Small vessel disease burden in patients with retinal ischaemia

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INTRODUCTION

Retinal ischaemia represents an important subset of stroke presentations. There is however a paucity of literature regarding the burden of small vessel disease in this little studied but significant population.

We aimed to determine rates of cerebral small vessel disease (SVD) and silent brain infarction (SBI) in retinal ischaemia causing transient and permanent visual loss (TVL and PVL).

METHODS

We reviewed the records for consecutive patients presenting to the daily TIA clinic at University College London Hospital (UCLH), a regional referral centre for north central London and Moorfields Eye Hospital, from June 2013-September 2018. We rated SVD on CT head (CTH) using the van Swieten scale[1] (vSS). We defined SBI as the presence of lacunes or cortical infarcts without previous TIA/stroke. We compared number of vascular risk factors (No.RFs) for SVD and SBI.

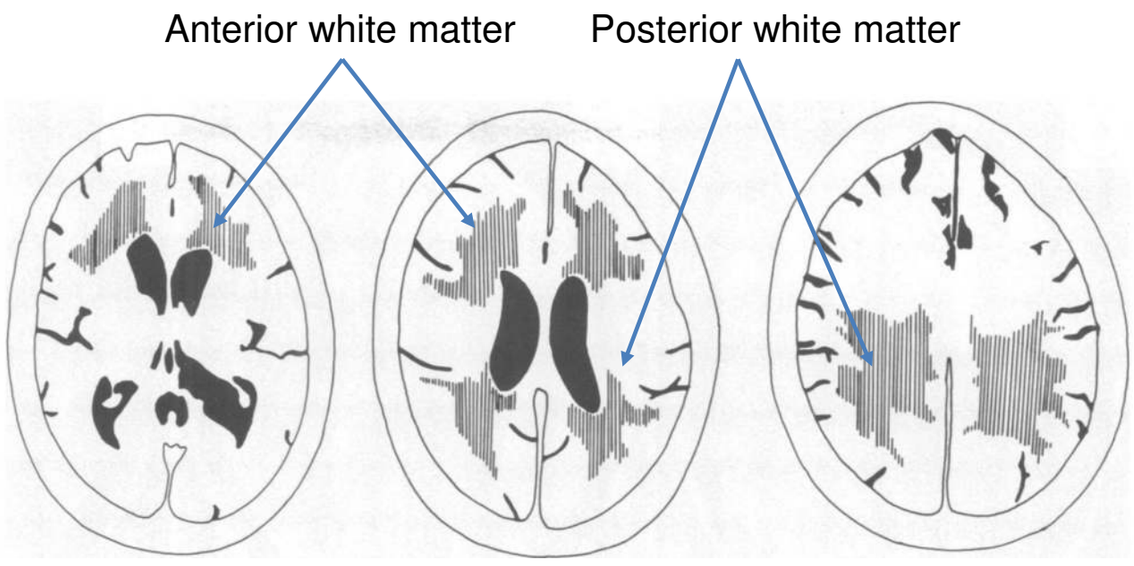

Figure 1. van Swieten scale for grading white matter leukariosis. Anterior and posterior white matter both given a score of 0-2 on 3 consecutive CT slices. Maximum score on van Swieten scale = 4.

RESULTS

Of 485 patients, 356 (73%) had a CTH, 211 (59%) were male, mean age 66.1 years. 223 (63%) had TVL and 133 (37%) had PVL.

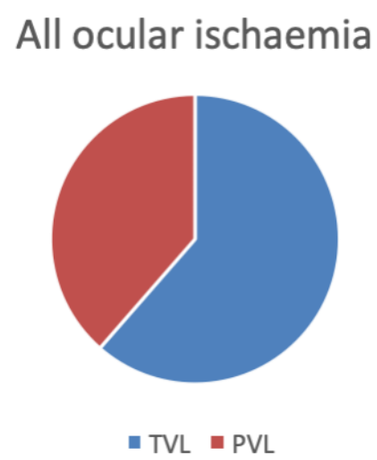

Figure 2. Rate of TVL vs PVL

Demographics	
Mean age	66.1 years
M:F ratio	3:2
TVL	63%
PVL	37%

Table 1. Patient demographics

Patients with SVD had more vascular risk factors (mean 2.0 vs. 1.4, p=0.000), as did patients with SBI (1.8 vs. 1.4, p=0.03). Significant RFs for SVD were hypertension (OR 2.7, 95%CI=1.6-4.4), previous stroke (OR 3.9, 95%CI=1.3-11.4) and previous TIA (OR 2.9 95%CI=1.1-8.0).

