ASEAN International Symposium

Health Promotion in Super-Aged Society

Prevention of Geriatric Syndrome in the Community

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1) Rapid increase of the number and proportion of old people with age 65 and over; (percentage of old-old people >75) 23% (11%) in 2010 to 32%(20%) in 2030
2) Rapid increase of care-needed elderly person; 4.0 million in 2010 to 7.5 million in 2030
3) Rapid increase of demented elderly person ; 4.0 million in 2010 to 6.5 million in 2030
4) Rapid increase of number of death in a year ; 1.1 million in 2010 to 1.7 million in 2030
5) Rapid increase of single and married couple household with member age >65; 54 % in 2010 to 70 % in 2030
Japanese Elderly People Today

Young-old (65-74 yrs.)
Very healthy
Very active
Good social tie and network
Hoping to work as possible

The new generation of young-old is capable of actively contributing to the society and many desire to do so.

About 30% on the elderly are willing to work over life-time. More than half of older people expect themselves to retire at age > 65.

In fact, almost 30% of men aged > 65 are in the labor force, much higher than in European countries and even in the USA. Japanese women also lead the world in labor force participation.
Japanese Elderly People Today

Young-old (65-74 yrs.)
   Very healthy
   Very active
   Good social tie and network
   Hoping to work as possible

Old-old (75 + yrs.)
   Geriatric Syndrome
   Long-term care state
   Frail & Sarcopenia
   Dementia (Cognitive function↓)
Geriatric Syndrome

Characteristics of Geriatric Syndrome

- slowly progressive and non-fatal
- not necessarily caused by diseases
- leave untreated, QOL becomes worse
- preventable with proper intervention
LTCI started in April, 2000.

LTCI is for sharing nursing care costs for the elderly among the general public, and allows users to select the prevention and nursing care services which they hope to use.

LTCI was reformed in April, 2006 to be more prevention-oriented system for the elderly whose daily life become less active.
Main Contents of Services to Prevent the Need for Care in the New Prevention Benefit

Community Comprehensive Support Center
(Care management to prevent geriatric syndrome)

Users who are in support level or care level 1 at Day care service / Day rehabilitation services

1) Improvement of physical activity
2) Improvement of nutrition
3) Improvement of oral function
4) Prevention of dementia
5) Home-bound condition
6) Prevention of depression

Aim: Independence and Autonomy
A RCT for Prevention of Dementia in the Elderly with MCI in the Community

Normal

Atrophy by Alzheimer Dis.

http://www.alz.org/asian/about/brain_ja/09.asp
Prevalence of Dementia

Source: The prevalence of AD in Europe: A collaborative study of 1980-1990 findings (EURODEM)

The prevalence of dementia in Japan: National Survey in 2011
Major Flow of Preventing Dementia

1 Screening
   - Cognitive Assessments
     - Cognitive Assessment Tool
     - NCGG-FAT

2 Neuroimaging
   - FDG PET
   - MRI
   - NIRS

3 Intervention
   - Exercise or Education Classes
   - Music Classes
   - Physical Assessments
   - Questionnaire
1,543 Individuals screened for eligibility by interview

1,408 Excluded
- 765 No memory complaint
- 32 History of stroke
- 35 History of heart disease
- 14 Having other medical problem
- 10 Participating other research projects
- 299 Not contacted
- 150 CDR=0
- 100 CDR=1 to 3
- 3 Refuse to participate

135 Individuals screened for eligibility by speech therapist and MRI scan

35 Excluded
- 18 Not meeting inclusion criteria
- 12 Refuse to participate
- 5 Having any medical problem

100 Participants

50 aMCI participants randomized

25 Randomized to exercise group
- 47 Completed 6-mo follow-up
  - 1 Lost to follow-up
    - 0 Refused participation
    - 1 Medical illness
  - 2 Discontinued intervention
    - 1 Medical illness
    - 1 Gave no reason

25 Randomized to control group
- 47 Included in primary analysis

50 MCI participants randomized

25 Randomized to exercise group
- 45 Completed 6-mo follow-up
  - 5 Lost to follow-up
    - 2 Refused participation
    - 2 Medical illness
    - 1 Gave no reason

25 Randomized to control group
- 45 Included in primary analysis
Effective Screening using IT (i-PAD)

- Mini-mental state examination
- Trail Making Test
- Digit symbol coding
- Logical memory test
- Word recall
- Flanker task
- Mental rotation
Cognitive Function Tests

General cognitive functioning
1. Mini-mental state examination
2. ADAS-cog

Memory
1. Wechsler Memory Scale-logical memory
2. Rey complex figure retention tests

Attention & Executive function
1. Trail Making Test part A
2. Stroop Color and Word Test
Physical Performance Tests

Muscle strength
1. Grip strength
2. Knee extension

Balance
1. One leg standing

Gait
1. Gait speed
2. 6 min walk distance
3. Acceleration analysis

Reaction time
1. Single and dual task
Brain Imaging

**MRI**
- A subject in non-atrophy group
- Z score in VSRAD, 0.84
- Sex, woman
- Age, 79 years
- Educational level, 8 years
- WMS-R, LMI total, 26 points
- SCWT-IL, 32 s

**FDG PET**
- A subject in atrophy group
- Z score in VSRAD, 3.09
- Sex, man
- Age, 80 years
- Educational level, 8 years
- WMS-R, LMI total, 6 points
- SCWT-IL, 124 s

**fNIRS**
- (1) HbO
- (2) Hbr
- (3) HbT
Multicomponent Exercise ("Cogni-cise") Program for MCI

Task 1
Stretch and muscle strength

Task 2
Aerobic exercise

Task 3
Exercise with learning-task

Task 4
Behavior modification technique
Comparison of changes in cognitive function

Comparison of brain atrophy by MRI

(Suzuki T, et al. PLOS One, 2013)
*Ten mostly fair-quality exercise trials showed no consistent benefit on cognitive outcomes. Two trials of a multicomponent self-directed exercise intervention (n=220) in persons with MCI found a small benefit in global cognitive function (approximately 1 point on the MMSE or ADAS-cog) at 12 to 18 months (Lautenschlager NT et al. JAMA 2008, Suzuki T et al. BMC Neurol. 2012).
Conclusion

1. Multicomponent exercise may lead to maintain cognitive functions in MCI elderly living in the community.

2. Non-pharmacological intervention based on CGA (cognitive tests) may play an important role to prevent dementia in the community.

3. When postpone the onset of dementia from MCI for 2 years, about a half trillion yen will be saved.
Healthcare

Long-term care

Living support

Prevention

Integrated community care support center/care manager

Provides consultation and coordinating services

Commuting to medical facilities/care facilities

Own home/elderly housing with long-term care

Home-visit care
- Nursing care

Old people’s club, residents’ association, long-term care prevention, living support, etc.
Thank you for your attention