

Falls and Bone health in Parkinson's disease

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Background

- Parkinson's Disease is a common, progressive neurological condition
- Estimated to affect 100–180 per 100,000 of the population
- Parkinson's disease leads to extensive disability
- Huge economic impact

Falls and Parkinson's disease

- Falls are common in Parkinson's disease
- Prospective studies – 46% of PD patients will fall in 3 months of follow up
- Multiple factors increase falls risk in patients with PD

Fractures and Parkinson's disease

- Median duration of four years between Parkinson's diagnosis and first hip fracture (NoF)
- Retrospective studies indicate Parkinson's associated with doubling of fracture risk and tripling of hip fracture risk in early diagnosis
- Several case control studies have shown that Parkinson's patients have a lower bone mineral density than controls – lower physical activity level, sarcopenia, under nutrition
- MDT central for management and prevention of falls and fractures
- Fractured NoF associated with 8.2 % one-month and 25 % 12-month mortality in non-Parkinson's patients; unknown with PD

Fractures and Parkinson's disease

- NoF fracture admission associated with doubling of length of stay, and increased risk of pressure sores and Pneumonia in Parkinson's patients
- Huge economic impact NHS: £16.3 mil all fractures (5.7 % PD admissions), £13.7 mil fracture NoF (4.3 % PD admissions)

Assessing FractureRisk

- Lack of guidance for measuring fracture risk and managing bone health
- NICE guidelines acknowledges increased fracture risk with Parkinson's disease – recommends risk assessment but no details on how
- Fracture risk assessed by FRAX or QFracture in patients at risk of falls (NICE recommendation)

About you

Age (30-99): Sex: Male FemaleEthnicity:

Clinical information

Smoking status: Alcohol status: diabetes: Do either of your parents have osteoporosis/hip fracture? Do you live in a nursing or care home? Have you had a wrist spine hip or shoulder fracture? History of falls? Dementia? Cancer? Asthma or COPD? Heart attack, angina, stroke or TIA Chronic liver disease? Chronic kidney disease? Parkinson's disease? Rheumatoid arthritis or SLE? Malabsorption eg Crohn's disease, ulcerative colitis, coeliac disease, steatorrhea or blind loop syndrome? Endocrine problems eg thyrotoxicosis, hyperparathyroidism, Cushing's syndrome? Epilepsy or taking anticonvulsants? Taking antidepressants? Taking steroid tablets regularly? Taking oestrogen only HRT?

