## Appendix 2. West Haven criteria on hepatic encephalopathy

<table>
<thead>
<tr>
<th>WHC including MHE</th>
<th>ISHEN</th>
<th>Description</th>
<th>Suggested operative criteria</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unimpaired</td>
<td></td>
<td>No encephalopathy at all, no history of HE</td>
<td>Tested and proved to be normal</td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>Covert</td>
<td>Psychometric or neuropsychological alterations of tests exploring psychomotor speed/executive functions or neurophysiological alterations without clinical evidence of mental change</td>
<td>Abnormal results of established psychometric or neuropsychological tests without clinical manifestations</td>
<td>No universal criteria for diagnosis Local standards and expertise required</td>
</tr>
</tbody>
</table>
| Grade I           |       | • Trivial lack of awareness  
• Euphoria or anxiety  
• Shortened attention span  
• Impairment of addition or subtraction  
• Altered sleep rhythm | Despite oriented in time and space (see below), the patient appears to have some cognitive/behavioral decay with respect to his or her standard on clinical examination or to the caregivers | Clinical findings usually not reproducible |
| Grade II          |       | • Lethargy or apathy  
• Disorientation for time  
• Obvious personality change  
• Inappropriate behavior  
• Dyspraxia  
• Asterixis | Disoriented for time (at least three of the following are wrong: day of the month, day of the week, month, season, or year) ± the other mentioned symptoms | Clinical findings variable, but reproducible to some extent |
| Grade III         | Overt | • Somnolence to semistupor  
• Responsive to stimuli  
• Confused  
• Gross disorientation  
• Bizarre behaviour | Disoriented also for space (at least three of the following wrongly reported: country, state [or region], city, or place) ± the other mentioned symptoms | Clinical findings reproducible to some extent |
| Grade IV          |       | Coma | Does not respond even to painful stimuli | Comatose state usually reproducible |

All conditions are required to be related to liver insufficiency and/or portosystemic shunting.

HE: hepatic encephalopathy; ISHEN: International Society for Hepatic Encephalopathy and Nitrogen Metabolism; MHE: minimal hepatic encephalopathy