

Multiple sclerosis is on the rise in Australia, but it's not all bad news

May 30 2024, by Kate Burke



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More than 30,000 Australians are living with multiple sclerosis, the most common neurological cause of disability affecting young adults.

While the number of people with the disease has gone up significantly in the past decade, largely due to early detection and longer lifespans, the severity of symptoms experienced by many has declined as treatments have evolved.

What is multiple sclerosis?

Multiple sclerosis (MS) is a chronic neurological condition that affects the central nervous system, which includes the brain and spinal cord.

MS occurs when the immune system mistakenly attacks the protective covering of nerve fibers, called myelin, which allow electrical impulses to travel quickly and efficiently from the brain to the rest of the body.

This causes inflammation and damage, disrupting communications between the brain and the body, which leads to a wide range of symptoms such as fatigue, weakness, numbness and motor dysfunction—such as unsteady movements, muscle spasms and speech difficulties.

MS is typically diagnosed between the ages of 20 to 40 and affects three times more women than men.

Its severity and progression vary from person to person and there is no known single cause, but genetic susceptibility, environmental and lifestyle factors, and infections—such as the Epstein bar virus, which causes glandular fever—have been shown to contribute to its development.

"It's a disease that can cause significant physical disability," said UNSW Sydney Professor Arun Krishnan, from the School of Clinical Medicine and the Neuromuscular Disease and Multiple Sclerosis Research Group.

"But that's a lot less common than it used to be. If you ran an MS clinic 30 or 40 years ago, a lot of people would be in a wheelchair. I don't have anyone in a wheelchair now," said Prof. Krishnan, who manages the Multiple Sclerosis Clinic at Prince of Wales Hospital.

The rise of multiple sclerosis

There are more than 33,300 Australians living with MS, or about 131 people out of every 100,000 as of 2021, when the latest figures were collected.

That number is up 30% since 2017, marking a significant acceleration in MS cases, says the latest [report commissioned by MS Australia](#), published last year. It was prepared by the Menzies Institute for Medical Research.

MS cases have been on the rise globally, says [a separate study](#) that analyzed figures from 81 countries. The consensus was that earlier diagnosis, improved detection and longer survival have all contributed to the rise.

Prof. Krishnan agreed that earlier and improved detection was the main factor behind the rise, adding that MRI scans—one of the main tools used to diagnosis MS—were more readily available now than in previous decades. Risk factors may also have had some impact.

"There is some association with a lack of sunlight exposure and other factors," said Prof. Krishnan. "The areas of highest MS prevalence in the world tend to be at either end of the globe, so in Australia it is in Tasmania and the highest prevalence in the world is in northern Europe and Canada."

When accounting for better detection and longer survival, the true

increase in MS cases may be well below 30%, he noted.

The types of multiple sclerosis

Multiple sclerosis symptoms can come in waves or get progressively worse over time.

Relapsing remitting MS is the most common form of the disease and the diagnosis that more people initially receive. It involves clear attacks of symptoms followed by periods of recovery, where symptoms may disappear entirely or partly.

Some people then go on to develop secondary progressive MS, which is when there is a gradual worsening of symptoms over time, even if there are no clear attacks.

Then there is primary progressive MS, which affects the minority of those with the disease. This is where patients get progressively worsening neurological symptoms from the beginning and face a considerably more rapid disease progression.

Treating multiple sclerosis

While there remains no cure for MS, there are treatments—more than a dozen disease-modifying therapies—to help manage symptoms and slow down the progression of the disease.

"There is misconception that it's not treatable or that universally it causes a lot of disability, all of which may have been true at one point, but it's treatable now and the levels of disability caused are far less with early [treatment](#)," Prof. Krishnan said.

"The treatments are good at preventing what we call relapses, which are sudden changes in physical function. Relapse rates around the world have just dropped dramatically with treatment. So, for example, that's where you were fine on Friday and then on Monday you can't text using your left hand. That's a relapse. You'll come into hospital, we'll give you steroid therapy and then we'll [assess what preventative drugs you're on or may need to be on]."

However, disease-modifying treatment is still very limited for those with progressive MS, said Prof. Krishnan.

Further advances are also needed to better monitor the effectiveness of treatments and to better target the care received by individual patients.

"It's easy to know when [a drug] is not working as people usually get worse. But you don't know if it's working or if the person's just been lucky and [not had a relapse] for two years."

How the eye could offer insights into MS

Prof. Krishnan and Associate Professor Maria Markoulli, from the School of Optometry and Vision Science, are conducting studies to develop a new way of monitoring inflammation in MS patients via the eye to better monitor and target treatment.

"People often don't realize that the eye can be the first area where the disease manifests," said A/Prof. Markoulli. "So sometimes patients will present to an optometrist saying they've got blurry vision, where in fact they're experiencing the first signs of multiple sclerosis."

The pair is working with Ph.D. students to determine how the cornea and tear film can be used as a biomarker for MS, to establish whether treatment is effective and how the disease is progressing.

The cornea is the only place in the body where you can see inflammatory cells directly and non-invasively, and it also provides a clear read on neurodegeneration, which is not detected by a routine MRI scan, the experts said.

It's hoped the technique, if proven successful, could one day be part of routine checkups for those living with MS and could replace the need for MRIs or more invasive procedures like biopsies.

"If they can just have this technique done every time they come in for a visit, it would give an early indication if the treatment is actually working," Associate Prof. Markoulli said.

The project is nearing the end of its collection phase, and it is hoped primary data could be released in the coming year.

The challenges ahead for MS

"The key challenge is there is still a proportion of people where there is neurodegeneration ... a very slow downward trend in physical function," Prof. Krishnan said. "No one has an answer to that yet."

More also needs to be done to tackle disabling symptoms like fatigue and pain, which are not well targeted by existing treatments, he added.

"People may find a way that works for them to [help manage their fatigue] but there's no drug, there's nothing you can do."

While treatment for MS has come a long way, more funding is needed for critical research to continue to develop better treatments and maybe one day, find a cure.

"These days the lifespan of those with MS versus those people without

MS, is coming very close to one another," Prof. Krishnan said, adding there would hopefully be no difference in the coming decades as research progressed.

More information: [Health Economic Impact of Multiple Sclerosis in Australia in 2021: An Interim Update of Prevalence, Costs and Cost of Illness from 2017 to 2021](#) (2023)

Provided by University of New South Wales

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