An Initiative to Enhance Bone Health Awareness and Management for Parkinson's Disease Patients: A Quality Improvement Project Focused on Diagnostic Testing and Fracture Risk Assessment

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INTRODUCTION

Parkinson's disease (PD) is associated with an increased risk of osteoporosis and fractures due to factors like falls resulting from postural instability, polypharmacy, and muscle weakness. (3) Reduced bone mineral density (BMD), often caused by vitamin D deficiency, disease severity, and low BMI, further elevates fracture risk in PD patients. (1) Currently there are no specific NICE guidelines related to identifying and managing osteoporosis in PD patients, aside from the advice that they should be on vitamin D supplementation.(2)

This project aims to improve awareness and bone health testing in PD patients by focusing on bone health testing, DEXA scans, and FRAX scores for fracture risk evaluation and management.

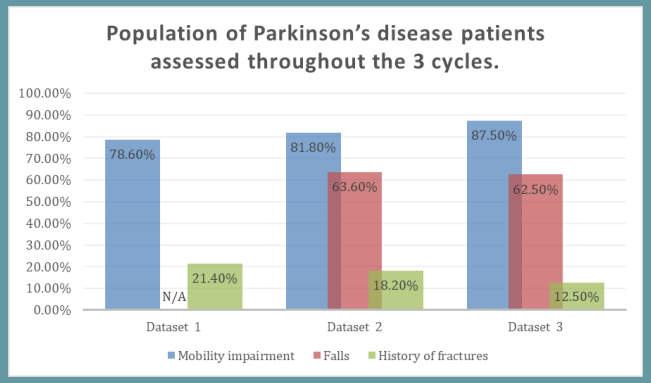
METHODOLOGY

This quality improvement project (QIP) comprised two cycles focused on managing Parkinson's disease (PD) patients at Hinchingbrooke Hospital. Baseline data were collected on patients' mobility, assistive device use, fracture history, osteoporosis testing, and current calcium and vitamin D supplementation. The first cycle included educational sessions for junior doctors and promotional posters for bone health testing. The second cycle involved creating individualized treatment plans with recommendations for vitamin D testing, FRAX score calculations, and DEXA scans, all documented in the electronic patients' records. Data were gathered at three points:

Dataset 1 — Baseline data → **Dataset 2** — Post first intervention → **Dataset 3** — Post second intervention

RESULTS

A comparison of the three datasets from Hinchingbrooke Hospital's quality improvement project highlighted a high risk of fractures and disability among Parkinson's disease patients. As demonstrated in the following chart.



Results of data analyzed following each intervention are highlighted as below:

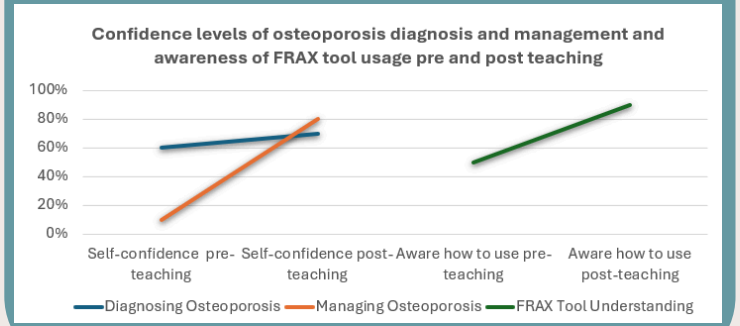
Findings in Dataset 2

- 63.3% of patients had not undergone vitamin D testing, while the rest were already receiving proper replacement prior to the intervention.
- 14.3% received a vitamin D test and were started on replacement. approximately 86% remained untested and without replacement post intervention

Findings in Dataset 3

- 25% of patients had not undergone vitamin D testing, while the rest were already receiving proper replacement prior to the intervention.
- 100% received a vitamin D test and were started on replacement.

A questionnaire to evaluate the effectiveness of a teaching session aimed at enhancing confidence in diagnosing and managing osteoporosis in PD patients and understanding the FRAX tool was analyzed. Results are demonstrated as below:



CONCLUSION

- Personalized treatment plans and targeted interventions led to significant improvements in vitamin D testing.
- Notable gaps remain in adherence to FRAX calculation and organizing DEXA scans.
- The teaching sessions proved to be highly effective, significantly enhancing participants' understanding of bone health issues in Parkinson's disease.

RESOURCES

1) Vaserman N. Parkinson's disease and osteoporosis. Joint Bone Spine 2005;72:282–8.

2) Parkinson's disease in adults . NICE guidance. https://www.nice.org.uk/guidance/ng71/chapter/recommendations#pharmacological-management-of-non-motor-symptoms (accessed on 18/10/2024)

3) Bezza A, Bezza Z, Ouzzif H, et al. Prevalence and risk factors of osteoporosis in patients with Parkinson's disease. Rheumatol Int 2008;28:1205–9