



Reconsidering the overdiagnosis of mild cognitive impairment for dementia prevention among adults aged ≥ 80 years

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ABSTRACT

A diagnosis at the stage of mild cognitive impairment (MCI) is encouraged to promote dementia prevention since intensive intervention during the mild stage is thought to be effective for dementia prevention. Many adults aged ≥ 80 years hope to prevent dementia; however, several issues should be considered regarding the diagnosis of MCI. First, the diagnosis of MCI is not clear-cut in actual medical practice, with the differentiation of MCI from normal states and mild dementia being blurred. Second, although MCI due to Alzheimer's disease can be differentiated from MCI without pathological changes, interventions specific to MCI due to Alzheimer's disease have not been developed. Third, the diagnosis of MCI can cause self-stigma, leading to psychological effects such as depression and anxiety for both the patients and their families, which can be risk factors for developing dementia for patients. In addition, medical resources are limited and diagnosing MCI is costly in medical human resources. Considering these issues, diagnosing MCI to promote dementia prevention should be viewed from the perspective of the individual patient's interests, especially for those aged ≥ 80 years. The final decision regarding receiving a diagnosis or not should be the patient's; therefore, it is necessary to increase patients' health literacy, which requires medical professionals to provide them with appropriate evidence-based information. At the same time, it is important to provide psychological support to people who have been diagnosed.

KEYWORDS: Mild cognitive impairment; quality of life; right to be diagnosed; right to not be diagnosed; dementia; dementia prevention; overdiagnosis; health literacy; publication bias; social security cost.

Introduction

A diagnosis at the stage of mild cognitive impairment (MCI), the pre-stage of dementia, is encouraged for promoting dementia prevention because some people with MCI develop dementia whereas others revert to normal functioning. The possibility that some interventions during the MCI stage could be effective for dementia prevention has been reported;^{1,2} however, systematic reviews do not support the efficacy of pharmacological^{2–4} or non-pharmacological approaches^{4,5} for preventing the onset of dementia in people who have MCI. Therefore, the right to not be diagnosed should be

particularly respected for people aged ≥ 80 years to maximise their quality of life and in consideration of the advantages and disadvantages of an MCI diagnosis.

Advantages of a MCI diagnosis

As life expectancy has been extended, many older adults hope to prevent dementia,⁶ making it advantageous to receive a diagnosis of MCI. In Japan, some medical professionals have promoted the early detection of MCI as the best measure to prevent dementia and emphasised the potential for dementia prevention through lifestyle changes.⁷

However, medical professionals may review empirical research without critical appraisal because systematic reviews have concluded that existing evidence on means to prevent the development of dementia is insufficient.^{2–5} Furthermore, there is a bias towards publishing results that show positive outcomes, whereas null findings or negative outcomes are rarely published.⁵ Therefore, medical professionals may make evidence-based recommendations solely based on the published positive outcomes without adequate critical appraisal.

Adults aged ≥ 80 years represent an approximate age range for a life stage. In later life, older adults inevitably experience age-related physical and cognitive function decline, along with the accompanying social and private changes in life. Conversely, given typical life expectancy, decision-making and life choice become more important.

Some older adults can positively accept a diagnosis of MCI, improve their quality of life by making lifestyle changes by themselves based on medical recommendations, and accept the consequence of cognitive decline regardless of their efforts. However, others may suffer from age-related progressive cognitive decline, and progressive pathological changes in the brain are likely to contribute to declines in cognitive functioning, regardless of personal efforts.

Disadvantages of a MCI diagnosis

Perhaps the first most serious disadvantage is that MCI is not a clear-cut diagnosis in real-life medical practice, with the differentiation between MCI and normal states or mild dementia being blurred. In 1999, Petersen highlighted the potential contamination of the MCI diagnosis with healthy individuals and people with mild Alzheimer's disease as an unresolved diagnostic issue, because some patients may have long-standing memory problems and typical functioning by age is not standardised.⁸ This problem remains unresolved after new diagnostic criteria for MCI (ie mild neurocognitive disorder) was defined in the *Diagnostic and Statistical Manual of Mental Disorders* in 2013, which requires careful assessments, particularly at the mild level, where functional changes are minimal and symptoms are subtle.⁹

Many community-based interventions for dementia prevention screen for MCI using only neuropsychological tests.¹⁰ People with cognitive decline without a pathological background may have an increased likelihood for improved neuropsychological results following the interventions. However, so far, such interventions have not been shown to be effective in addressing the pathological changes due to Alzheimer's disease or other causative diseases of dementia.

In 2011, the National Institute on Aging–Alzheimer's Association (NIA/AA) proposed the consideration of Alzheimer's dementia as a unified spectrum from the preclinical stages of Alzheimer's disease, MCI due to Alzheimer's disease, and Alzheimer's dementia.¹¹ MCI due to Alzheimer's disease is diagnosed using biomarkers.¹¹ Currently, in many hospitals, MCI is diagnosed based on neuroimaging and biomarkers, although the high costs of these investigations can make them impossible to use in a community screening.

