td></td>
<td>0.82 (0.69, 0.98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REGRESS</td>
<td>1 / 75</td>
<td>1 / 63</td>
<td></td>
<td>0.75 (0.49, 0.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pooled</strong></td>
<td><strong>1531 / 9819</strong></td>
<td><strong>1827 / 9750</strong></td>
<td></td>
<td><strong>0.78 (0.65, 0.89)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15.6% vs 18.7% ➔ NNT 161

Afilalo et al J Am Coll Cardiol, 2008; 51:37-45
### Statins for Secondary Prevention in Elderly Patients: 65-82yrs

#### Revascularization

<table>
<thead>
<tr>
<th>Study</th>
<th>No. Events/Total No. of Patients</th>
<th>Posterior Median Relative Risk (95% Credible Interval)</th>
<th>Favors Statin</th>
<th>Favors Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>4S</td>
<td>Statin 51/518; Placebo 80/503</td>
<td>0.68 (0.53, 0.83)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CARE</td>
<td>Statin 73/640; Placebo 104/643</td>
<td>0.71 (0.58, 0.86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIPID</td>
<td>Statin 205/1741; Placebo 284/1773</td>
<td>0.73 (0.63, 0.84)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIPS</td>
<td>Statin 57/324; Placebo 76/299</td>
<td>0.73 (0.59, 0.88)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLAC I</td>
<td>Statin 5/42; Placebo 7/52</td>
<td>0.71 (0.52, 1.02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROSPER</td>
<td>Statin 29/934; Placebo 31/899</td>
<td>0.71 (0.55, 0.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REGRESS</td>
<td>Statin 1/75; Placebo 5/63</td>
<td>0.66 (0.42, 0.90)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pooled (5 year) 422/4274; 586/4232:** 0.70 (0.53, 0.83)

9.9% vs 13.8% ➔ NNT 128

Afilalo et al. J Am Coll Cardiol, 2008; 51:37-45
## Endpoint | Statin vs Control | HR  | NNT |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAD Mortality</td>
<td>8.7% vs 11.3%</td>
<td>0.77</td>
<td>192</td>
</tr>
<tr>
<td>Nonfatal MI</td>
<td>8.0% vs 10.5%</td>
<td>0.76</td>
<td>200</td>
</tr>
<tr>
<td>Stroke</td>
<td>5.2% vs 7.0%</td>
<td>0.74</td>
<td>277</td>
</tr>
</tbody>
</table>

**Conclusions:** Statins reduce all-cause and CAD mortality in elderly patients and the magnitude of this effect is substantially larger than had been previously estimated.

Afilalo et al. J Am Coll Cardiol, 2008; 51:37-45
266,973 persons with a cumulative observation time of 946,582 Person-years were analysed.
Cholesterol-Lowering Interventions and Stroke
Insights From a Meta-Analysis of Randomized Controlled Trials

NON-FATAL STROKE

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Event/Total</th>
<th>Control/Total</th>
<th>Odds Ratio (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>6</td>
<td>389/25211</td>
<td>575/34931</td>
<td>1.01 (0.89 to 1.15)</td>
<td>0.923</td>
</tr>
<tr>
<td>Statins</td>
<td>24</td>
<td>973/36778</td>
<td>1194/36752</td>
<td>0.81 (0.74 to 0.89)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fibrates</td>
<td>7</td>
<td>65/9267</td>
<td>53/9246</td>
<td>1.23 (0.85 to 1.78)</td>
<td>0.265</td>
</tr>
<tr>
<td>Other drugs</td>
<td>7</td>
<td>22/4217</td>
<td>37/4145</td>
<td>0.61 (0.36 to 1.02)</td>
<td>0.059</td>
</tr>
<tr>
<td>ALL TRIALS</td>
<td>44</td>
<td>1449/75473</td>
<td>1859/85074</td>
<td>0.87 (0.81 to 0.94)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Between-Heterogeneity test $\chi^2=12.466$, df=3, P=0.006

De Caterina et al JACC 2010;55: 198–211
The benefit is proportional to the percent reduction of total cholesterol and LDL-cholesterol:

For each 10% (LDL-)Cholesterol lowering the stroke risk is reduced by 8%!
cost-effectiveness of statins

• A quality-adjusted life-year costs $18,800 in 75 to 84 y/o (middle-old) patients - comparable to the cost of commonly accepted treatments such as treating hypertension in adults aged 35 to 64 years.

