Materials & Methods

Objectives

Background

Elevated systolic blood pressure (SBP) and body water content are known death risk factors. They are often observed in patients with heart and/or renal failure and are further influenced by dialysis treatment [1;2].

Important changes in SBP and body weight (BW) are expected to occur in incident dialysis patients, and these changes could significantly influence survival.

Objectives

To estimate the association between early changes in SBP and BW and mortality in incident dialysis patients.

Patients Incident to dialysis in 2004-2010 in 2 centers and surviving 90 days were followed-up for maximum 8 years.

Longitudinal data (SBP and BW before dialysis) were obtained from medical records and outcome (death or treatment refusal) and comorbidities were extracted from the French REIN registry.

BP and BW changes (linear regression slopes) and mean values in periods 1 and 2 were dichotomized based on 33th percentile and associated with survival using Cox regressions adjusting on age and gender.

Materials & Methods

Table 1: Patient characteristics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>74.5 (65.0 – 81.3)</td>
<td>36%</td>
</tr>
</tbody>
</table>

SBP and BW changes (linear regression slopes) and mean values in periods 1 and 2 were dichotomized based on 33th percentile and associated with survival using Cox regressions adjusting on age and gender.

SBP, BW AND MORTALITY

In univariate analyses, low SBP (both periods), decreasing SBP on period 2 and decreasing BW (both periods) were associated with mortality (table 2).

In multivariate analysis, decreasing BW on both periods were significantly associated with mortality and low SBP on period 2 was borderly significant (table 2).

Table 2: Age and gender-adjusted hazard ratios of mortality

<table>
<thead>
<tr>
<th>Effect</th>
<th>Univariate</th>
<th>Multivariate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>HR and 95% CI</td>
<td>P-value</td>
</tr>
<tr>
<td>SBP ≤ 135 mmHg</td>
<td>1.6 [1.1 ; 2.2]</td>
<td>0.01</td>
</tr>
<tr>
<td>SBP ≤ 130 mmHg</td>
<td>1.7 [1.2 ; 2.4]</td>
<td>0.001</td>
</tr>
<tr>
<td>SBP slope ≤ -3 mmHg/month</td>
<td>2.0 [0.7 ; 5.9]</td>
<td>0.03</td>
</tr>
<tr>
<td>BW slope ≤ -3 kg/month</td>
<td>1.9 [1.4 ; 2.7]</td>
<td>0.001</td>
</tr>
<tr>
<td>BW slope ≤ 0 kg/month</td>
<td>2.0 [1.4 ; 2.7]</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Discussion

In the first months, patients starting dialysis have significant changes in SBP and BW.

Patients with BW decrease, low SBP or increasing SBP in the first weeks on dialysis were at greater risk of mortality. In patients with heart failure, initial BW decline did not increase mortality, possibly because it represented excess water removal.

Knowing early changes in BW and SBP, with HF diagnosis, could help to estimate patient prognostic.

References


Acknowledgment

This work was performed thanks to support from Agence de la Biomedecine, France.