The Japan-multimodal intervention trial for prevention of dementia

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1. Current situation on dementia prevention

- The number of people with dementia is increasing along with the aging of the population and is expected to increase to 131.5 million by 2050.
- Given the high drug development failure rate in Alzheimer’s disease, developing successful non-pharmacological strategies to prevent dementia is an urgent priority.
- The FINGER study conducted in Europe has shown that multimodal interventions can slow down the speed of cognitive decline. [Ngandu T et al., 2015]
- In Japan, the J-MINT study aiming at verifying the effectiveness of multidomain interventions targeting modifiable risk factors for prevention of dementia, was launched in 2019.

2. Overview of the J-MINT study

The J-MINT study is a multicenter randomized controlled trial of an 18-month multidomain intervention for dementia prevention among older adults with cognitive impairment (Fig.1).

- Selection criteria: 1. 65–85 years, 2. Not dementia (MMSE≥24), 3. Have an age- and education-adjusted cognitive decline.
- Participants: n = 531
- Recruitment: November 2019 to September 2022
- Intervention stop: May 2020, Recruitment completed
- Online intervention: June 2020

Fig. 1. Study flow of the J-MINT study

- Cognitive training (1 meeting, 4 telephone)
- Nutritional counseling (1 meeting, 4 telephone)
- Management of vascular risk factors
- Group-based physical exercise (90 minutes exercise program once a week)
- Baseline assessment
- 6-month assessment
- 12-month assessment
- 18-month assessment
- Health-related information every 2 months
- Randomized
- Control
- Intervention (n = 265)
- Recruitment start
- Recruitment stop
- Intervention start
- Intervention stop
- Intervention completed
- Online intervention

Fig. 2. Progress of the J-MINT study

Impact of the COVID-19 pandemic:
The J-MINT study has been forced to halt the recruitment and intervention. J-MINT trial provides online intervention programs for physical exercise and nutritional counseling.

3. Progress and challenges

4. Next steps and directions

- The results of this trial will not only establish a standardized approach for older people at high risk for dementia, but also serve as a starting point for social implementation.
- The J-MINT-Prime trial incorporating two RCTs was initiated to clarify the efficacy of milder multidomain interventions in different settings and populations in Japan.
- Development of a mechanism through which a sustainable dementia prevention service may be made widely available to those in need.

Impact

- A multimodal intervention program targeting modifiable risk factors.
- Blood-based biomarker, omics and brain imaging analyses.
- Collaboration with private companies.

Innovation

- Establish a new program preventing dementia that does not rely on drugs.
- Clarifying the mechanism of cognitive improvement and decline.
- Creation of new services and manuals for ideal services.