



Immobility

evaluating it in elderly patients

Each month we present authoritative advice on the investigation of a common clinical problem, specially commissioned for family doctors by the Board of Continuing Medical Education of the Royal Australasian College of Physicians.

JOHN W. DEATH

MB BS, FRACP

Dr Death is Staff Specialist Geriatrician and Director, Aged Care Services, Central Coast Health, Gosford, NSW.

Series Editor

CHRISTOPHER S.

POKORNY

MB BS, FRACP

Dr Pokorny is Honorary Secretary, Board of Continuing Education, Royal Australasian College of Physicians, and a gastroenterologist in private practice, Sydney, NSW.

Evaluating immobility in elderly patients is useful and rewarding. The presentation may be acute or chronic and it may overlap with other problems, such as falls, 'confusion' and incontinence. There may be several explanations rather than a concise, single diagnosis. Often, the path to those explanations winds through multiple comorbidity and disability and a unique domestic and psychological landscape that will eventually shape the management plan. What has happened and what needs to be done may be clear from the start, or collaboration with family or other carers and with other professionals, such as community nurses, allied health professionals and the aged care assessment team, may be required.

I will discuss the evaluation of patients who have become immobile recently (days to weeks) separately from those who have had a longer, usually progressive course (months or longer), although there are causes that are common to both.

Before that, here are a few points to keep in

mind. Firstly, elderly people move around briskly and safely unless there is something wrong. Patients, their families and even health professionals may sometimes attribute immobility to 'old age', whether the patient is 72 or 92. If elderly patients don't move around briskly and safely they should be offered an evaluation with the aim of improving their quality of life.

Secondly, the common disabilities in elderly people are:

- deterioration in vision and hearing
- brain disorders – stroke, cognitive impairment such as Alzheimer's disease and movement disorders such as Parkinson's disease
- cardiovascular and respiratory disorders
- mental health disorders – depression and disabling bereavement
- rheumatological and orthopaedic disorders
- malignant disease.

Thirdly, even after recent immobility and especially after longer term problems, the effects of

IN SUMMARY

- Old age does not cause immobility, but immobilising conditions are common in old age.
- The effects of immobility must be sought as diligently as the causes.
- A neurological examination is difficult to perform and interpret in disabled elderly people, but it is absolutely essential.
- When an elderly person, especially a woman, falls and cannot weight bear because of pain, she has a fracture until it is proven otherwise.
- Postural hypotension is a common cause and complication of immobility. It is usually fixable. Always check lying and standing blood pressure in elderly patients.
- The practice of looking for as many explanations for an elderly patient's immobility as can be found, rather than the most obvious explanation, will serve the patient, the family or other carers and the physician well.

immobility must be evaluated. Examples are:

- malnutrition and dehydration
- deconditioning and contractures
- incontinence
- chronic pain
- decubitus ulcers
- demoralisation and isolation
- family or carer stress
- hasty accommodation decisions.

Recent immobility

History taking

The patient's history is the foundation of evaluating recent immobility. The evaluation is relatively simple when there is a clear history of sudden hemiparesis or a genuine accidental fall with severe vertebral pain on movement. If the history taking is compromised by the illness itself or a pre-existing disability, especially cognitive impairment, finding a reliable informant can save mistakes and a lot of time. If you don't know the patient well, and sometimes even if you do, a brief mental state examination early in the evaluation is invaluable. About 25% of people over 80 years of age have cognitive difficulties, and when they are acutely ill the prevalence is greater. However, we don't always have the luxury of a reliable informant.

Enquiry about medications

Medications are an important cause of immobility. Multiple comorbidity often leads to, or indeed requires, polypharmacy. There is no substitute for seeing all the patient's medications and doing a tablet count, especially in the patient's home. Even if you are the patient's regular doctor such a count may still be important. Forgotten medication, recently ceased medication and medication not appreciated as medication (such as hypnotics, analgesics and eye drops) can be picked up this way.

Concordance can also be checked. If an acute illness is causing immobility, not taking medications can exacerbate the problem (e.g. benzodiazepine withdrawal)



as can continuing to take them (e.g. digoxin toxicity in dehydration).