Leave blank if unknown

Body mass index

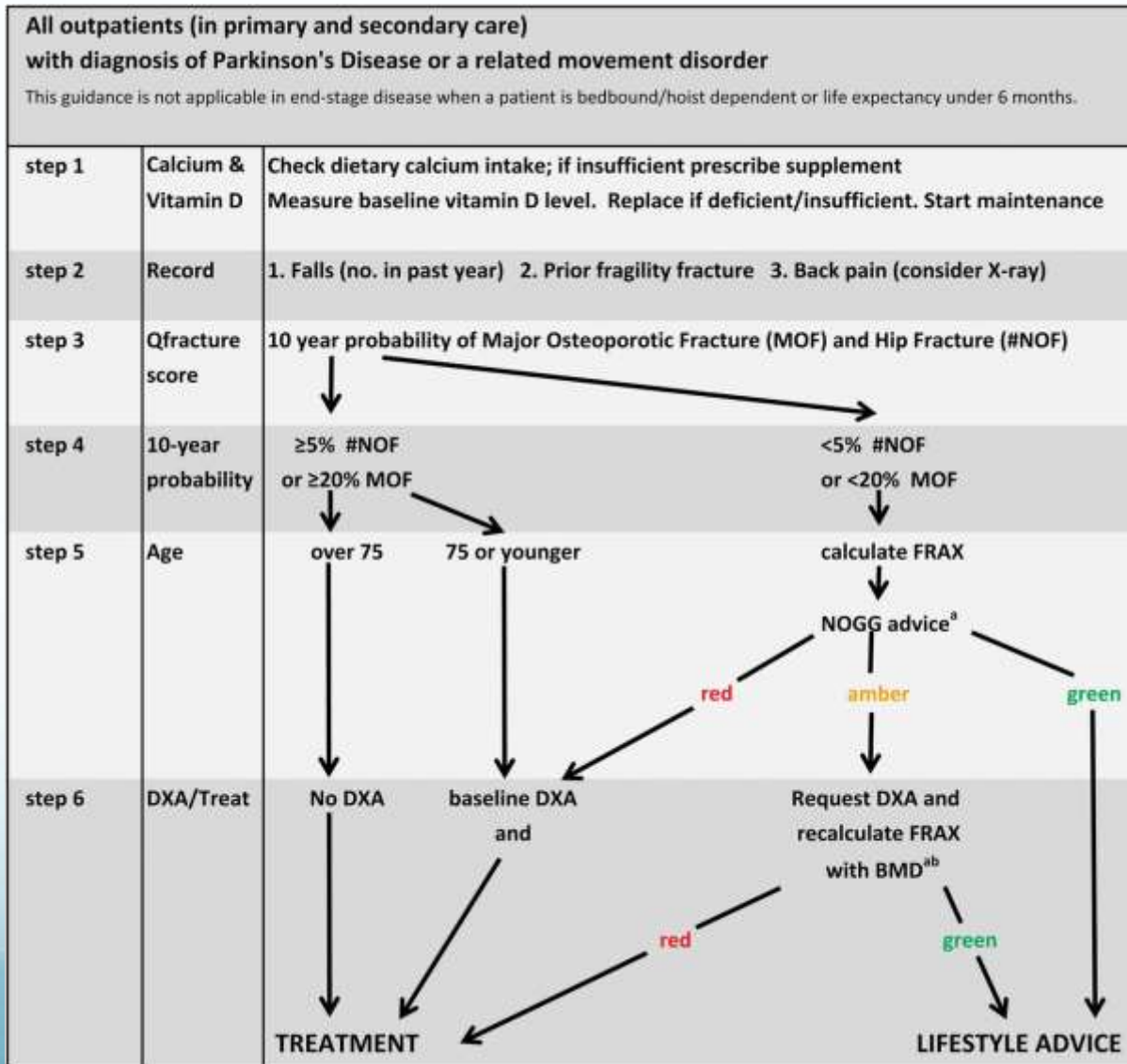
Height (cm): Weight (kg):

Your results

Your risk of having any osteoporotic (i.e. hip, wrist, shoulder or spine) fracture or hip fracture alone within the next 10 years is:

