MRI PROTOCOL

1. MRI sequences for cerebral microbleed detection

*Gradient-recalled echo (GRE) T2* MRI* is generally used to detect cerebral microbleeds (CMBs) because of its high sensitivity to paramagnetic blood-breakdown products. Choice of MRI parameters may affect the identification of microbleeds. The table below shows the **optimal** and **accepted limits** of the important MRI parameters for GRE T2* sequences.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Optimal</th>
<th>Accepted limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slice thickness (ST)</td>
<td>3mm</td>
<td>3-5 mm</td>
</tr>
<tr>
<td>Slice gap (SG)</td>
<td>Ideally no gap</td>
<td>Not more than 1mm</td>
</tr>
<tr>
<td>Echo time (TE)</td>
<td>20-30 ms</td>
<td>15-40 ms</td>
</tr>
</tbody>
</table>

2. Other required MRI sequences

Please include the following sequences if these are not already a part of an existing “stroke protocol”. We have not specified exact sequence parameters for most of these.

- **Axial T2-weighted MRI** should be obtained to identify CMB mimics (e.g. cavernomas).
- **Axial Diffusion-weighted MRI** should be obtained to detect acute ischemic lesions.
- **FLAIR** sequences should be included for sensitively identifying white matter changes.

<table>
<thead>
<tr>
<th>Optimal FLAIR MRI sequence</th>
<th>Accepted sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumetric FLAIR (3D-Cube FLAIR)</td>
<td>Coronal FLAIR with 3 mm slice thickness</td>
</tr>
</tbody>
</table>

**Coronal T1-weighted images** are useful for identifying medial temporal lobe atrophy, lacunes, and acute to subacute haemorrhage.

3. Optional MRI sequence

- **Susceptibility-weighted imaging (SWI)** is a new blood-sensitive technique which is currently the most sensitive means to image cerebral microbleeds.
- Although not essential, the use of this sequence is strongly encouraged if possible

**PLEASE CONTACT US IF YOU HAVE ANY QUESTIONS ABOUT THE MRI PROTOCOL**

Many thanks!
DETAILS OF MRI PROTOCOL FOR CROMIS-2 – TO BE FILLED IN BEFORE OR DURING SITE INITIATION VISIT

Centre Name: ________________________________________________________________

Name of person completing the form: ____________________________________________

MRI Scanner system used:

Field strength: ________________________________

Manufacturer and name: ______________________________________________________

MRI sequences:

GRE T2*     Slice thickness ______

Slice gap ______

Echo time ______

T2WI? Yes ☐ No ☐

COMMENTS

__________________________________________________________

__________________________________________________________

DWI? Yes ☐ No ☐

COMMENTS

__________________________________________________________

__________________________________________________________

FLAIR? Yes ☐ No ☐

COMMENTS

__________________________________________________________

__________________________________________________________

T1WI? Yes ☐ No ☐

COMMENTS

__________________________________________________________

__________________________________________________________

SWI? Yes ☐ No ☐

COMMENTS

__________________________________________________________

__________________________________________________________

Please return to Clare Shakeshaft, CROMIS-2 Study Co-ordinator, CROMIS-2 study, Stroke Research Office, Box 6, NHNN, Queen Square, London, WC1N 3BG or fax back to : 020 3448 4072.

Thank you.