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Monitoring Patients With Dementia: Insight Into Global Trends, Innovations, and Future Directions

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The aging of the global population is increasing the socioeconomic impact of dementia. There is evidence that the incidence of dementia decreased between 1988 and 2015 in North America and Europe,[1] as well as in Seoul (South Korea) since 2011.[2] These declines are attributable to improvements in controlling vascular risk factors and the educational status.[3] Nevertheless, the worldwide age-standardized prevalence of dementia has increased, and is projected to reach 152.8 million patients by 2050.[3]

The development of disease-modifying drugs for Alzheimer's disease (AD) such as lecanemab and donanemab[4,5] underscores the importance of monitoring patients with dementia both individually and socially. Monitoring methods encompass epidemiological investigations, neuropsychiatric tests, brain imaging, and fluid biomarkers (Fig. 1).

Policies for monitoring patients with dementia commonly rely on epidemiological data to identify vulnerable groups, including those of higher age, lower socioeconomic status, and having specific dementia types.[6] Despite these efforts, evaluating the effectiveness of dementia management remains challenging. Therefore, a new indicator called the community management rate was analyzed previously.[7] This indicator reflects the proportion of dementia patients receiving care from caregivers or managing the condition themselves.[7] Spanning from the initial diagnosis to long-term hospitalization, this rate could increase if dementia patients are diagnosed earlier, progress more slowly, or receive support, thereby reducing the socioeconomic burden. Beyond its role in assessing incidence and prevalence, the community management rate serves as a supplementary indicator for monitoring qualitative factors. When employing big data, such as health claims data, caution is crucial. Results may vary based on diagnostic criteria or adjustment methods. Therefore, caution is needed when making direct comparisons.

AD is characterized by the accumulation of amyloid-beta (Aβ), the hyperphosphorylation of tau, and neuroinflammation.[8] Approved methods for confirming Aβ positivity include amyloid positron-emission tomography (PET) and cerebrospinal fluid tests. To overcome the limitations of these investigations, emerging blood biomarkers such as Aβ42/40, phosphorylated tau (p-tau)181, p-tau217, and p-tau231 are considered as initial-stage indicators of AD,[9,10] while neurofilament light reflects neurodegeneration.[10] However, further research is needed due to variations in the cutoff values and testing methods used at different laboratories, and in the races of included patients.

Three Aβ tracers (florbetapir, florbetaben, and flutemetamol) are commonly used for amyloid PET, with the Centiloid scale employed to standardize differences.[11,12] A cutoff value of 10 Centiloids indicates early Aβ accumulation, while 24 Centiloids signifies established AD pathology.[11,12] In the TRAILBLAZER-ALZ 2 trial that demonstrated the efficacy and safety of donanemab, a value of 37 Centiloids was used as the cutoff for the presence of amyloid pathology.[5] Monitoring changes in brain amyloid plaque levels through amyloid PET or fluid biomarkers may be useful for predicting future dementia incidence.

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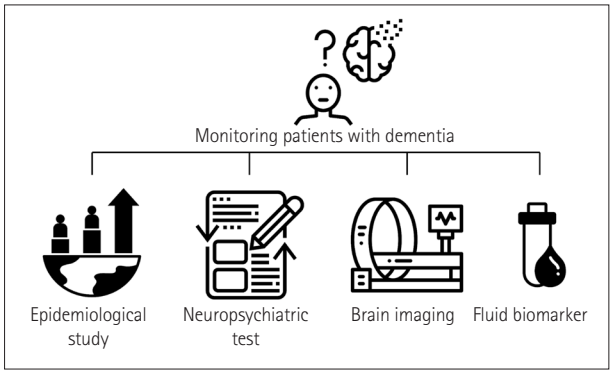

Fig. 1. Diverse approaches for monitoring patients with dementia.

Various approaches for tracking patients with dementia have been outlined. There is a need for research to authenticate monitoring standards and establish specific cutoffs for biomarkers tailored to each patient group, region, race, and laboratory. The emergence of new treatments for AD is expected to lead to the development of various policies for monitoring patients with dementia. Additional research, such as long-term monitoring of patients using consistent standards, is necessary to evaluate the effectiveness of diverse policies and treatments in this context.

Availability of Data and Material

Data sharing is not applicable to this article, since no datasets were generated or analyzed during the study.

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Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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