Hip, wrist, shoulder or spine fracture	34%
Hip fracture	26.6%

Algorithm for assessment and management of fracture risk



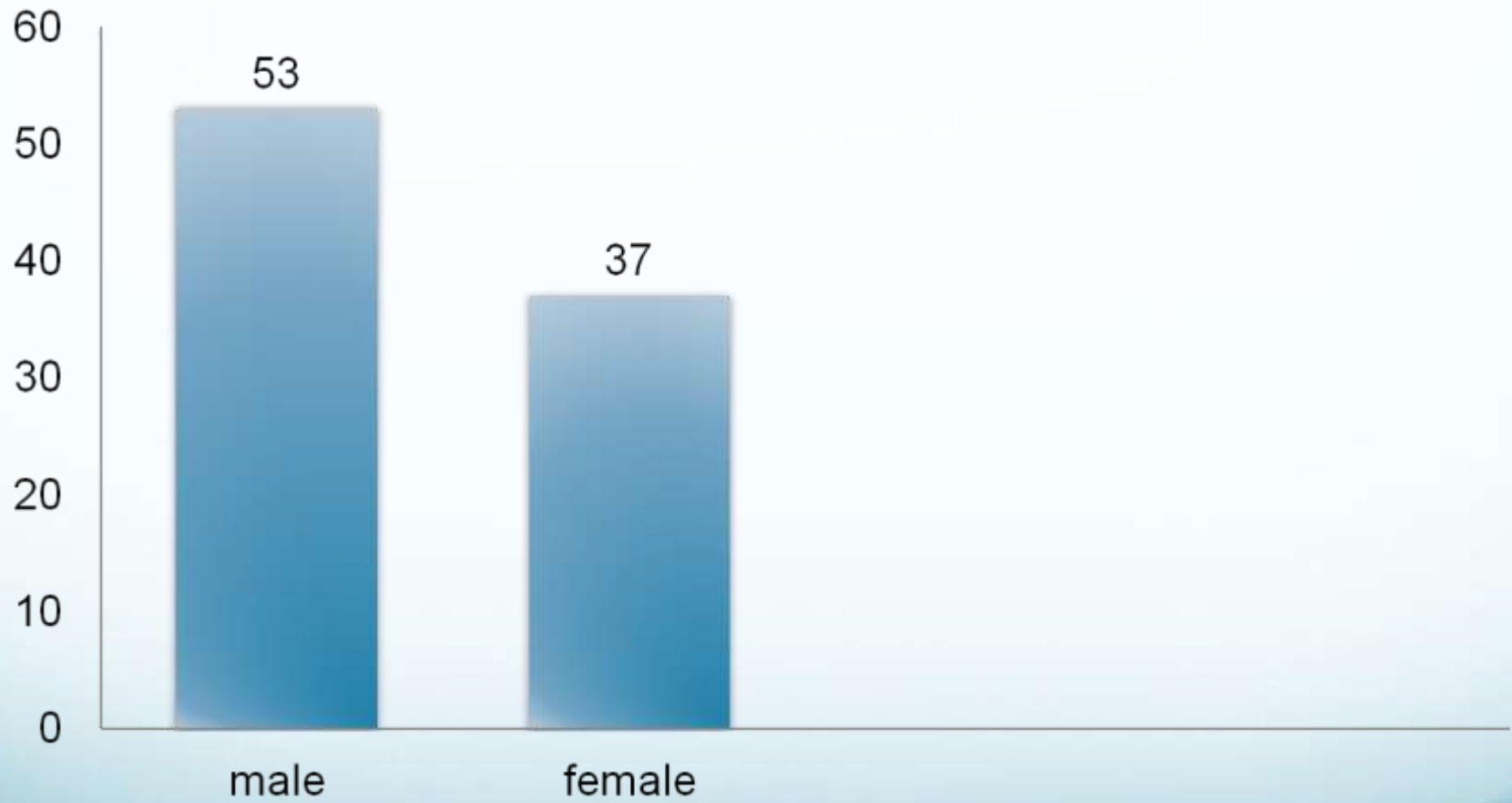
Aims

- To see if any fracture risk assessments are done in patients attending our PD clinics
- Identify patients with high fracture risk and prescribe bone protection or investigate accordingly