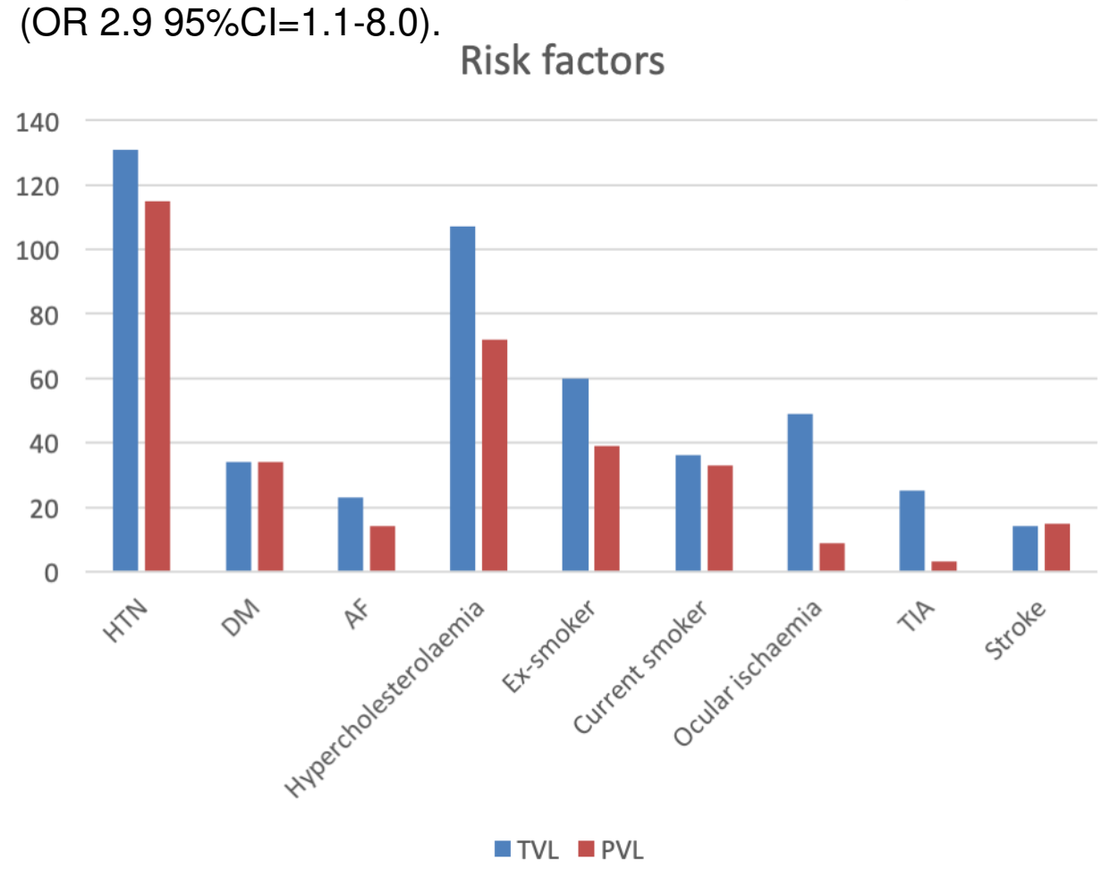

Figure 3. Risk factors in TVL vs PVL

Rates of SVD and severity were comparable between TVL and PVL (40% vs. 45%, p=0.42; mean vSS=0.7 vs. 0.8, p=0.32). Rates of SBI lacunes were 13% for TVL and 21% for PVL (p=0.07); rates of SBI cortical infarcts were 4% for both groups (p=1.00).

