CAT 2. Clinical utility of assessment tools in predicting the risk of falls in Parkinson’s

Appraised by Kevin Galbraith, August 2016
Update due 2019

Clinical question
Among people with Parkinson’s, what elements of assessment have the greatest overall utility in predicting the risk of falls?

Background
Falls are common among people with Parkinson’s, and are associated with a poor prognosis.2 There are many assessment tools for estimating the risk of falls,3 but they are often time-consuming and require specialist equipment, reducing their utility in a busy outpatient setting.4 Clinicians need to efficiently screen patients for fall risk, to decide which of them merit more extensive assessment, and measures to prevent future falls. This CAT sought to identify a suitable, validated clinical prediction rule.

Clinical bottom line
1. A clinical prediction tool has been identified, which accurately screens people with Parkinson’s for future fall risk in less than 5 minutes in an outpatient setting. It has been externally validated in a second set of independent patients, who are likely to represent those among whom the tool would be applied in practice.

2. Some limitations were identified: the study was susceptible to ascertainment bias and recall error, and reliability was not measured.

3. This potentially very useful clinical prediction tool merits further evaluation in terms of impact in clinical practice.

Search terms
(Parkinson Disease/ OR Parkinson$) AND (Accidental falls/ OR fall$) AND (Risk assessment/ OR risk assessment OR assessment OR predict$ OR screening).

Search strategy
Ovid Medline, and adapted for Embase, Cochrane Library, and CINAHL. All searches up to August 2016.

Evidence
From 1667 articles, a single prospectively, externally validated clinical prediction rule was found.1 The validation study for this clinical prediction rule was critically appraised.4


Summary
This was a prospective study, undertaken to validate a simple clinical prediction tool for screening people with Parkinson’s for fall risk. The validation sample comprised 171 community-dwelling people with idiopathic Parkinson’s who were over the age of 40, diagnosed by a neurologist, determined to be between Hoehn & Yahr Stages I-IV (mild to moderate severity), scored > 24 on the Mini-mental State Examination, and who provided complete fall history data.
Individuals were excluded if they had been diagnosed with atypical parkinsonism, or had previous surgery for Parkinson’s. Falls were monitored prospectively for 6 months following assessment using the clinical prediction tool. The tool comprised three variables: (1) the occurrence of at least one fall during the previous year; (2) freezing of gait in the past month; and (3) self-selected gait speed <1.1 m/s (see below):

From Paul et al., 2013¹

| Name: | Medical Record number: |
| Date: | |
| Assessing the probability of falling in people with Parkinson’s disease | Score |
| Step 1 Ask your patient | |
| Have you fallen in the past 12 months? | Yes = 6 | No = 0 |
| Step 2 Ask your patient | |
| Have you experienced freezing of gait in the past month? | Yes = 3 | No = 0 |
| Step 3 Time you patient walking over the middle 4m of a 6m walkway at a comfortable pace: 3.6 s to walk 4m = “Yes” | Yes = 2 | No = 0 |
| Total Score | |
| Total Score | 0 | 2-6 | 8-11 |
| Probability of falling in the Next 6 months | Low (17%) | Moderate (51%) | High (85%) |
| Tick appropriate box | | | |

The tool accurately discriminated future fallers from non-fallers (area under ROC curve = 0.83; 95% CI 0.76–0.89), comparable to the developmental study. Sensitivity was 90.9% (95% CI 81.30–96.60); specificity 65.7% (95% CI 55.80–74.70); positive likelihood ratio 2.65 (95% CI 2.10–3.49); negative likelihood ratio 0.14 (95% CI 0.05–0.30).

The tool took less than five minutes to administer.

The following points should be noted:

- The test population was independent from the derivation set. It comprised a broad spectrum of patients, likely to be representative of those to whom the tool will be applied in practice.
- The outcome was ascertained without blinding to the result of the clinical prediction tool. This renders the study susceptible to ascertainment bias. Falls were self-reported by patients. Use of fall diaries may have been less susceptible to recall error.

- It appears (though it was not stated explicitly) that all the patients who were assessed using the clinical prediction tool were assessed for the outcome.
- Statistical analyses: all the important variables were included, and the positivity criteria explained. The reliability of the tool was not measured. It is possible therefore, that different examiners might score the same patient differently on the same day.

References


This Critically Appraised Topic, the others in the series, and the related clinical summary are the work of the Evidence-Based Practice Theme Working Group:

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