Study Design

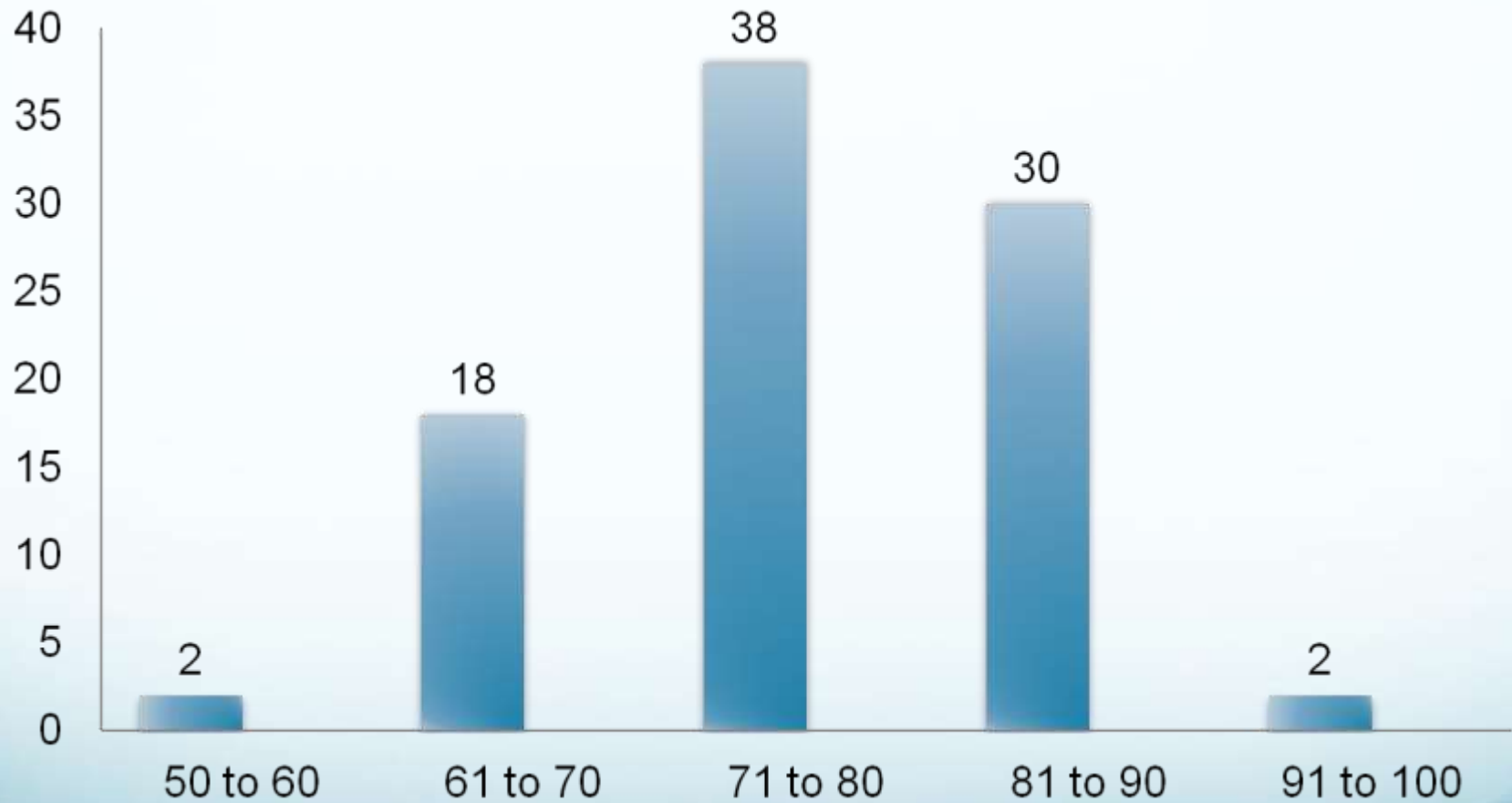
- Data collected from 90 patients attending Parkinson's disease clinic
- Quantification of falls and falls risk factors
- Looked for documentation of bone health assessments
- Calculated Q fracture scores for all these patients
- Treatment suggested to GP accordingly