Second, although MCI due to Alzheimer's disease and MCI without pathological changes can be differentiated, interventions specific to MCI due to Alzheimer's disease have not been developed. In Japan, people with MCI due to Alzheimer's disease who are diagnosed in hospitals often receive medical recommendations for preventive interventions based on evidence from community-based studies, including cases of participants with MCI without pathological changes. Patients tend to believe that the 'evidence' should be applied to themselves, although the evidence is derived from the statistical findings using diverse cases of participants. If cognitive functioning continues to decline despite their efforts to comply with medical recommendations, patients and their families may think that the declines are the patients' fault. When a patient has experienced pathological changes, the likelihood of reverting to normal functioning can be low. Certainly, the possibility of regaining their previous functioning can be a great hope for patients; however, the question remains as to whether it is appropriate for medical professionals to offer such hope to patients. As the medical community promotes the early detection of dementia, some patients may believe that they can recover from dementia or retain their present functioning for a considerable period through early intervention.

Even if medical professionals use the expression of ‘slowing the progression’, patients and their families tend to interpret this to mean ‘retaining’ or even ‘restoring’ functions. If patients and families ignore the progressive nature of pathological changes and fail to prepare for the progression, *hope* could easily turn to *despair*.

The third problem is that the diagnosis of MCI can cause self-stigma. The Ottawa Charter for Health Promotion stated that health is seen as a resource for everyday life, not the objective of living,¹² which also applies to dementia prevention. The author has encountered many patients who experienced the self-stigma of ‘having MCI’. After receiving the diagnosis, dementia prevention tends to become patients’ primary purpose in life, even for the very elderly, where their remaining life is precious. Furthermore, such self-stigma can have psychological effects on patients and their families, such as shock, hopelessness, despair, and grief,¹³ which can be risk factors for developing dementia for patients.¹⁴ The risk of misdiagnosis is high and its misdiagnosis can be a life-changing event for patients and their families.^{10,11}

Lastly, medical resources are limited. The question of whether medical resources should be used for detection of MCI with pathological changes at the expense of biomarker tests, neuroimaging, and human resources, a part of which is covered by national insurance in Japan, remains unanswered. Given its high costs, promoting dementia prevention without appropriate empirical evidence may not contribute to improving individuals’ quality of life or the reduction of social security costs.

Providing appropriate information to improve health literacy in older adults

Everyone has the right to be diagnosed and receive medical care, regardless of age. Simultaneously, everyone has a right not to be diagnosed. Increasing the health literacy of patients is beneficial for their decision-making. As the diagnosis of MCI can be a life-changing event, awareness should be enhanced that the diagnosis supported solely by neuropsychiatric tests can contain large false positives and false negatives (ie the first disadvantage). Second, it is necessary to show the scope and limitations of existing empirical research, and null findings and

negative outcomes should be published to reduce publication bias (ie the second disadvantage). Minimising unwanted diagnoses is also important; for example, it is important to clarify cognitive function to respect an older person’s will when discussing critical issues, such as end-of-life care; however, such assessment can be done without a diagnosis.

After diagnosis, psychological support is necessary. A diagnosis of MCI can be more psychologically damaging than expected. Relationships may change as those around the patients begin to view them differently (ie the third disadvantage). For example, the author provides interventions for people diagnosed with MCI due to Alzheimer’s disease to help them reconsider their personal values, which remain unchanged before and after their diagnosis.^{15,16} It may be especially important for older adults, particularly those aged ≥ 80 s years, to reflect on how to review and conclude their lives regardless of having such diseases.

Finally, the costs of a MCI diagnosis may need to be reconsidered (ie the fourth disadvantage). This diagnosis is not always in a patient’s best interest because no pharmacological or non-pharmacological approaches based on robust evidence are available to reverse pathological changes.^{17–22} We also inform patients diagnosed with MCI of the possibility of developing Alzheimer’s disease, for which there is no cure. A precise diagnosis is beneficial from a research perspective for developing pharmacological approaches, but the cost is also an important consideration when making a practical diagnosis, provided that it does not compromise the patient’s interests. Diagnoses that are solely made using neuropsychiatric tests have an increased probability of both false positives and negatives, making it critical to consider the benefits to a patient of conducting precise and costly tests for differential diagnoses.

Conclusions

Diagnosing MCI to promote dementia prevention should be reconsidered in light of the patients’ best interests, especially those aged ≥ 80 s years. Medical professionals should provide appropriate evidence-based information to support patients’ rights to receive or not receive a diagnosis. Further,

providing psychological support for people who have been diagnosed is essential.

Competing interests

The author has no potential competing interests to disclose.

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