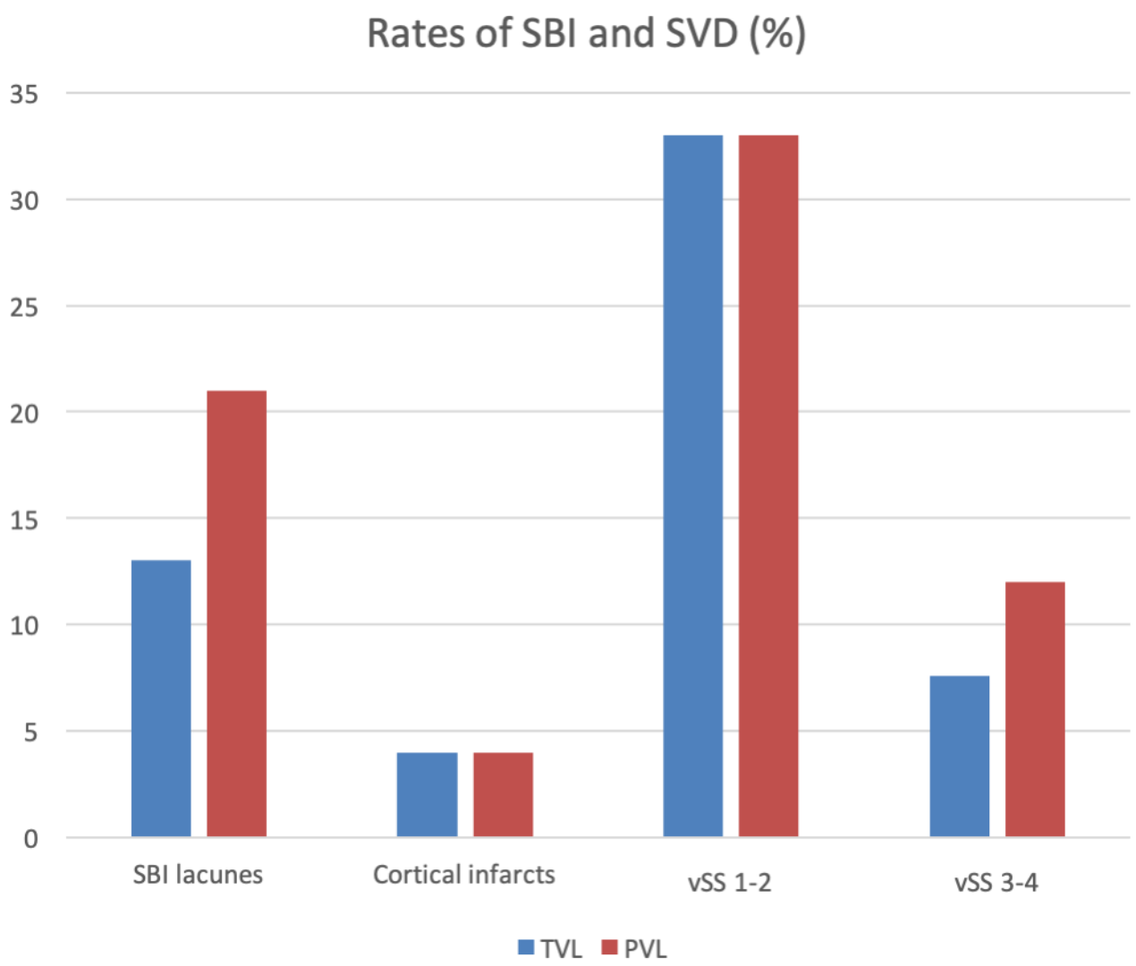

Figure 4. Rates of SBI and SVD in TVL and PVL

CONCLUSION

This work represents the first description of rates of SVD and SBI in patients with retinal ischaemia. Rates of SBI in retinal ischaemia are comparable to patients with cerebral TIAs and we suggest they are treated on a par with cerebral ischemia.

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References
1. van Swieten JC, Hijdra A, Koudstaal PJ, van Gijn J. Grading white matter lesions on CT and MRI: a simple scale. J Neurol Neurosurg Psychiatry. 1990 Dec; 53(12): 1080–1083.