Introduction and objective

Major depressive disorder (MDD) is a severe neuropsychiatric disorder with a global lifetime prevalence of 15% to 18% \(^1\). Two-third of MDD patients remains symptomatic after first-line treatment and about one-third will not achieve remission after finishing four subsequent treatments \(^1,2\). We aim to:

- Identify MRI-based biomarkers to improve treatment decision-making using longitudinal outcome of major depressive disorder
- Conduct psychiatric evaluation of depression and related comorbidity using questionnaires and history taking
- Evaluate cognition using eye-tracking methods and psychometric assessment

MRI Protocol*

<table>
<thead>
<tr>
<th>Type of MRI sequence</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>Localization and planning</td>
</tr>
<tr>
<td>T1-weighted (MPRAGE)</td>
<td>Anatomy</td>
</tr>
<tr>
<td>T2-weighted (FLAIR)</td>
<td>White matter lesions, anatomy</td>
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<tr>
<td>T2-weighted (TSE)</td>
<td>High-resolution subcortical anatomy</td>
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<tr>
<td>T2*-weighted (SWI/QSM)</td>
<td>Iron, microbleeds, large vessels, anatomy</td>
</tr>
<tr>
<td>Diffusion-weighted Imaging (DWI)</td>
<td>Anatomical connectivity</td>
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<tr>
<td>Resting-state fMRI (EPI)</td>
<td>Functional connectivity</td>
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<tr>
<td>Task-based fMRI (EPI)</td>
<td>Evoked brain activity</td>
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<tr>
<td>Microvascular MRI (IVM)</td>
<td>Blood flow / micro vessels</td>
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* Scanned with a Philips 3T Achieva scanner using compressed SENSE

Estimated total time: 59 minutes

Study design

Inclusion criteria

- DSM-5 diagnosis of MDD
- Unipolar depression
- Age: 18-65 (m/f)

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Milestones

2020
- Start enrollment of patient and controls

2021
- Interim analysis

2022
- Finalize study

2023

2024

Psychiatric evaluation and cognitive assessments

- History taking including medication
- DSM-5 Diagnosis and Specifiers
- Hamilton Depression Rating Scale (17 items)
- Hamilton Anxiety Rating Scale (14 items)
- Cognitive Emotional Regulation Questionnaire
- Eye-tracking
- Functional level of intelligence (RAVEN)
- Information processing speed (FEPSY)
- Episodic declaritive memory (RAVLT)

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