Examination

If a reliable history has identified the likely cause of the patient's immobility, the examination can be targeted to the complaint and its complications. When a likely

cause has not been identified:

- check the vital signs, including temperature
- check vision and hearing
- look at the legs and feet for painful lesions such as gout (Figure), ulcers, fractures and deformities
- observe the patient transferring and

Neurological examination of elderly people

- Adjustments for musculoskeletal pain and deformity are often necessary. Modify the test to give the patients their best chance.
- Fit people in their 80s and 90s have good power. You should not be able to overcome hip flexion and ankle dorsiflexion with usual force.
- It is often difficult to get good relaxation to assess reflexes, especially in those with cognitive impairment and movement disorders. A plantar tap, rather than an Achilles tap, usually gives better results. A pillow under the knees may improve relaxation for knee jerks.
- Feel carefully for the patellar tendon in deformed, arthritic knees. Disparities in tendon reflexes of arthritic knees or when relaxation is poor are easily overinterpreted.
- Some of the less commonly taught signs are more common in elderly people:
 - Check for frontal release signs: palmar–mental response, grasp and pout reflexes. When they are prominent or asymmetrical they suggest brain disease.
 - Conjugate gaze abnormalities suggest neurodegenerative disorders in elderly patients. There should be a full range of ocular movements, and ocular pursuit should be smooth, not jerky.
 - Look for fasciculations. They are reasonably common in elderly people and suggest peripheral neuropathy or nerve root pathology rather than motor neuron disease.

continued

walking unassisted and then assisted if necessary

- take the standing blood pressure and heart rate if possible; assistance may be necessary.

Many of the common causes of recent immobility will be apparent by now, or the system or systems involved will usually be evident. If the diagnosis is not yet clear, proceed with a detailed head to toe examination; if it is clear, target the examination to complications of immobility.

A neurological examination is difficult to perform and interpret in disabled elderly people, and is time consuming, but it is absolutely essential. For example, rapidly progressive cord compression in a patient with 'inability to cope' may be referred on too late because the neurological examination was not adequate. The box on page 59 contains a few notes on the neurological examination of elderly people.

Percussion of the bladder and a rectal examination are important because urinary retention and faecal impaction can both contribute to, and result from, immobility in elderly patients.

The patient's mood is assessed because depression can cause movement disorders in its own right, can result in problems that affect mobility (such as dehydration and postural hypotension), and may complicate immobility from other causes.

Delirium is often accompanied by disturbance of gait and balance, although it is not recognised as part of the delirium syndrome. An elderly person who suffers an acute confusional state is very likely to be immobile. This expands the possible causes of recent immobility to include sepsis, hyponatraemia, hypercalcaemia, vascular events and a variety of other medical and surgical causes of acute confusional states.

Investigations

Investigation of recent immobility will be targeted to the diagnosis, if known.

Do a full blood count because profound anaemia may be missed clinically in

the elderly patient, especially housebound patients or patients living in nursing homes. The full blood count is also helpful in confirming sepsis, but the white cell count may be normal in disabled elderly patients, even those with major infections.

An erythrocyte sedimentation rate or C-reactive protein is helpful when sepsis or other inflammatory illnesses, such as polymyalgia rheumatica, are possible.

Electrolyte, blood glucose and renal function abnormalities may be a cause or a result of immobility, especially if the patient has diabetes or takes cardiovascular drugs.

For elderly men, a prostatic specific antigen test is indicated if unexplained musculoskeletal pain is impairing their mobility.

An ECG may pick up silent myocardial infarction, which is not uncommon in the disabled elderly and can present just with immobility. An ECG may also identify conduction and rhythm abnormalities that may start the falls cycle.

Immobility often merges with falls. Complications of a fall, remembered by the patient or not, can be the cause of immobility. Equally, immobility from another cause can lead to falls and then their complications.

Imaging

When an elderly person, especially a woman, falls and cannot weight bear because of pain, she has a fracture until it is proven otherwise. If the x-ray does not show a fracture a bone scan is necessary if it might alter management. It is common for an undisplaced proximal femoral fracture not to be visible on x-ray, especially when the bones are osteopenic. Insufficiency fractures through the sacral foramina, common after a 'sit down' fall, are rarely seen on x-ray.

Subdural haematoma is suspected when it is not clear whether immobility preceded or resulted from a fall, especially if the immobility is accompanied by an acute confusional state. If the patient is

drowsy, the likelihood of subdural haematoma increases substantially and an urgent cerebral CT scan is essential. The same applies when a metastatic or primary cerebral tumour is suspected. In the absence of drowsiness or focal neurological signs, cerebral CT or MRI does not often alter the management of the recently immobile patient but should be done unless a clear alternative diagnosis emerges. Similarly the cerebrospinal fluid should be examined.