Afilalo et al JACC 2008;51:37–45
Cardiovascular Benefit of Magnitude of Low-Density Lipoprotein Cholesterol Reduction

A Comparison of Subgroups by Age

Catherine R. Rahilly-Tierney, MD, MPH; Elizabeth V. Lawler, MPH, ScD;
Richard E. Scranton, MD, MPH; J. Michael Gaziano, MD, MPH

Rahilly-Tierney et al  Circulation 2009;120:1491-1497

20 132 male veterans at high risk for an acute CV event and who had 2 or more LDL-C measurements before their first documented acute MI, revascularization, death, or censoring date.
Unadjusted and Multivariate-Adjusted* HRs (95% CI) for combined AMI or revascularization for Each Category of LDL-C Reduction, by Age Quartile

<table>
<thead>
<tr>
<th>Category of LDL-C Reduction</th>
<th>&lt;61 y</th>
<th>61-69 y</th>
<th>69-75 y</th>
<th>&gt;75 y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small: 10–40 mg/dL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>0.87 (0.76–1.00)</td>
<td>0.69 (0.59–0.79)</td>
<td>0.77 (0.66–0.90)</td>
<td>0.72 (0.61–0.85)</td>
</tr>
<tr>
<td>Multivariate adjusted</td>
<td>0.73 (0.64–0.84)</td>
<td>0.67 (0.58–0.78)</td>
<td>0.70 (0.60–0.82)</td>
<td>0.64 (0.54–0.76)</td>
</tr>
<tr>
<td>Moderate: 40–70 mg/dL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>0.68 (0.59–0.79)</td>
<td>0.57 (0.48–0.67)</td>
<td>0.65 (0.55–0.77)</td>
<td>0.73 (0.60–0.87)</td>
</tr>
<tr>
<td>Multivariate adjusted</td>
<td>0.50 (0.43–0.58)</td>
<td>0.45 (0.37–0.52)</td>
<td>0.45 (0.39–0.56)</td>
<td>0.53 (0.44–0.64)</td>
</tr>
<tr>
<td>Large: ≥70 mg/dL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>0.73 (0.61–0.87)</td>
<td>0.57 (0.47–0.68)</td>
<td>0.53 (0.42–0.66)</td>
<td>0.54 (0.42–0.70)</td>
</tr>
<tr>
<td>Multivariate adjusted</td>
<td>0.37 (0.31–0.45)</td>
<td>0.29 (0.24–0.37)</td>
<td>0.26 (0.20–0.34)</td>
<td>0.38 (0.30–0.49)</td>
</tr>
</tbody>
</table>

*Adjusted for age, gender, current smoking status, body mass index, statin use, nonstatin cholesterol-modifying therapy use, hypertension, cerebrovascular disease, thyroid disease, and renal disease.

Rahilly-Tierney et al  Circulation  2009;120:1491-1497
Conclusions

—In a cohort of veterans at high risk for CV events, patients of all ages, including those 75 years or older (middle-old to old-old), benefitted the most from large reductions in LDL-C.....and ..

the absolute benefit – because of a higher basal event rate - is larger in “middle-old” and “old-old” than in younger (i.e. <61yrs) persons!

Rahilly-Tierney et al  Circulation  2009;120:1491-1497
Do we increase the risk of cancer by statin treatment??
Cardiovascular and Cancer Mortality in Very Elderly Post-Myocardial Infarction Patients Receiving Statin Treatment

Klas Gränsbo, MD,* Olle Melander, MD,* Lars Wallentin, MD,† Johan Lindbäck, PHD,† Ulf Stenestrand, MD,‡ Jörg Carlsson, MD,§ Jan Nilsson, MD*
Malmö, Lund, Uppsala, Linköping, and Kalmar, Sweden
Cardiovascular and Cancer Mortality in Very Elderly Post-Myocardial Infarction Patients Receiving Statin Treatment

Methods:
all patients \( \geq 80 \text{ years} \) admitted with the diagnosis of AMI in the Register of Information and Knowledge About Swedish Heart Intensive Care Admissions between 1999 and 2003 (n 21,410).

