

Unexplained Falls in the Elderly are Probably Due to Parkinson's Disease

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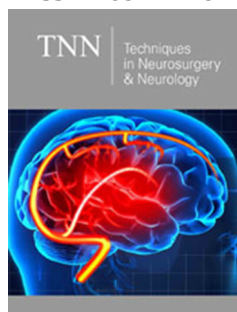
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Abstract

Background: Parkinson's Disease (PD) is a postmortem diagnosis but antemortem presence of tremor, stiffness or rigidity, bradykinesia, hypokinesia, balance problems and/or gait disorders provides clinical syndromic diagnosis of PD. This paper explains why people with PD often present with falls, with previously undiagnosed PD.

Why patients with PD have unexplained falls: People with PD have rigidity, hypokinesia and bradykinesia causing falls, often labelled as "unexplained". When non-Parkinsonian people lose balance, they spread their centre of gravity. Those with PD cannot act as quickly leading to falls before evoking the righting reflexes.

Clinical experience: Suggesting unexplained falls are due to PD often evokes scepticism from younger trainees who fail to adopt distraction when examining increased resting tone. Failure to swing the ipsilateral arm when walking is often missed. A positive glabella tap is often not tested. Other features, including primitive reflexes, such as palmar mental responses and grasp reflexes, help to diagnose PD. It has long been the practice of the author to start anti-Parkinsonian pharmacological treatment, with levodopa early, as soon as the clinical diagnosis has been made.

Conclusion: Falls in the elderly are often considered "unexplained" because the clinical examination was less than optimal. PD remains a viable diagnosis in many of these patients, especially if examined looking for the clinical features of PD.

Introduction

The diagnosis of Parkinson's Disease (PD) is ultimately dependent on postmortem findings [1,2]. To overcome this impediment to diagnosis, there is a set of criteria which allow the clinical diagnosis of PD antemortem [1,2]. These include: tremor (more accurately resting tremor), stiffness (more accurately increased resting tone or rigidity), slowness (also termed bradykinesia), hypokinesia (poverty of movement, with loss of facial expression, arm swing or fine motor movement), balance problems and/or gait disorders (also referred to as instability) [3]. Other antemortem diagnostic tools are available, such as Single Photon Emission Computed Tomography (SPECT) scanning, which has been argued to improve diagnostic criteria to differentiate PD from other Parkinsonian syndromes, such as Multiple System Atrophy (MSA) or Progressive Supranuclear Palsy (PSP) [4], but the NICE criteria indicate that "SPECT should not be used in all people with Parkinson's disease in place of initial clinical examination", thereby endorsing the clinical diagnostic criteria approach [4].

Many of these features can be quite subtle and finding them is dependent upon the experience of the clinician who is examining the patient for PD. The paper that follows explains why people with PD often present with falls for which the initial diagnosis is unclear and hence they are labelled as having unexplained falls in elderly patients.

Why Patients with PD Have Unexplained Falls

As set out, in the above material, people with PD have increased resting tone, something that is often only obvious if the patient is distracted when testing muscle tone, because it removes any volitional component that may accompany the testing of muscle tone, if such testing is undertaken without distraction [5]. To test this effectively, the patient is asked to either turn his/her head from side to side or to swing the contralateral arm, to that being tested, up and down while testing tone at the contralateral wrist which can change from being loose, when tested without distraction, to being quite rigid once the patient is distracted during the examination [6]. Testing tone without distraction fails to demonstrate "resting tone" which is only obvious with distraction which is designed to divert the patient's attention away from the testing of resting tone [6].

Hypokinesia is also shown with failure to swing the affected arm but may be resultant from more than just hypokinesia and may reflect both bradykinesia as well as increased tone in the affected limb, in people with PD [6,7]. Hypokinesia is different to bradykinesia in which bradykinesia represents moving slowly and hypokinesia is typified by moving less [8]. All three factors are relevant to the resultant fall that often presents as being labelled as an "unexplained fall", due to a failure to specifically look for these features in an otherwise healthy elderly patient who is unaware of these initial features of PD.

When a non-Parkinsonian person loses his/her stability with altered centre of gravity, namely experiences loss of balance, the first thing that such an individual attempts is to actively spread his/her centre of gravity. This is achieved by: rapidly spreading of the arms, moving them out from the side of the body; possibly changing the posture of the body to accommodate the lack of balance; and a widening of the stance, with rapidly spreading of the feet, moving them apart to try to restore balance. In the non-Parkinsonian person, this is usually all that is required to stop falling. There can be many causes for loss of balance in the elderly [9] but the cause for the loss of balance is less important, within the context of the consideration of falls in the elderly, than is the response to it, which is impaired in the person with PD.

The combination of bradykinesia, hypokinesia and rigidity denies the person with PD the ability to act, as quickly and decisively, as is the case with the non-Parkinsonian elderly individual. This will often result in the person with PD falling before they have the capacity to evoke the benefit of righting reflexes which are so necessary to prevent falls. By the time such response is evoked, the elderly person with PD will have fallen and the fact that (s)he has PD

will often be missed, by an attending clinician, who lacks the high level of suspicion required to undertake the diagnostic examination which is necessary to make the clinical diagnosis of PD.

Clinical Experience

As a senior clinician, over many years, the maxim has evolved that unexplained falls in the elderly are an expression of PD. This is usually met with scepticism from younger trainees, up until the time that they are walked through the clinical examination that is relevant to PD. Most trainees do not adopt the necessary distraction technique, required to elicit the increased resting tone that is the hallmark of PD [6]. Without evoking distraction, the obvious increased resting tone is not identified thereby missing a vital piece of the diagnostic puzzle necessary for the PD diagnosis.

One of the first sign of PD is failure to swing the ipsilateral arm [10], something often missed by the trainee who is more concerned by the need for reduced stride length, short stepping gait, shuffling and gross bradykinesia which are later features of PD [11]. The focus of attention is usually directed at the feet, rather than looking at the upper limbs. Very early in the evolution of PD, the first feature of gait disturbance may be limited to failure to swing the ipsilateral arm and this will only be identified if sought by the clinician. Another feature that is prevalent in PD is a positive glabella tap [12], something that is often not tested by young trainees. While positive glabella tap response, namely greater than 3 blinks elicited by repeatedly tapping the glabella, namely the forehead above the nose, may not be diagnostic of PD [12], if found, in combination with other features of PD, such as increased resting tone, failure to swing one or either arm plus positive glabella tap, it provides a fairly reliable suggestion of underlying PD in the elderly patient who has had a fall "without identifiable cause".

Other features that assist in the diagnosis of PD are primitive reflexes, such as palmar mental responses and grasp reflexes [13,14] which again may require distraction to elicit. The combination of these clinical signs, while possibly very subtle, should evoke a serious consideration of the diagnosis of PD in the elderly patient who has presented following a fall. What one does, in the face of such diagnosis is a personal and clinical decision that varies between physicians [15-17]. It has long been the practice of the author to start anti-Parkinsonian pharmacological treatment, with very low dose levodopa very early, as soon as the diagnosis has been made, based on the above features, [18] but this is not universally accepted. A clinical audit of the author's practice did produce very positive results thereby providing suitable evidence to endorse this approach [19].

Conclusion

Falls in the elderly are often misdiagnosed as being "unexplained" because the clinical examination has been less than optimal. With proper examination, as described above, supported by a high index of suspicion, falls in the elderly can often be linked with previously undiagnosed PD for which early initiation with

anti-PD treatment, such as very low dose levodopa, can prove to be very efficacious.

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