

Trial of comprehensive support for control of lifestyle-related diseases and prevention of dementia by monitoring of pharmacotherapeutics and exercise therapy in community pharmacy



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Lifestyle-related diseases

Hyperlipidemia Atherosclerotic diseases
Diabetes mellitus Hypertension etc



Progress and complication

Ischemic heart disease
(myocardial infarction,
angina pectoris etc)

Cerebral stroke
(intracranial hemorrhage,
cerebral infarction etc)

Diabetic complication
(visual loss, hemodialysis etc)



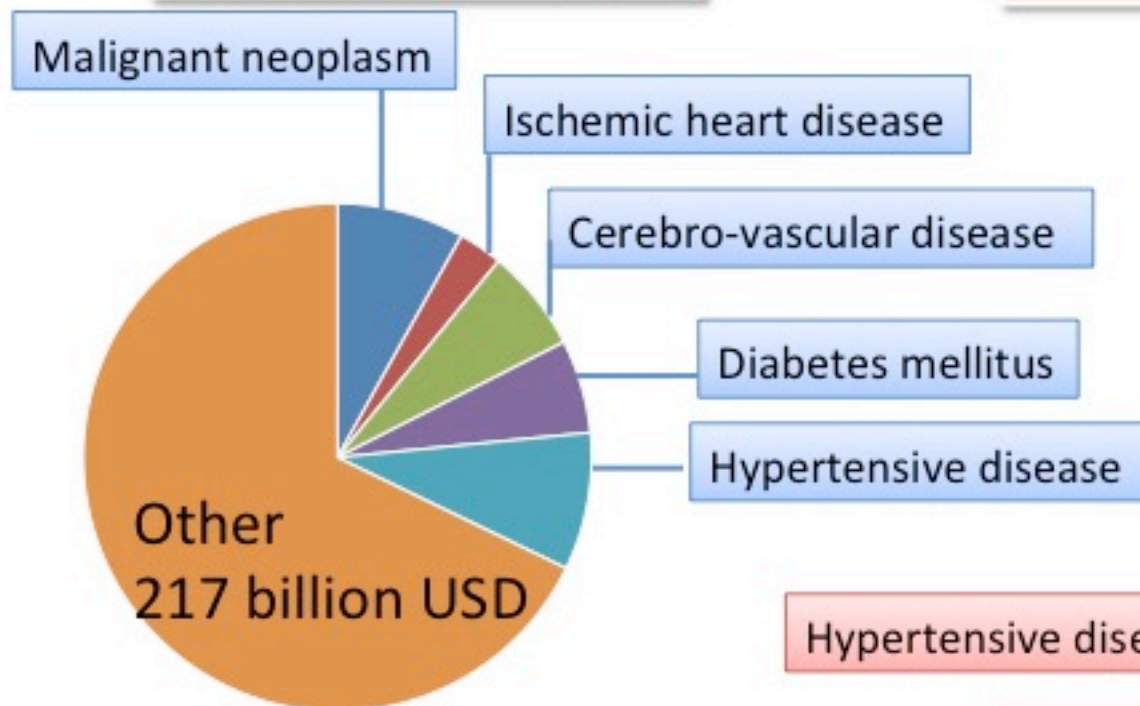
Hypoactivity of active daily living (ADL)

Hemiparesis Dementia
Bottleneck associated with daily living etc

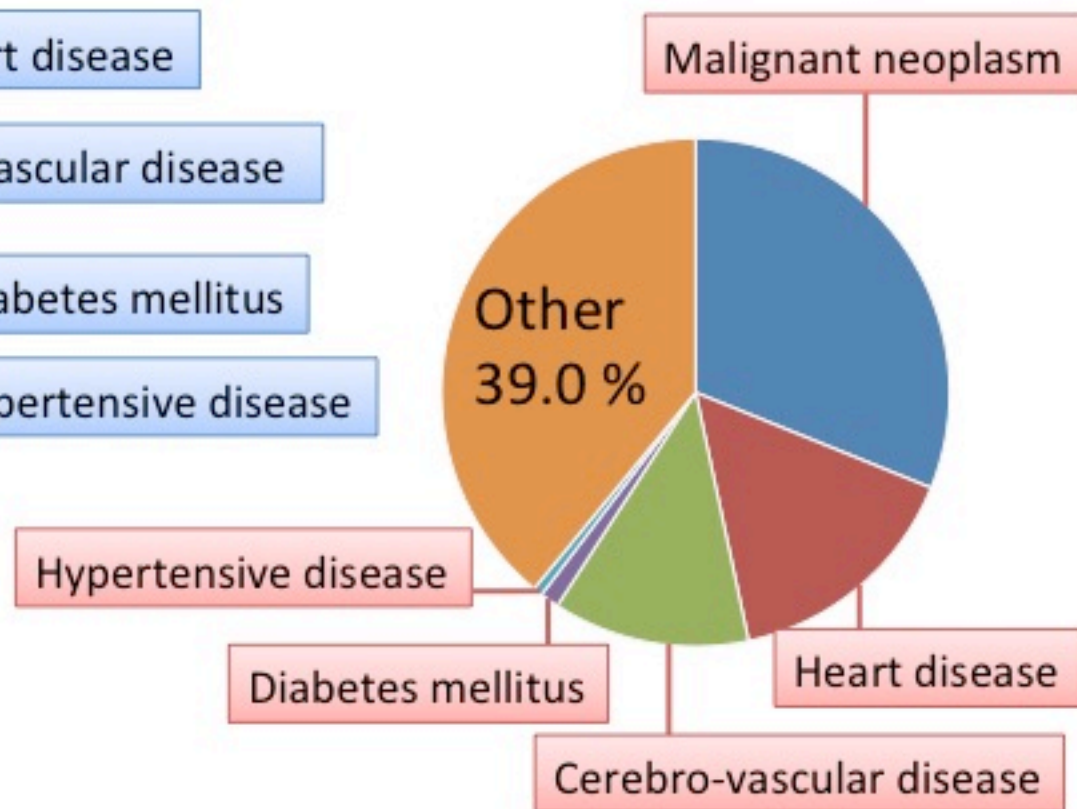
Health care cost in Japan(2004)