Results

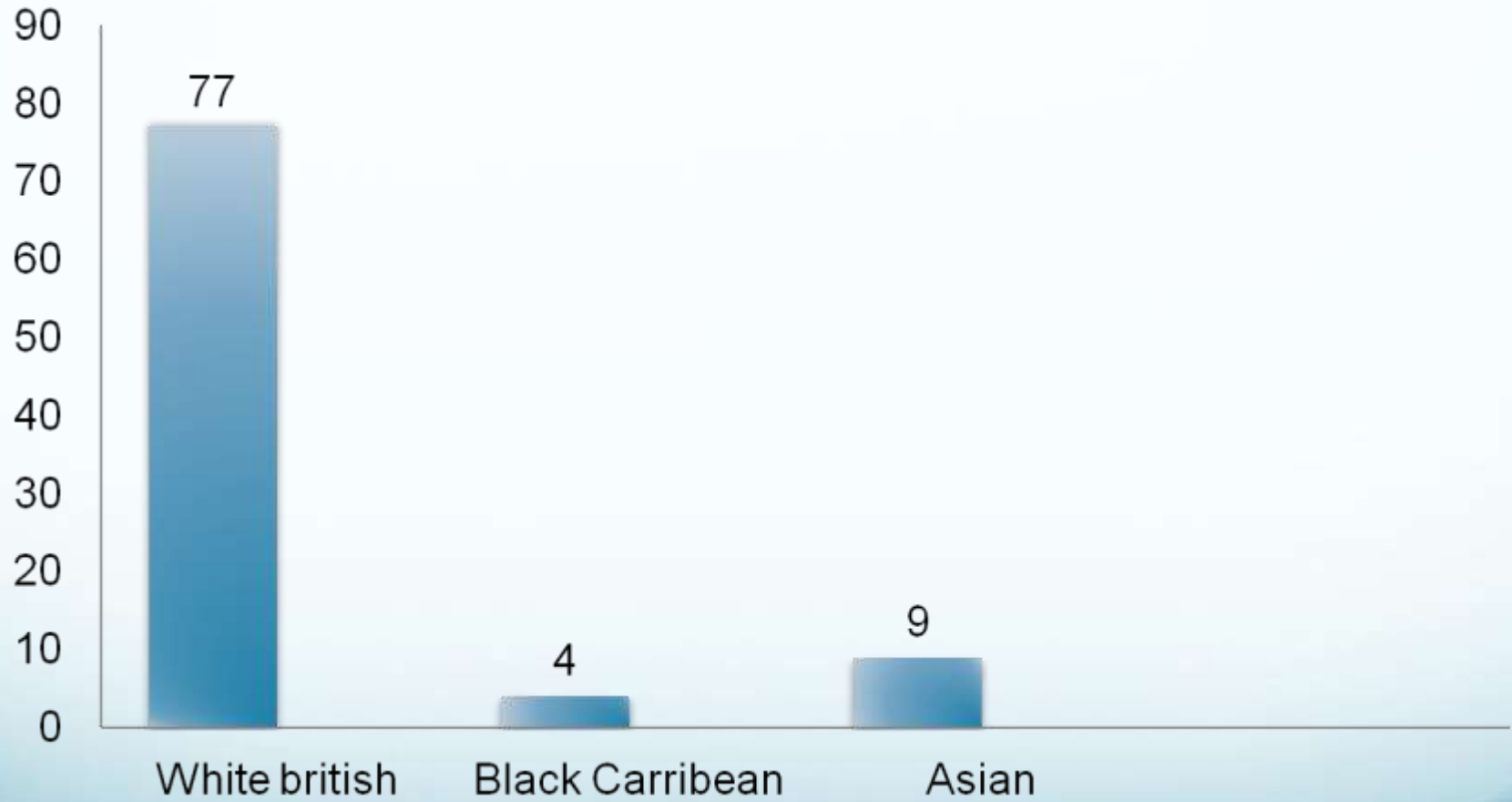


Total number of patients 90

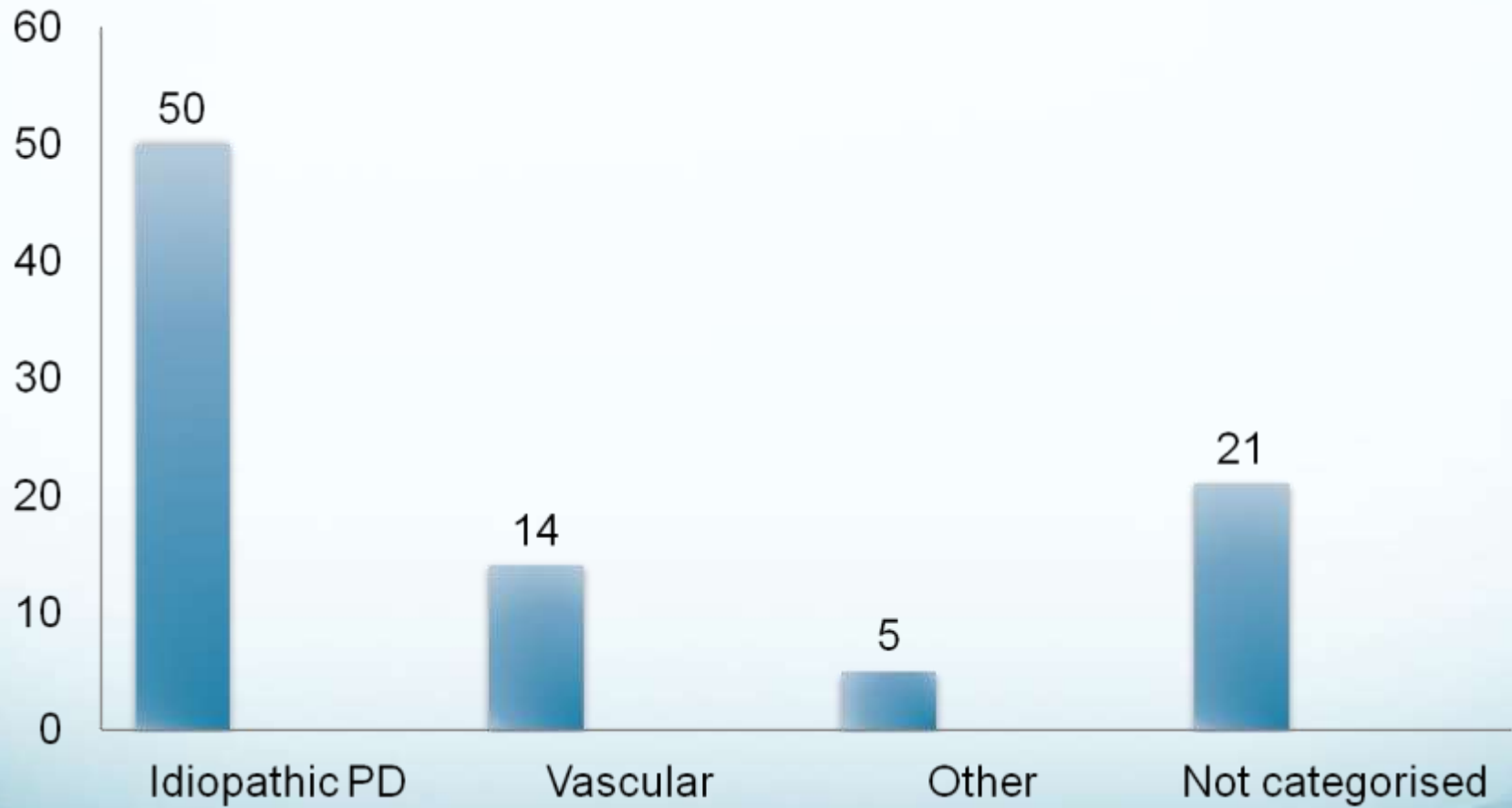
Results – Age distribution



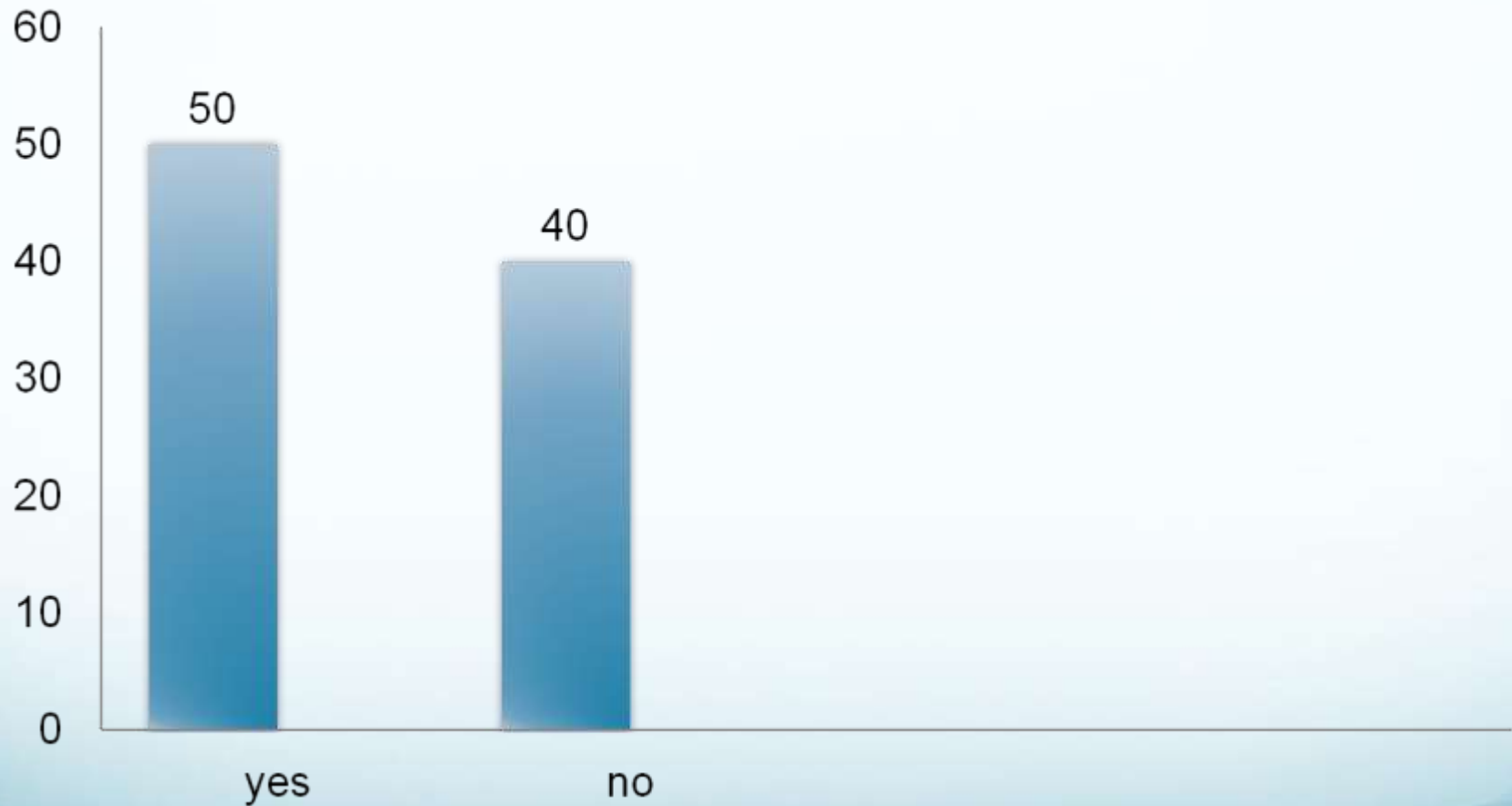
Ethnicity



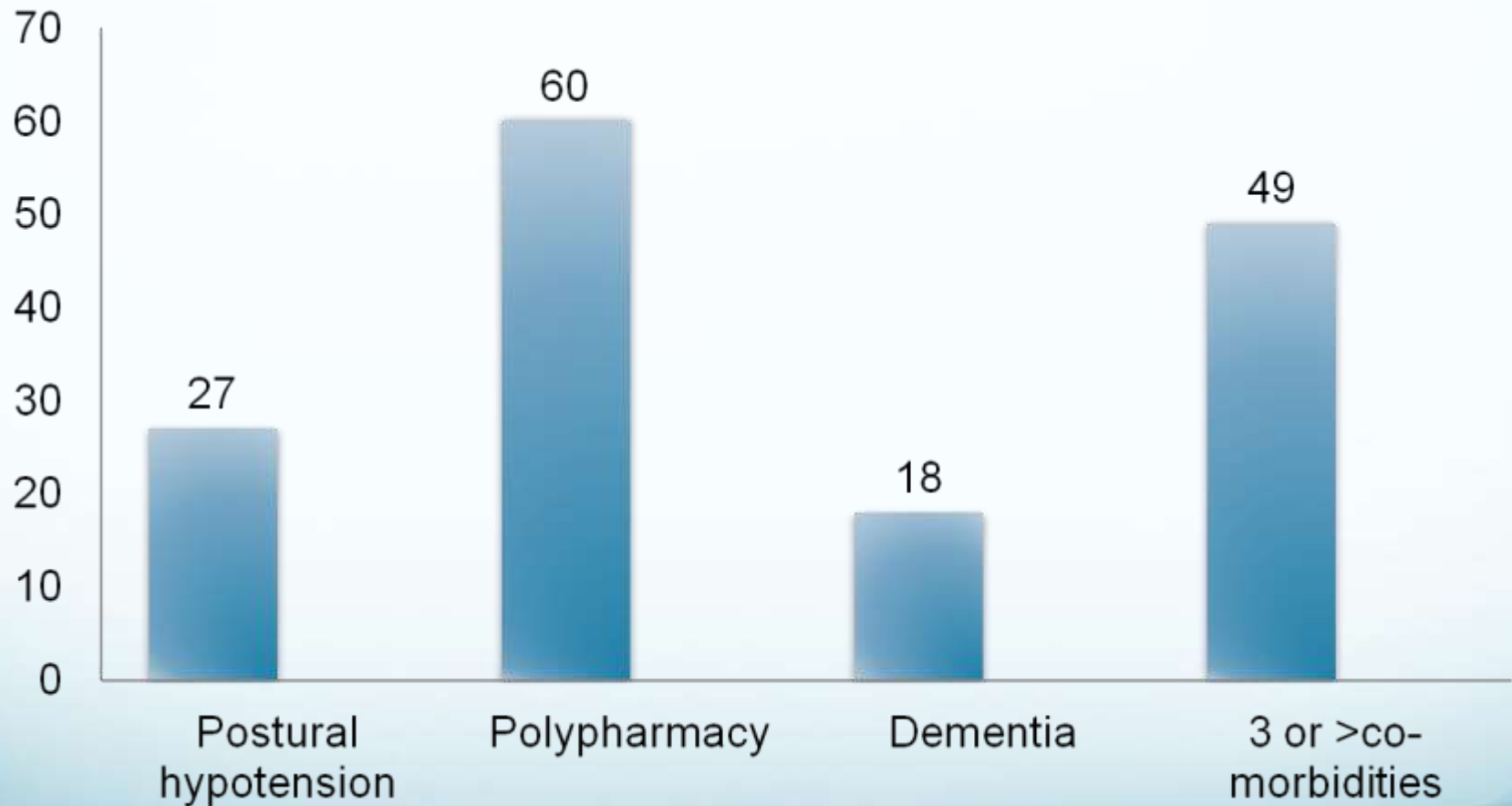
Diagnosis



Falls in the last 6 months



Risk factors for falls



Factors associated with increased fracture risk



Results

- No clear documentation identifying assessment of fracture risk
- All patients classified as high risk based on Qfracture validation guidance (Hippisley-Cox 2012):