Complete covariate and follow-up data available for 14,907 patients (population A).

To limit the bias related comorbidity on statin therapy, analyses were performed excluding:
- patients who died within 14 days of the acute event (population B)
- patients who died within 365 days (population C).

A propensity score was used to adjust for initial differences between treatment groups.
Adjusted Cumulative Risk of **AMI Mortality** Estimated at the Mean of Each Covariate Included in the Model

Pts who died within 14 days after discharge were excluded from analysis or 365 days

Adjusted Cumulative Risk of **Cancer Mortality** Estimated as the Mean of Each Covariate Included in the Model

Pts who died within 14 days after discharge were excluded from analysis or 365 days

---

**population A**

- No statins
- Statins

**population B**

- No statins
- Statins

**population C**

- No statins
- Statins

---

Statin treatment is associated with lower cardiovascular mortality in very elderly post-infarction patients without increasing the risk of the development of cancer.

Whether the treatment of patients with **hypertension** who are 80 years of age or older is beneficial is unclear. Is it treatment or stroke prevention? Isn’t reaching the age of 80 yrs a success-story in itself, indicating that the given BP is good for the person?
Treatment of Hypertension in Patients 80 Years of Age or Older

Nigel S. Beckett, M.B., Ch.B., Ruth Peters, Ph.D., Astrid E. Fletcher, Ph.D., Jan A. Staessen, M.D., Ph.D., Lisheng Liu, M.D., Dan Dumitrascu, M.D., Vassil Stoyanovsky, M.D., Riitta L. Antikainen, M.D., Ph.D., Yuri Nikitin, M.D., Craig Anderson, M.D., Ph.D., Alli Belhani, M.D., Françoise Forette, M.D., Chakravarthi Rajkumar, M.D., Ph.D., Lutgarde Thijs, M.Sc., Winston Banya, M.Sc., and Christopher J. Bulpitt, M.D., for the HYVET Study Group*
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Active Treatment (N = 1933)</th>
<th>Placebo (N = 1912)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong> — yr</td>
<td>83.6±3.2</td>
<td>83.5±3.1</td>
</tr>
<tr>
<td><strong>Female sex</strong> — no. (%)</td>
<td>1174 (60.7)</td>
<td>1152 (60.3)</td>
</tr>
<tr>
<td><strong>Blood pressure</strong> — mm Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>While sitting</td>
<td>173.0±8.4/90.8±8.5</td>
<td>173.0±8.6/90.8±8.5</td>
</tr>
<tr>
<td>While standing</td>
<td>168.0±11.0/88.7±9.3</td>
<td>167.9±11.1/88.6±9.3</td>
</tr>
<tr>
<td><strong>Orthostatic hypotension</strong> — no. (%)†</td>
<td>152 (7.9)</td>
<td>169 (8.8)</td>
</tr>
<tr>
<td><strong>Isolated systolic hypertension</strong> — no. (%)</td>
<td>625 (32.3)</td>
<td>623 (32.6)</td>
</tr>
<tr>
<td><strong>Heart rate</strong> — beats/min</td>
<td>74.5±9.1</td>
<td>74.5±9.3</td>
</tr>
<tr>
<td><strong>Cardiovascular history</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular disease — no. (%)</td>
<td>223 (11.5)</td>
<td>229 (12.0)</td>
</tr>
<tr>
<td>Hypertension — no. (%)</td>
<td>1737 (89.9)</td>
<td>1718 (89.9)</td>
</tr>
<tr>
<td>Antihypertensive treatment — no. (%)</td>
<td>1241 (64.2)</td>
<td>1245 (65.1)</td>
</tr>
<tr>
<td>Stroke — no. (%)</td>
<td>130 (6.7)</td>
<td>131 (6.9)</td>
</tr>
<tr>
<td>Myocardial infarction — no. (%)</td>
<td>59 (3.1)</td>
<td>62 (3.2)</td>
</tr>
<tr>
<td>Heart failure — no. (%)</td>
<td>56 (2.9)</td>
<td>55 (2.9)</td>
</tr>
<tr>
<td><strong>Cardiovascular risk factors</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mean Blood Pressure, Measured while Patients Were Seated, in the Intention-to-Treat Population, According to Study Group