Assessment of the situation at home

Assessment of the patient's circumstances and those of the family or carers influences, and may even direct, management decisions such as admission to hospital or diagnosis and treatment at home. Information and carefully directed support for the patient-family-carer unit may materially affect the outcome.

Slowly progressive immobility

Slowly progressive immobility may be picked up during a regular check up or by a screening program such as the Enhanced Primary Care activities. It may also become evident during examination for another illness. Direct symptoms include 'slowing down', 'getting frail', 'seizing up', dizziness, pain, exhaustion, weakness, isolation, and falls or a fall-related injury.

History taking

There are so many potential causes of slowly progressive immobility that the examination could take ages if the history has not identified the systems involved. To get on the right track, quickly check vision, hearing, weight and cognition before you take the history.

The complications of progressive immobility are similar to but more frequent and severe than those of recent immobility. They have had more time to get established. Nutrition and deconditioning may have reached a critical point. Pain from an original cause or secondary

to the immobility, especially back pain, may lead to escalating analgesic use and its secondary problems. Contractures may have developed.

Expectations of ageing may alter patients' concepts of their immobility and therefore their presentation. For example, 'good for his age' implies the patient is not what he used to be, and this sometimes veils marked immobility. Anyone who requires a walking frame has a severe gait or balance disorder, musculoskeletal pain or deformity. The prevalence of cognitive and mood disorders justifies screening early in the assessment. A corroborative history from a reliable informant who has known the patient over a sufficient period of time may be needed for a variety of reasons.

Looking for more than the obvious explanation

There are certainly examples of single system, progressive immobility such as progressive knee arthropathy, visual field loss or isolated peripheral neuropathy. Most elderly people manage reassuringly well with one system down. Organising a knee replacement or diagnosis, treatment and mobility aids for peripheral neuropathy is generally straightforward. If an elderly person with such a problem cannot manage – even, for example, with severe visual impairment – there is often something else going on, and this should be looked for.

Progressive cognitive, mood and movement disorders are single system disabilities that can complicate the picture. When they team up with another, otherwise trivial, disability they can derail everything. A patient with an unrecognised movement disorder complicating his or her knee arthropathy may get very little benefit from a knee replacement.

The practice of looking for as many explanations for an elderly patient's immobility as can be found, rather than the most obvious explanation, will serve

the patient, the family or carers and the physician well.

Enquiry about medications

Medications often cause or contribute to progressive immobility. Phenothiazines, including antiemetics, are well known causes of insidious movement disorders. Patients with neurodegenerative brain disorders, such as Parkinson's disease or Alzheimer's disease, who take these drugs will almost always be affected.

Benzodiazepines impair gait and balance, particularly in the disabled elderly, and are strongly associated with falls and fractures. They also blunt initiative and energy, leading to deconditioning.

Cardiovascular and antidepressant drugs, among many others, may cause postural hypotension, which may immobilise patients simply because they feel terrible when they get up. In addition, patients enduring recurrent cerebral hypoperfusion with their postural hypotension may develop movement and cognitive problems, resulting in immobility. Unfortunately, the measurement of standing blood pressure in elderly patients is far from routine, and the common symptoms of 'weak knees', 'exhaustion' or 'depression' may not alert the doctor.



COURTESY OF DR NEIL MCGILL, SYDNEY, NSW

Figure. Typical gouty podagra.

Examination

As mentioned before, quickly check vision, hearing, weight and cognition first, even before you take the history. Check the standing blood pressure.

Having the patient walk across the room, without walking aids if possible, and around a few obstacles, can give you a lot of information. An extended walk is even better, if it is practical. You will usually be able to distinguish breathlessness from exhaustion, pain from stiffness and deformity, and problems with movement and rigidity from problems with balance.

Ask the patient to stand on each leg for 5 seconds. If he or she can do this, a progressive neurological cause of immobility

Reviewer's comment

Falls in the elderly constitute the core curriculum of geriatric medicine, as summarised under the rubric of the 'geriatric giants': dementia, incontinence, falls and iatrogenesis. Geriatric medicine is the study of confluent multiple pathology giving rise to the presentation of the clinical picture. Occam's razor of the simplest explanation to account for an observed phenomenon rarely applies in the elderly patient. Falls constitute a marker of significant pathologies and carry a prognosis of serious morbidity and potential mortality. They should be thoroughly investigated, and potentiating factors should be ameliorated or corrected when possible.

