EDITORIAL

Falls and Parkinson’s disease

The paper by Ashburn et al. in this issue of Age and Ageing returns the focus of attention to a cardinal feature of Parkinson’s disease—postural instability [1].

While our knowledge of Parkinson’s disease (as judged by peer-reviewed publication) exceeds the general rate of expansion of medical knowledge, publications on falls in Parkinson’s disease have become less frequent in recent years. James Parkinson himself highlighted postural instability, describing one patient as having ‘a tottering gait’ and subsequently dying of the consequences of a fall [2].

Since the late Bernard Isaacs listed falling as one of the giants of geriatrics, our understanding of the epidemiology of falls, their consequences, and their management and prevention has dramatically improved. The techniques developed in more general studies of falls are highly applicable in the specific area of Parkinson’s disease [3].

Ashburn and colleagues have taken a community sample of patients and community controls and have applied the techniques of gait laboratory analysis to their study group.

Frequency of falls in Parkinson’s disease

Parkinson’s disease does not usually present with falling. Indeed, Hoehn and Yahr’s study of the symptoms and signs of Parkinson’s disease before the introduction of levodopa placed the concept of postural instability only at stage 3 in advanced disease [4]. This finding has been challenged by Klawans and others, who describe a tendency to fall in patients at an earlier stage of their disease [5]. Patients with parkinsonian features but having different pathologies (multiple system atrophy or supranuclear palsy) are more likely to fall early. It is necessary to exclude these conditions carefully in patients who present with falls [6].

Ashburn and co-workers’ study confirms that falling is very common, two-thirds of their patients having had more than one fall. This agrees with previous studies, which have shown that up to 90% of patients with Parkinson’s disease will fall at some stage [7]. Most patients with Parkinson’s disease fall indoors and serious injuries fortunately are unusual; but, as with all fallers, a cost is to be paid in confidence and quality of life.

Predicting tendency to fall

The findings of Ashburn et al. are also in agreement with other studies that have shown that age, duration and severity of disease are predictors of a tendency to fall. In a novel finding, those with severe impairment and who were non-fallers were distinguished by their high levels of anxiety and caution about falling. Fallers with mild impairment were more likely to have environmental falls, such as tripping.

Previously, gait analysis has shown that the main determinant of whether a patient with Parkinson’s disease falls is postural instability, as demonstrated by an impaired response to perturbation and an inability to make anticipatory postural adjustments [8]. The Australian group led by Iansek has validated a battery of four tests (tandem stance, single-leg stance, functional reach and external perturbation) which distinguish fallers and non-fallers in Parkinson’s disease.

Ashburn and co-workers used the ‘get up and go’ test, which entails standing up from a chair, walking 3 metres, turning around, walking back to the chair and sitting down. The results were analysed by time taken, ratings of the number of steps, reduction of arm swing, heel strike and the use of walking aids. In addition, they used a dynamic balance control as measured by functional reach—a reach as far forward as possible from a standing position without falling or taking a step. Postural sway was measured by the use of a balance performance monitor. The ‘get up and go’ test is particularly attractive as it can be simply performed in a clinic or ward. The study shows, by means of this test, that fallers were distinguished by the use of frequent small steps while walking. They also had reduced functional reach and increased sway during a distracting task.

Laboratory-based studies of postural instability make ordinary clinical practice look very crude. Most clinicians rely on checking for propulsion or retropulsion to determine postural instability, yet these do not compare with dynamic tests in a gait laboratory. Indeed, there are no studies to confirm the usefulness of simple clinical observations in predicting falls [10].

Management

As the pathophysiological basis of falls becomes clearer, can we improve our management of such cases? Most clinicians will be dealing with more complex situations than the experimenters. While recognizing that specific impairment of postural and righting reflexes may be part of advanced disease, there must be pessimism that our current drug therapy will help these problems. Equally, the rehabilitation techniques normally applied are of unproven value.

The geriatrician must always be on the lookout for non-specific factors as initiators of falls, particularly
co-morbidity. Postural hypotension, for example, is exacerbated by drug therapy and, once controlled, can greatly reduce morbidity. Gait re-education can improve postural instability but so often it is attempted in patients who have cognitive impairment and other defects of attention, which may lessen its effectiveness. Likewise, arteriosclerotic pseudo-parkinsonism is associated with greater degrees of disequilibrium than Parkinson’s disease and early recognition of this condition can help in prevention.

Ashburn and co-workers’ study shows that patients with a good response to levodopa were more likely to fall and that falling was associated with dyskinesias and motor fluctuations. While the primary finding in their study showed that fallers were distinguished by their use of small frequent steps, it is unclear whether this is an adaptive phenomenon to increase stability (it is also seen in other disorders, such as ‘senile’ gait disorder [11]).

Postural instability in Parkinson’s disease remains a challenge. We still lack knowledge and techniques to tackle this problem well. It is nevertheless pleasing that information is emerging which suggests that there are risks specifically associated with Parkinson’s disease which may be amenable to intervention—either by future drug treatment or by rehabilitation techniques. The emergence of specific patterns of impairments associated with falls in this condition should enable physicians to be more accurate at predicting risks and also help improve patient education.

References