Beckett et al NEJM 2008;358:1887-98

- Systolic blood pressure: -15.0 mm Hg
- Diastolic blood pressure: -6.1 mm Hg

No. at Risk
Placebo group | 1912 | 1468 | 701 | 330 | 191 | 116
Active-treatment group | 1933 | 1540 | 754 | 373 | 207 | 118
Beckett et al. NEJM 2008;358:1887-98

Death from Any Cause

P = 0.02

No. at Risk

<table>
<thead>
<tr>
<th></th>
<th>Placebo group</th>
<th>Active-treatment group</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. at Risk</td>
<td>1912</td>
<td>1933</td>
</tr>
<tr>
<td></td>
<td>1492</td>
<td>1565</td>
</tr>
<tr>
<td></td>
<td>814</td>
<td>877</td>
</tr>
<tr>
<td></td>
<td>379</td>
<td>420</td>
</tr>
<tr>
<td></td>
<td>202</td>
<td>231</td>
</tr>
</tbody>
</table>
Death from Stroke

\[ P = 0.05 \]

**No. at Risk**

<table>
<thead>
<tr>
<th>Group</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo group</td>
<td>1912</td>
<td>1492</td>
<td>814</td>
<td>379</td>
<td>202</td>
</tr>
<tr>
<td>Active-treatment group</td>
<td>1933</td>
<td>1565</td>
<td>877</td>
<td>420</td>
<td>231</td>
</tr>
</tbody>
</table>

Beckett et al NEJM 2008;358:1887-98
Heart Failure

Placebo group

Active treatment group

P < 0.001

<table>
<thead>
<tr>
<th>Follow-up (yr)</th>
<th>Placebo</th>
<th>Active Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1912</td>
<td>1933</td>
</tr>
<tr>
<td>1</td>
<td>1480</td>
<td>1559</td>
</tr>
<tr>
<td>2</td>
<td>794</td>
<td>872</td>
</tr>
<tr>
<td>3</td>
<td>367</td>
<td>416</td>
</tr>
<tr>
<td>4</td>
<td>188</td>
<td>228</td>
</tr>
</tbody>
</table>

Beckett et al NEJM 2008;358:1887-98
Conclusion

Hypertension treatment in the very elderly, aimed to achieve a **target blood pressure of 150/80 mm Hg**, is beneficial and is associated with **reduced risks** of:
- **death from any cause**,  
- **death from stroke** and  
- of **heart failure**.

Whether further reduction is beneficial still needs to be established.

Beckett et al NEJM 2008;358:1887-98
Exercise has been known to improve fitness for more than 2500 years.

5th century B.C.

2006
Percutaneous Coronary Angioplasty Compared With Exercise Training in Patients With Stable Coronary Artery Disease: A Randomized Trial

Rainer Hambrecht, MD; Claudia Walther, MD; Sven Möbius-Winkler, MD; Stephan Gielen, MD; Axel Linke, MD; Katrin Conradi, MD; Sandra Erbs, MD; Regine Kluge, MD; Kai Kendziorra, MD; Osama Sabri, MD; Peter Sick, MD; Gerhard Schuler, MD

Event-free survival after 12 months was significantly superior in exercise training group versus PCI group.

- 12 months bicycle-ergometer-training for 20 min/day
- at 70% of maximal Heart Rate
- + once/week coronary group training → ~ 920 Kcal/week
  - → 60% Risk-Reduktion


P = 0.023
The Mediterranean Diet and Mortality -
Mediterranean Diet, Traditional Risk Factors, and the Rate of Cardiovascular Complications After Myocardial Infarction

Final Report of the Lyon Diet Heart Study

Michel de Lorgeril, MD; Patricia Salen, BSc; Jean-Louis Martin, PhD; Isabelle Monjaud, BSc; Jacques Delaye, MD; Nicole Mamelle, PhD

Circulation 1999; 99: 779-785
Without non fatal MI,


RR 0.31

RR 0.53

Without non fatal MI without secondary endpoints

Lyon Diet heart Study

p=0.0001
Mediterranean Dietary Pattern and Prediction of All-Cause Mortality in a US Population

