Srdcové zlyhávanie, súčasný diagnostický a liečebný prístup

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Index event

Compensatory mechanisms

Secondary damage

TIME (yrs)

ASYMPTOMATIC ➔ SYMPTOMATIC

(EJECITION FRACTION (%))

60 ➔

20 ➔

Responses to hemodynamic overload

Pressure overload
- ↑Systolic wall stress
- Mechanical transducers
  - Extracellular and intracellular signals
    - Ventricular remodeling
      - Parallel sarcomeres
        - Concentric hypertrophy
      - Normal
      - Series sarcomeres
        - Eccentric hypertrophy

Volume overload
- ↑Diastolic wall stress
BNP AND NYHA CLASSIFICATION

p = 0.002

BNP (pg/ml)

NYHA classification

I

II

III

IV

(Data from American Heart Association: Heart Disease and Stroke Statistics—2003 Update. Dallas, American Heart Association, 2002.)
Stage A: High risk with no symptoms

Stage B: Structural heart disease, no symptoms

Stage C: Structural disease, previous or current symptoms

Stage D: Refractory symptoms requiring special intervention

- Hospice
- VAD, transplantation
- Inotropes
- Aldosterone antagonist, nesiritide
- Consider multidisciplinary team
- Revascularization, mitral-valve surgery
- Cardiac resynchronization if bundle-branch block present
- Dietary sodium restriction, diuretics, and digoxin
- ACE inhibitors and beta-blockers in all patients
- ACE inhibitors or ARBs in all patients; beta-blockers in selected patients
- Treat hypertension, diabetes, dyslipidemia; ACE inhibitors or ARBs in some patients
- Risk-factor reduction, patient and family education

CUMULATIVE INCIDENCE (%)

- Placebo
- Eplerenone

\[ P = 0.008 \]
\[ RR = 0.85 \text{ (95\% CI, 0.75–0.96)} \]

Effect of β-Blockade on Mortality in CHF

**MERIT-HF**

- Placebo
- Metoprolol CR/XL

*P* = 0.0002 (adjusted)

*P* = 0.00109 (nominal)

n = 5091

**CIBIS II**

- Placebo
- Bisoprolol

*P* = 0.0047

Log rank *P* = 0.00096

**COPERNICUS**

- Placebo
- Carvedilol

n = 2289

RR = 35% (95% CI = 19–48%)

*P* = 0.00013 (unadjusted)

*P* = 0.0014 (adjusted)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Age- and Risk Factor-Adjusted Hazard Ratio</th>
<th>Prevalence (%)</th>
<th>Population-Attributable Risk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Men</strong></td>
<td><strong>Women</strong></td>
<td><strong>Men</strong></td>
</tr>
<tr>
<td>High blood pressure (≥140/90 mm Hg)</td>
<td>2.1</td>
<td>3.4</td>
<td>60</td>
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<tr>
<td>Myocardial infarction</td>
<td>6.3</td>
<td>6.0</td>
<td>10</td>
</tr>
<tr>
<td>Angina</td>
<td>1.4</td>
<td>1.7</td>
<td>11</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.8</td>
<td>3.7</td>
<td>8</td>
</tr>
<tr>
<td>Left ventricular hypertrophy</td>
<td>2.2</td>
<td>2.9</td>
<td>4</td>
</tr>
<tr>
<td>Valvular heart disease</td>
<td>2.5</td>
<td>2.1</td>
<td>5</td>
</tr>
</tbody>
</table>

*Subjects aged 40-89 yr; 18-yr follow-up.