

Undetected and underserved: the untold story of patients who had a minor stroke

Equity of access is particularly concerning for minor stroke

Medical advances, such as stroke units, improved primary and secondary stroke prevention, and hyperacute treatments have revolutionised acute stroke management.¹ The lessening of stroke severity as a result of such ground-breaking initiatives has, however, led to a larger proportion of individuals returning to community living following minor strokes² (ie, with minimal motor deficits or no obvious sensory abnormality). In this article, we review current literature to identify the potential difficulties experienced following a minor stroke.

Individuals who survive a more severe stroke often undergo extensive multidisciplinary rehabilitation in an inpatient setting. By contrast, patients who have a minor stroke are likely to be discharged home early, often with limited referrals to services beyond their general practitioner.³ This is despite increasing evidence that survivors of minor stroke may have persisting stroke-related impairments that require rehabilitation.⁴ These “hidden” impairments may not become apparent until after discharge, when the patient attempts to resume their usual daily activities.^{2,4} Edwards and colleagues⁴ found that despite full independence with personal activities of daily living, 87% of patients who had a minor stroke reported residual difficulties with mobility, concentration, and participation in social activities and physically demanding leisure activities such as golf. These persisting subtle impairments may cause social and economic disruption for the individual and their family; however, due to difficulties identifying them in the hospital setting, it may result in poor coordination between primary and secondary care, especially if the patient is deemed fully independent at discharge. When the impairments are detected at a later stage, rehabilitation or support services may not be accessible, potentially rendering the patient “lost” in the health care system.

Equity of access is particularly concerning for minor stroke. In regional Australia, there may be no hospital or community rehabilitation services available,⁵ with patients at home dependent on the Medicare rebate for access to private allied health services within the current Chronic Disease Management (CDM) program.⁶ Women, who are more likely to be discharged to residential care, face further access challenges.⁷ Compounding this is evidence suggesting that all patients who may benefit from inpatient rehabilitation are not appropriately identified,¹ which is concerning given the “hidden” nature of many impairments resulting from minor stroke.

A systematic review by Tellier and Rochette² revealed that patients who have had a minor stroke often have impairments that span the domains of physical status, emotional health, cognition and social participation. The combined effect of these impairments may be an inability to fully resume valued activities, leading to reduced



quality of life.² Studies have shown that between one- and two-thirds of minor stroke survivors have compromised social participation outcomes.^{2,4} Edwards and colleagues⁴ found that 62% of patients who had a mild stroke had difficulty returning to employment or volunteer work, while 36% had reduced social activity 6 months after the stroke. Since about 30% of strokes occur in individuals under 65 years of age,⁸ these figures are particularly troubling. It is worth noting, however, that participants in the study by Edwards and colleagues⁴ had experienced a single ischaemic stroke and had a mean age of 64.74 years (range = 20–97 years). Therefore, as about only half of the participants⁴ in the study fell into the young stroke category, it is unknown how accurately these figures reflect the return to work status specifically of younger patients who had a minor stroke.

The 2014 National Stroke Foundation Rehabilitation audit⁹ found that less than 40% of patients who had a stroke received a psychological assessment before discharge. Formal neuropsychological assessment is expensive and not available in many areas and so inpatients rarely receive one, even if experiencing obvious impairments, such as aphasia or pronounced memory deficits. For people who have had a minor stroke, impairments are even less obvious and may manifest as a diverse range of milder cognitive problems, including attentional neglect or reduced processing speed. A neuropsychological assessment could identify these deficits and their impact on functioning and make recommendations for compensatory strategies or adjustments to reduce this impact.

Mental health problems, in particular depression, are prevalent regardless of stroke severity, with 25–29% of patients who have had a minor stroke reporting depression in the first year.^{10,11} Early and late onset post-stroke depression has been associated with disability and poor physical and mental health at 1 year,¹¹ and with a

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doi:10.5694/mja16.01009

reduced likelihood of driving a vehicle, participating in sports or recreational activities and interpersonal relationships at 6 months after the stroke.¹² It is encouraging that improvement of depression within the first year after the stroke has been associated with better functional outcomes and quality of life.¹⁰ This highlights the need to regularly monitor patients after a minor stroke to identify and treat depression as soon as possible. Despite apparent good recovery, depression is a risk and some patients require referral to services, medication and psychological support in a coordinated manner.

