Abstract: P2113

Selenoprotein P deficiency and risk of mortality and re-hospitalisation in acute heart failure

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On behalf: HARVEST-Malmö

Topic(s):
Acute Heart Failure – Epidemiology, Prognosis, Outcome

Citation:

Funding Acknowledgements:
Medical Faculty of Lund University, Skane University Hospital, the Crafoord foundation, Swedish Heart and Lung foundation, Wallenberg Center of Mollec

Introduction: Although endemic selenium deficiency has been proposed to be pathogenic in Keshan cardiomyopathy, the involvement of selenium in acute heart failure (AHF) prognosis remains uninvestigated. Selenium mediates its antioxidant effects through incorporation with the 25 selenoproteins currently known, of which Selenoprotein P (SePP) has been associated with cardiovascular disease and septic shock.

Purpose: We examined the value of SePP in predicting 30-days hospitalisation and 1-year mortality in a Swedish acute heart failure (AHF) cohort.

Methods: Plasma SePP was measured in subjects with AHF from the Swedish Heart and Brain Failure Investigation study (HARVEST-Malmö) (n=295, 30.7% females; mean age 74.4 ± 11.5 years).

Results: After adjusting for traditional risk factors, each 1 SD increment in SePP levels was inversely associated with risk of 30-days hospitalisation (n=61) (Hazard ratio, HR (95% confidence interval (CI)): 0.67 (0.51-0.89), p=0.005), as well as one-year mortality (n=54); HR 0.65 (0.48-0.88), p=0.005. Subjects with the lowest SePP levels were at greater risk of 30-day re-hospitalisation (HR 4.29 (1.59-11.6)) and one-year mortality (HR 4.13 (1.64-10.4)), as compared to subjects in the remaining quartiles (p for trend 0.004 and 0.001, respectively).

Conclusion: This observational study identifies SePP as a novel marker of poor outcome in AHF and encourages future studies examining if supplementation of selenium might improve prognosis in AHF-patients.
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<table>
<thead>
<tr>
<th></th>
<th>HR (95%CI)</th>
<th>p</th>
<th>HR (95%CI)</th>
<th>p</th>
<th>HR (95%CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.07 (1.04-1.11)</td>
<td>&lt;0.001</td>
<td>1.01 (0.98-1.04)</td>
<td>0.524</td>
<td>1.02 (0.99-1.05)</td>
<td>0.248</td>
</tr>
<tr>
<td>Sex</td>
<td>0.41 (0.21-0.82)</td>
<td>0.012</td>
<td>1.14 (0.65-1.99)</td>
<td>0.644</td>
<td>1.21 (0.72-2.05)</td>
<td>0.471</td>
</tr>
<tr>
<td>BMI</td>
<td>0.99 (0.93-1.06)</td>
<td>0.881</td>
<td>0.99 (0.94-1.05)</td>
<td>0.779</td>
<td>1.01 (0.96-1.05)</td>
<td>0.803</td>
</tr>
<tr>
<td>SBP</td>
<td>0.98 (0.97-0.99)</td>
<td>0.001</td>
<td>1.00 (0.99-1.01)</td>
<td>0.462</td>
<td>0.99 (0.98-1.00)</td>
<td>0.217</td>
</tr>
<tr>
<td>Smoking</td>
<td>1.33 (0.51-3.50)</td>
<td>0.562</td>
<td>1.03 (0.47-2.25)</td>
<td>0.943</td>
<td>1.09 (0.52-2.23)</td>
<td>0.820</td>
</tr>
<tr>
<td>Prevalent AF</td>
<td>0.59 (0.33-1.03)</td>
<td>0.063</td>
<td>1.05 (0.63-1.76)</td>
<td>0.852</td>
<td>0.99 (0.61-1.63)</td>
<td>0.985</td>
</tr>
<tr>
<td>Prevalent diabetes</td>
<td>1.76 (0.96-3.23)</td>
<td>0.068</td>
<td>0.97 (0.54-1.74)</td>
<td>0.925</td>
<td>0.99 (0.57-1.72)</td>
<td>0.204</td>
</tr>
<tr>
<td>Prior CHF</td>
<td>1.02 (0.51-2.06)</td>
<td>0.948</td>
<td>1.25 (0.69-2.25)</td>
<td>0.462</td>
<td>1.21 (0.69-2.11)</td>
<td>0.697</td>
</tr>
<tr>
<td>NT-proBNP</td>
<td>1.46 (1.07-1.98)</td>
<td>0.017</td>
<td>0.92 (0.70-1.19)</td>
<td>0.516</td>
<td>0.96 (0.75-1.23)</td>
<td>0.743</td>
</tr>
<tr>
<td>SePP</td>
<td>0.65 (0.48-0.88)</td>
<td>0.005</td>
<td>0.67 (0.51-0.89)</td>
<td>0.005</td>
<td>0.66 (0.51-0.86)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Values are hazard ratios (HR) and 95% confidence intervals. BMI=body mass index; SBP=systolic blood pressure; AF=atrial fibrillation; CHF=congestive heart failure, SePP=Selenoprotein P.