

## Subjective Cognitive Decline in Cerebral Small Vessel Disease

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### Introduction:

Cerebral small vessel diseases (CSVD) is very common in brain aging (**Figure 1**). CSVD is related to cognitive impairment and dementia. During the last years subjective cognitive decline (SCD) has become of great interest and it has been shown to relate to early biomarker pathologies of e.g. Alzheimer's disease. SCD is thereby defined as the self-perception report of cognitive performance. The relationship between CSVD and SCD has not been explored so far.

### Methods:

CSVD patients with available cognitive tests including the Mini Mental Status Examination (MMSE) were retrospectively selected from the CSVD cohort of the Department of Neurology and the German Center for Neurodegenerative Diseases (DZNE), Magdeburg. CSVD was defined by the presence of hemorrhagic markers, i.e. cerebral microbleeds, within iron-sensitive MRI sequences. We identified 132 patients that underwent MMSE. Of those, 86 (65%) were cognitively normal, 9 (7%) had mild cognitive impairment (MCI) and 37 (28%) had dementia.

Within a next step we plan to identify those cognitively normal CSVD patients that suffered from SCD. We will therefore apply an approach that has been suggested by Vogel et al.<sup>2</sup>. Taking the Geriatric Depression Scale (GDS) a factor analysis will be conducted and we expect this way to generate an affective score and a SCD score.

### Outlook:

We then plan to address the following questions:

- (1) What is the prevalence of SCD in CSVD?
- (2) What is the conversion rate from SCD to MCI or dementia in CSVD?
- (3) How can measures of SCD be done related to (i) CSVD MRI markers comprising cerebral microbleeds, white matter hyperintensities, lacunes, perivascular spaces, (ii) cerebrospinal fluid measures of pathological proteins and (iii) the vascular risk profile of the patients?