

EXPLORING THE ASSOCIATION BETWEEN WHITE MATTER LESIONS AND OTOLOGICAL SYMPTOMS

AUTHOR

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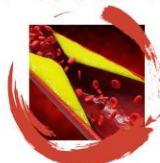
AFFILIATIONS

- Swansea University
- Cardiff University
- Cwm Taf Morgannwg University Health Board
- Research & Development Unit
- RCBC Wales



INTRODUCTION

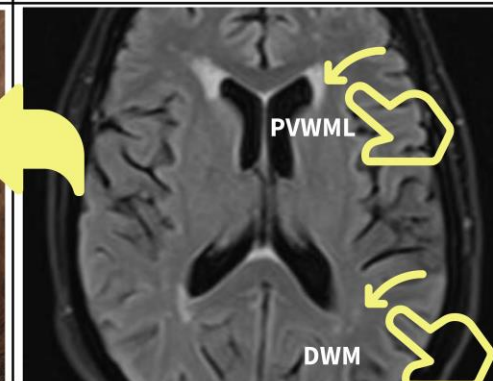
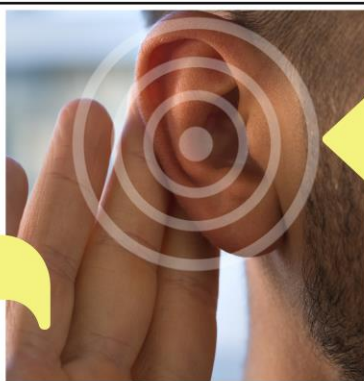
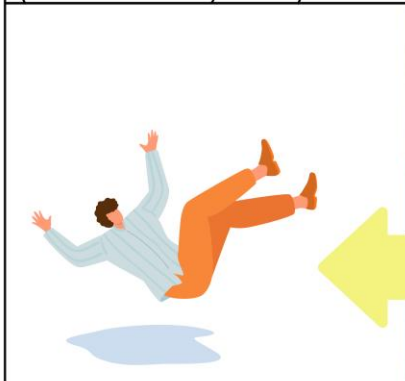
Some patients are referred from audiology for an MRI scan of the internal auditory pathway; at the same time images of the brain are taken. Brain changes (white matter lesions) are found by chance and are a hallmark symptom of cerebral small vessel disease.



They can be categorised as periventricular white matter (PVWM) and deep white matter (DWM)(Gaillard et al., 1987). Previous research has shown that white matter lesions can disrupt neural pathways involved in auditory and vestibular processing (Schulz et al., 2021).

RESEARCH QUESTION

Can brain changes (white matter lesions) observed on MRI scans be associated with hearing loss and balance symptoms?



OBJECTIVES

- 1 To determine if there is a correlation between white matter lesions, hearing loss and balance problems?
- 2 To improve the accuracy of a computer program used to standardise reporting methods of brain changes.

METHODOLOGY

- Recruited 70 subjects (60+) who underwent MRI scans in audiology within the past 2 years.
- Ethical Approval from Brighton & Sussex HRA
- Patient Consent
- Anonymise Data

ANALYSIS

- 4 groups determined by Fazekas score
- Non-linear regression
- Wilcoxon ranked signed test
- Compare Fazekas score, auditory and vestibular status

CONCLUSION

The results gained from this study could standardise future reporting methods and support Radiologists to optimise quantification. The learning gained from this project could inform preventative programmes of work.

REFERENCES

Wardlaw, J.M., Smith, C., & Dichgans, M. (2019), Small vessel disease: mechanisms and clinical implications. *The Lancet*, 18, 684-696. [https://dx.doi.org/10.1016/S1474-4422\(19\)30079-1](https://dx.doi.org/10.1016/S1474-4422(19)30079-1). Gaillard F, Deng F, Yasin W, et al. (1987). Fazekas scale for white matter lesions. Reference article, Radiopaedia.org (Accessed on 1 Nov 2024) <https://doi.org/10.53347/rID-28447>