As with most patients who have had a stroke, patients who have had a minor stroke are usually unable to drive for a period of time, relying instead on public transport, family members or unapproved driving for transport to medical appointments and other destinations. Research has found that one in four young survivors of stroke (aged 18–65 years) return to driving within 1 month after the stroke, despite recommendations to the contrary.¹³ Drivers who have had a minor stroke perform significantly worse on complex tasks, with greater cognitive load (eg, turning across oncoming traffic and bus following), and make twice the number of driving errors compared with control subjects.¹⁴ In addition to the detrimental influence of spatial, visual and cognitive impairments, the risk of seizure contributes to the moratorium on driving after a stroke. Premature return to driving may reflect poor compliance with advice, which is perceived as inconvenient and perhaps not fully explained to patients. Providing patients who have had a minor stroke with education about driving restrictions and alternative transport options and ongoing monitoring of driving fitness should be part of primary health care.

Patients who have had a minor stroke are also at risk of hospital re-admissions due to other medical conditions. For example, patients who have had a minor stroke have a heightened risk of experiencing a subsequent cardiovascular event.¹⁵ They may also have an array of concomitant medical conditions, including diabetes mellitus, atrial fibrillation and congestive cardiac failure,¹⁵ and may benefit from a coordinated approach to manage these comorbidities and prevent hospital re-admission.

Six months after a minor stroke, patients do significantly less high intensity physical activity compared with the activity done before the stroke, and despite the benefits of physical activity for future stroke prevention, they tend not to take up new high intensity activities.¹² Indeed, Kono and colleagues¹⁶ found that higher levels of exercise in the form of daily step counts were associated with a reduced risk of new vascular events following minor stroke. Patients who have had a minor stroke and are living in the community may benefit from education about secondary stroke prevention. A GP-led multifaceted and target-based approach to secondary stroke prevention may be ideal for this population, especially given that a combination of medications (eg, aspirin, a statin and an antihypertensive agent), exercise and dietary modifications have been found to produce a cumulative relative risk reduction of stroke by 80%.¹⁷

Conclusion

In summary, minor stroke is a chronic health condition with long term impairment and disability.² Residual impairments and comorbidities often require the involvement of multiple health care providers, the need for which may not always be evident at the time of stroke. Community-living patients who had a minor stroke may currently be managed through initiatives such as the CDM program. Access to CDM items can be problematic and, due to the mild nature of minor stroke, it is likely that these items will be overlooked. The five sessions per calendar year under the CDM program — which include a range of allied health services, such as speech pathology, occupational therapy, psychology and physiotherapy, with a Medicare rebate that may cover the total cost depending on whether the provider accepts the Medicare benefit as full payment for the service — are often inadequate for patients who have a more complex situation, but may be ideal in the population who have had a minor stroke and hence, a good use of existing resources. Therefore, we need to audit existing strategies in primary care to uncover which processes are working well, and which require attention. This is particularly pertinent given the creation of new government initiatives, including the National Disability Insurance Scheme (in which, however, patients who have had a minor stroke look unlikely to be eligible), and Primary Health Networks within the Health Care Home framework.

A GP-led approach that coordinates a range of primary and allied health professionals close to the home of patients who have had a minor stroke may be the ideal way to meet the needs of this population and prevent costly re-admissions to hospital, while simultaneously maximising quality of life. To ensure that community-dwelling patients who have had a minor stroke and have unmet needs are not missed, we need a coordinated, integrated primary health care response that detects and manages impairments and activity restrictions as they arise, along with medical comorbidity management and self-management support. At a minimum, we need to ensure that all patients who have had a minor stroke, regardless of their geographic location, have improved access to formal neuropsychological assessment, falls prevention, exercise programs and more extensive Medicare-based allied health funding if required. The key to this is auditing existing programs and investigating the relevance of new government initiatives as they arise for these patients, while also improving the communication between hospitals and primary health care services. Further study of the unmet needs and mechanisms for ensuring access for all patients who have had a stroke is also vital.

Competing interests: Emma Finch, Michele Foster, Jennifer Fleming, Philip Aitken, Ian Williams, Tegan Cruwys and Linda Worrall have received a University of Queensland Collaborative Industry and Engagement Grant for a project investigating patient outcomes following minor stroke.

Provenance: Not commissioned; externally peer reviewed. ■

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