	Top 10 th Centile NoF	Top 10 th Centile MOF
Women	5.3 %	11.1 %
Men	1.3 %	2.6 %

- 13 (14 %) patients taking vitamin D replacement
- 5 (6 %) patients prescribed Alendronate

Results

- 43 {47.7% } patients have Q fracture of 20 % or more for MOF

36 are over 75yrs 83.7%

16 had previous fractures 37.2%

28 have falls 65.1%

4 on alendronate 9.3%

Conclusions

- Fracture risk assessments very poorly done or documented in our study
- This study again highlights the need for guidelines for assessment and management of bone health problems in patients with PD

Limitations

- Random selection of patients
- Stage of PD is not taken in to account
- Not calculated Fracture NOF risk in the Q fracture score

References

- [Veronica Lyell¹](#), [Emily Henderson²](#), [Mark Devine¹](#) and [Celia Gregson^{1,3}](#) Assessment and management of fracture risk in patients with Parkinson's disease *Age Ageing* (2015) 44 (1): 34-41. doi: 10.1093/ageing/afu122 First published online: September 18, 2014
- Hippisley-Cox (2012) Derivation and validation of updated Qfracture algorithm to predict risk of osteoporotic fracture in primary care in the United Kingdom: prospective open cohort study *BMJ* 344:e3427 doi: 10.1136/bmj.e3427
- NICE (2012) Clinical guideline 146 Osteoporosis: assessing the risk of fragility fracture
- [NICE clinical guideline 161 Falls: assessment and prevention of falls in older people](#)
- NICE (2006) *Parkinson's disease: national clinical guideline for diagnosis and management in primary and secondary care* National Collaborating Centre for Chronic Conditions

Thank you