If I were permitted one test, it would be to ask the patient to stand and then walk 3 m, because the achievement and maintenance of the upright posture requires the co-ordination of so many complex mutually integrated physiological processes to ensure an efficient bipedal gait.

Dr John W. Dearin FRACGP, DipGerMed, DipRehabMed, MBioEth
General Practitioner, Lithgow, NSW

is much less likely. Test righting reflexes with a gentle pull backwards on the shoulders while you stand behind the patient. Before doing these tests make sure you are able to support the patient if needed.

Make an estimate of mood, behaviour, nutrition and muscle mass as you go. If a family member or carer is present, notice his or her interaction with the patient.

By this stage, you should have a good idea what systems are involved and you can focus your examination on those systems. Again, the complications of immobility need to be identified. Poor personal care, incontinence, skin and dental problems, malnutrition, and injuries may be apparent.

Once again, refer to the box on page 59 for tips on neurological examination.

Investigations

Investigations depend on findings. If a cognitive disorder or neurodegenerative gait disorder is identified, a cerebral CT

scan is usually done, but in the absence of localising neurological signs it has a low return.

The triad of gait disorder, dementia and urinary incontinence is usually the late stage of a neurodegenerative disorder, rarely normal pressure hydrocephalus.

If the patient is aged in the 60s or 70s and the course of the illness is over a few months rather than a few years, the presentation is more suspicious. Cerebral tumours, especially meningiomas, and especially in the frontal lobes, can progress slowly, but they are a less likely explanation the greater the patient's age. Hypothyroidism is an uncommon cause, but it is certainly worth checking.

When dyspnoea is the cause of immobility, the diagnosis can be elusive. Clinical signs and x-rays can be difficult to interpret. A deep breath may not be possible for a person with severe kyphosis or cognitive impairment. Mixed diagnoses are the norm. Recurrent aspiration and

small recurrent pulmonary emboli are regular complications in the disabled elderly, and restrictive lung disease due, for example, to severe kyphosis or respiratory fibrosis is not uncommon, especially in elderly women.

Diastolic heart failure and atherosclerotic aortic stenosis are common in 80- and 90-year-old individuals, and an echocardiogram may be required to direct management.

Arthropathy causing immobility needs vigorous evaluation and treatment to prevent all the complications previously mentioned. Chronic polyarticular gout is underdiagnosed yet treatable. The work-up for joint replacement must include assessment of movement, gait, balance, nutrition and cognition – not just cardiorespiratory status and anaesthetic risk. Immobility may be wrongly ascribed to the arthropathy alone, resulting in a poor functional outcome after surgery.

Psychological evaluation

The diagnosis of depression is difficult in a person who is chronologically near the end of his or her life and has progressive disability. Despondency and depression can appear similar, and despondency can progress to a depressive illness. An elderly person who is unable to enjoy things he or she would usually enjoy, such as outings and events with family and friends, is more likely to have a depressive illness. Apathy due to cognitive impairment can also be difficult to separate from depression. An opinion from a psychogeriatrician can be particularly valuable in formulating a management plan for the immobile elderly patient.

Considering the carers' health

With long term immobility, demoralisation is to be expected in the whole patient–family–carer unit. Family members and carers may already have made up their minds about future care options

or suffered 'carer collapse' and shut the door on restorative or assistance options.

The physical health implications for carers should not be dismissed. Elderly carers may have their own health issues, may be sleep deprived, and may have unsustainable physical demands placed on them. Spouse carers are usually in the age group where illness and disability are common. Therefore, a robust evaluation of an immobile elderly patient may have to include the carer.

Recent exacerbations of slowly progressive immobility

It is here that the situation becomes more obscure. If you have known your patients with disabilities for a long time, it is easy to tell when they have recently become worse. If you are seeing them for the first time, it may be difficult to know whether they are much different than usual.

Evaluation can be surprisingly difficult when there is no-one living in the same

house as the patient. The presentation is likely to be 'inability to cope', rather than long term immobility and now sick. The complications of long term immobility can present this way, as can all the causes of recent immobility discussed earlier. The more disabled the elderly person, especially if there is a neurodegenerative cause, the more minor the illness that can destabilise them and the more likely a life-threatening illness will be masked.

Conclusion

Evaluating immobility in elderly patients requires a commitment to achieving the patients' and the family's or carers' goals as much as clinical knowledge. Complexity is the norm, and time management around consultations can be a real challenge in the consultant arena let alone in general practice. In spite of this, it remains a most useful and rewarding endeavour, not only for the patient and family or carers but also for their physician. **MT**