Introduction

- People with mild vascular cognitive impairment (mVCI), the most prevalent form of vascular cognitive impairment (VCI) and a prodromal stage of vascular dementia, display a combined etiology of cognitive impairment and vascular comorbidities.
- Currently, there are no treatments that successfully alter the disease progression of mVCI.
- Myeloperoxidase, and enzyme found in neutrophils, creates reactive oxygen and nitrogen species and has been implicated in the pathophysiology of vascular disorders and cognitive impairment.
- The purpose of this study is to investigate the association between peripheral MPO and cognitive and neuroimaging correlates of mVCI. We hypothesize that higher peripheral MPO concentrations will be associated with lower verbal memory scores and higher white matter hyperintensity volumes in mVCI patients.

Methods

- Patients will be recruited during intake from a cardiac rehabilitation program. Clinical history of vascular disease, and the core criteria for Subcortical Ischemic MCI including cognitive deficits and neuroimaging results will be used to make the diagnosis of mVCI.
- Verbal memory will be assessed using Hopkins Verbal Learning Test- Revised as a part of a 60-minute battery recommended by National Institute of Neurological Disease and Stroke-Canadian Stroke Network standards.
- While white matter hyperintensity (WMH) volumes will be acquired using 3 Tesla Prisma Siemens MR scanner and quantified using the Canadian Dementia Imaging Protocol for the semiautomatic and simultaneous quantification of WMH volumes.
- Myeloperoxidase (MPO) will be measured from the plasma processed from a fasting blood draw using Abcam’s MPO ELISA kit.
- Pearson’s correlations and linear regression will be used to assess the relationships between MPO and verbal memory, and MPO and WMH volumes using SPSS version 26.
- Covariates were based on the current literature.

Results

- **Patient demographics are displayed in Table 1.**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Mean (SD)</th>
<th>Range</th>
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<tbody>
<tr>
<td>67.2 ± 7.4</td>
<td>52-84</td>
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</table>

- **Dependent Variables (covariates: age, BMI)***

<table>
<thead>
<tr>
<th>Measures</th>
<th>Log MPO (ng/mL)</th>
<th>Log MPO (ng/mL)</th>
<th>Pearson’s correlation between MPO and verbal memory, and MPO and WMH volumes in Table 2.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSBP</td>
<td>0.607 (p= 0.248)</td>
<td>0.23 (p= 0.599)</td>
<td>0.17 (p= 0.19)</td>
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**Conclusions**

- Cognitive decline is associated with a higher risk of hospitalization and mortality and contributes to a decline in activities of daily living and quality of life.
- Findings suggest that MPO can have detrimental effects on cognition which may be mediated by changes in WMH volumes, in mVCI population.
- Novel therapeutic target for preventing cognitive decline.

**References**


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