Review of Indications and Outcomes of Functional Brain Imaging by FDG-PET in Individuals Presenting with Cognitive Decline in the Cardiff and Vale Population

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Aims & Objectives

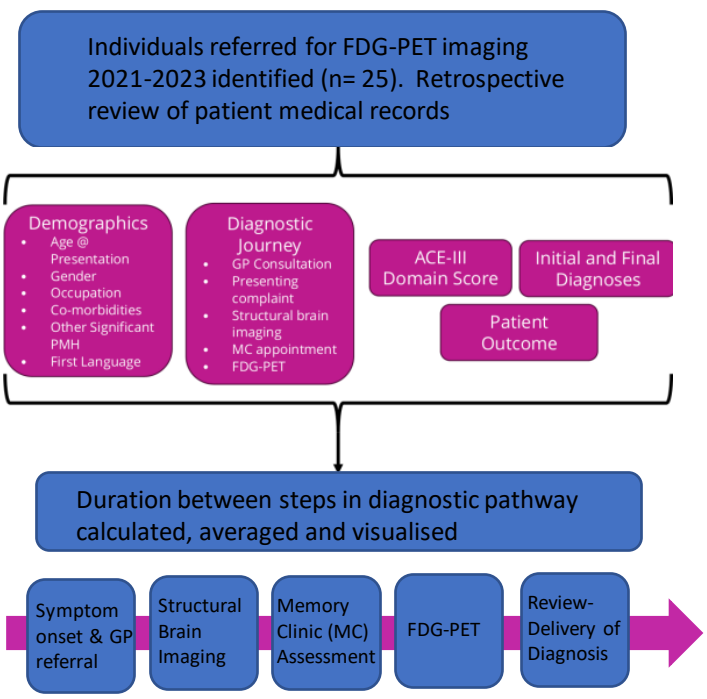
To review patients assessed by the Cardiff and Vale University Health Board memory assessment service referred for FDG-PET imaging after complex case discussion for evaluation of possible neurodegenerative disease following approval for use of this imaging modality for Wales in 2021. We aimed to determine key demographic features, presenting symptoms, working diagnosis, imaging outcomes and impact on subsequent patient management. Additionally to establish that referrals for functional brain imaging within the health board aligned with the WHSCC commissioning policy.

Introduction

The Memory Team in Cardiff and Vale UHB sits within the Medicine Clinical Board. The majority of patients presenting with cognitive decline will be assessed, diagnosed and have post-diagnostic support provided through the multidisciplinary team. There is currently an estimated population of 5773 people over the age of 65 living with dementia within the health board. The service received 1936 between 2023 and 2024 and provides post diagnostic support to over 3500 individuals and their care givers.

Symptom heterogenicity within dementia subtypes may be difficult to differentiate and can lead to misdiagnosis which has significant implications on patient management. The NICE guidelines for dementia 2018 [NG97] recommend the use of FDG-PET where there is diagnostic uncertainty. As of 2021, a national and collaborative initiative supported the use of FDG-PET brain imaging for dementia in patients in Wales to facilitate more accurate and timely diagnoses with a higher degree of confidence.

Methodology

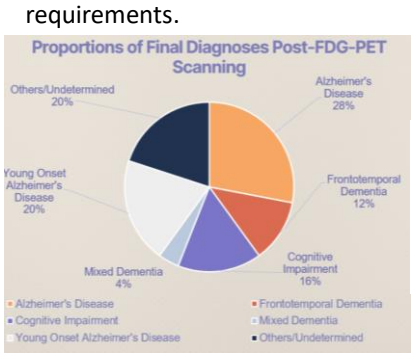


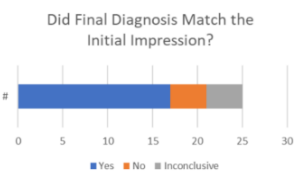
Results

The average age of patients referred for FDG-PET imaging was 63.3 years (sd=7.69). Of these patients, 60% were under the age of 65 (n=15). 60% of individuals in the cohort were female. 72% of individuals had one or more comorbidities for dementia. Individuals where English was not their first language accounted for 8% of the cohort.

The mean time taken from GP referral to MC review was 108.7 days (sd= 44.9). The mean duration from MC review to FDG-PET was 201.7 days but this was heavily influenced by one outlier with a complex presentation. The median time from MC review to FDG-PET was 71 days.

The most common final diagnosis was Alzheimer's disease and its varying subtypes. In 16% (n= 4) of individuals the final diagnosis differed from the initial clinical suspicion. One individual with suspected FTD was diagnosed with logopenic variant AD, one with amnestic MCI was diagnosed with young onset AD, one with multifactorial CI was diagnosed with mild AD and one individual was diagnosed with Huntington's disease. Patient outcomes depended on final diagnosis but included referrals to young onset dementia services, memory link worker allocation and annual review.
100% of FDG-PET referrals met WHSCC commissioning policy requirements.





Conclusions & Limitations

This service evaluation project has demonstrated that in the Cardiff and Vale area since the introduction of FDG-PET for individuals where dementia diagnosis remains uncertain in 2021, 100% of requests were compliant with WHSCC guidelines. FDG-PET imaging was more likely to be completed for individuals presenting at a younger age. In the majority of individuals (80%) FDG-PET imaging supported the clinical team in establishing a final diagnosis with greater confidence. We were also able to establish that in 84% of individuals the outcome of the FDG-PET was consistent with the initial working diagnosis following clinical assessment. The length of time between initial review in MC and FDG-PET imaging varied considerably between individuals but the impression was that access to FDG-PET in Wales has supported earlier confirmation of diagnosis compared with prior clinical practice.

Limitations of the project include the lack of a control group for comparison prior to FDG-PET introduction and the small sample size. Future projects may be focused on cost-benefit analysis to the service and service user feedback on their experiences of the diagnostic process.

References

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