PART XV

POSTERS
A NEW APPROACH TO THE EARLY DETECTION OF DIALYSIS ENCEPHALOPATHY

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Disorders of speech are prominent and early signs of dialysis encephalopathy. Major abnormalities include mixed dysarthria and dyspraxia. Contrary to previous reports, we have detected no evidence of dysphasia [1].

Methods

A speech screening assessment was designed to study speech and mental function (copies available from authors). Using this script, 60 patients on regular haemodialysis were interviewed by a speech therapist on at least three occasions during a two year follow up. A retrospective and prospective study of the aluminium content of the dialysis water supply was undertaken, the results unknown to the speech therapist.

Results

Summarised in Table I.

<table>
<thead>
<tr>
<th>Water supply</th>
<th>Number of Patients</th>
<th>Average number of years on dialysis</th>
<th>Screening Assessment</th>
<th>Abnormal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low natural aluminium (&lt; 0.05mg/L)</td>
<td>14</td>
<td>4.5</td>
<td>13</td>
<td>1 (educationally subnormal no speech abnormality)</td>
</tr>
<tr>
<td>High natural aluminium (&gt; 0.25mg/L)</td>
<td>2</td>
<td>5.2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Alum treated water*</td>
<td>44</td>
<td>4.9</td>
<td>23</td>
<td>21</td>
</tr>
</tbody>
</table>

* Alum (aluminium sulphate) treated water has an unpredictable aluminium content varying from 0.10 to 0.65mg/L.
Patients with Abnormal Assessment

Five have since died, four of dialysis encephalopathy. Nine of thirteen with severe abnormalities were considered normal prior to formal assessment. Two were thought to be receiving water of low natural aluminium content. Further enquiry showed they had been changed to alum treated water without our knowledge. Five patients have shown marked improvement since installation of a deioniser.

Conclusions

Formal assessment of speech and mental function appears valuable for the early (preclinical) detection of dialysis encephalopathy and as an objective means of follow up.

This study supports the theory that dialysis encephalopathy is related to aluminium in the domestic water supply [2].

References