Results From the NIH-AARP Diet and Health Study

Panagiota N. Mitrou, PhD; Victor Kipnis, PhD; Anne C. M. Thiébaut, PhD; Jill Reedy, PhD; Amy F. Subar, PhD; Elisabet Wirfält, PhD; Andrew Flood, PhD; Traci Mowz, MPH; Albert R. Hollenbeck, PhD; Michael F. Leitzmann, MD, DrPH; Arthur Schatzkin, MD, DrPH

Arch Intern Med. 2007;167(22):2461-2468
**Mediterranean Dietary Pattern (aMED) and cause-specific Mortality**

Multivariate Rel Risk in 214,284 men

<table>
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<th>p</th>
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<tr>
<td>0-3</td>
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<td>CV-Disease</td>
<td>0.95 (.86-1.04)</td>
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<tr>
<td>Cancer</td>
<td>0.86 (.80-.93)</td>
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<tr>
<td>Other causes</td>
<td>0.90 (.81-1.00)</td>
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Mitrou et al Arch Intern Med. 2007;167(22):2461-2468
A high conformity with a mediterranean dietary pattern is associated with a reduced all cause mortality

Mitrou et al Arch Intern Med. 2007;167(22):2461-2468

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<td>0.85</td>
<td>0.81</td>
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<tr>
<td>Cancer</td>
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<td>0.93</td>
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<td>Other causes</td>
<td>1</td>
<td>0.82</td>
<td>0.72</td>
<td>.001</td>
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-19-28%
What's got a cardiologist to do with Influenza vaccination??
Influenza Vaccination and Reduction in Hospitalizations for Cardiac Disease and Stroke among the Elderly


n => 286,000 >65 yrs

NEJM 348:1322-32; 2003
Influenza vaccination and reduction in hospitalization

Adjusted for baseline risk

Nichol et al NEJM 348:1322-32; 2003
Review: Current Perspective

Influenza and Cardiovascular Disease
A New Opportunity for Prevention and the Need for Further Studies

Mohammad Madjid, MD; Morteza Naghavi, MD; Silvio Litovsky, MD; S. Ward Casscells, MD
.. influenza vaccination may be one of the most cost-effective interventions for cardiovascular patients.
Prevention:
In some instances – it may be too late:
Atorvastatin in Patients with Type 2 Diabetes Mellitus Undergoing Hemodialysis

CONCLUSIONS

Atorvastatin had no statistically significant effect on the composite primary end point of cardiovascular death, nonfatal myocardial infarction, and stroke in patients with diabetes receiving hemodialysis.
Conclusions

In patients undergoing hemodialysis, the initiation of treatment with rosvastatin lowered the LDL cholesterol level but had no significant effect on the composite primary end point of death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke. (ClinicalTrials.gov number, NCT00240331.)

Ola Samuelsson, M.D., Ph.D., Sandor Soroki, M.D., Ph.D., D. Sc., Gultekin Süleymanlar, M.D., Dimitrios Tsakiris, M.D., Ph.D., Vladimir Tesar, M.D., Ph.D., Vasil Todorov, M.D., Ph.D., Andrzej Wiecek, M.D., Ph.D., Rudolf P. Wüthrich, M.D., Mattis Gottlow, M.Sc., Eva Johnsson, M.D., Ph.D., and Faiez Zannad, M.D., Ph.D., for the AURORA Study Group*
Summary & take home message

• Life expectancy (LE) of elderly persons is often underestimated!

  LE: 17-19/20-23yrs in a 65 yr old man/woman
  8-9/9-11yrs in an 80yr old man/woman

• In the elderly patient with advanced vascular disease, preventive measures are of great benefit:
  – Smoking cessation: More effective than anything else !!
  – Lipid lowering with statins reduces Stroke+MI and is Cost-effective: QALY for 18 800$
  – Exercise training
  – Mediterranean diet
  – Vaccination against influenza Small RCT- but large observational data base Costs-effective: don‘t forget!!
  – BP lowering (moderately) reduces stroke and all cause mortality even above age 80! Target BP: 150/80mmHg!

(Middle-old and old-old)
It is worth offering cardiovascular disease prevention to the elderly!

Prof. Dr. Helmut Gohlke
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