&

Cause-specific mortality in Japan(2004)



Lifestyle-related disease
100 billion USD



Lifestyle-related disease
60.9 %

Progression of cognitive impairment



Individuals with MCI appear to be at an increased risk of developing Alzheimer disease at the rate of 10% to 12% per year.

Protective factors

- Participation in cognitively stimulating activities
- Physical activities
- Dietary intake of antioxidants
- An extensive social network

A patient with lifestyle-related disease and MCI

Lifestyle-related disease

Diabetes mellitus
Hyperlipidemia
Hypertension
Post stroke



MCI

The 1-minute mental status examination score: **4**

Hasegawa dementia rating scale-revised (HDS-R) : **19**

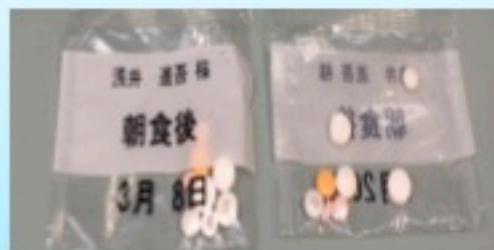
A man in his 80s who lives home alone

Pharmacotherapeutics

Drug		Usage
Valsartan	80 mg	1 Tab once a day after breakfast
Atorvastatin	10 mg	1 Tab once a day after breakfast
Ticlopidine	100 mg	1 Tab once a day after breakfast
Aspirin	100 mg	1 Tab once a day after breakfast
Lansoprazole	15 mg	1 Tab once a day after dinner
Isosorbide dinitrate	40mg	1 sheet once a day
Voglibose	0.3 mg	1 Tabs three times a day right before meals
Glimepiride	1 mg	1.5 Tabs once a day after breakfast
Vildagliptin	50 mg	1 Tabs twice a day after breakfast and dinner
Insuline Degludec (Genetical Recombination)		20 units once a day in the morning
Neurotropin	4unit	1 Tabs three times a day after meals
Paroxetine	12.5 mg	1 Tab once a day after dinner

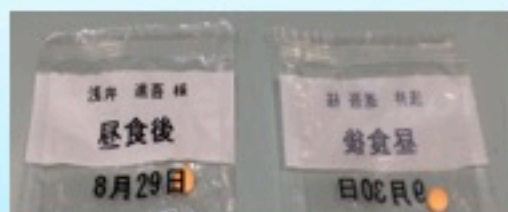
One dose package

Once a day after breakfast



Valsartan 80 mg 1Tab	Neurotropin 4unit 1Tab
Atorvastatin 10 mg 1Tab	Glimepiride 1 mg 1.5Tabs
Ticlopidine 100 mg 1Tab	Vildagliptin 50 mg 1Tab
Aspirin 100 mg 1Tab	Neurotropin 4unit 1Tab

Once a day after lunch



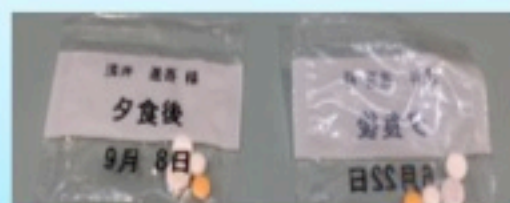
Neurotropin 4unit 1Tab

Three times a day right before meals



Voglibose 0.3 mg 1Tabs

Once a day after dinner



Lansoprazole 15 mg 1Tab
Paroxetine 12.5 mg 1Tab
Neurotropin 4unit 1Tab
Vildagliptin 50 mg 1Tab

A patient with lifestyle-related disease and MCI

Lifestyle-related disease

Diabetes mellitus

HbA1c(NGSP):9.4

Hyperlipidemia

Hypertension

Post stroke

Poor
control

Poor compliance



He forgets things a lot.
He stays home almost
every day instead of
going out.

MCI

The 1-minute mental status
Examination : 4

Hasegawa dementia rating
scale-revised (HDS-R) : 19

A man in his 80s who lives home alone

Trial of comprehensive support in community pharmacy

Check vital signs, weight and plasma glucose 2hr after the glucose load



Check drug compliance



Exercise therapy
by using step for
5min/day
(15kcal/day)

He came to our
pharmacy 6 days a week.

Check cognitive function

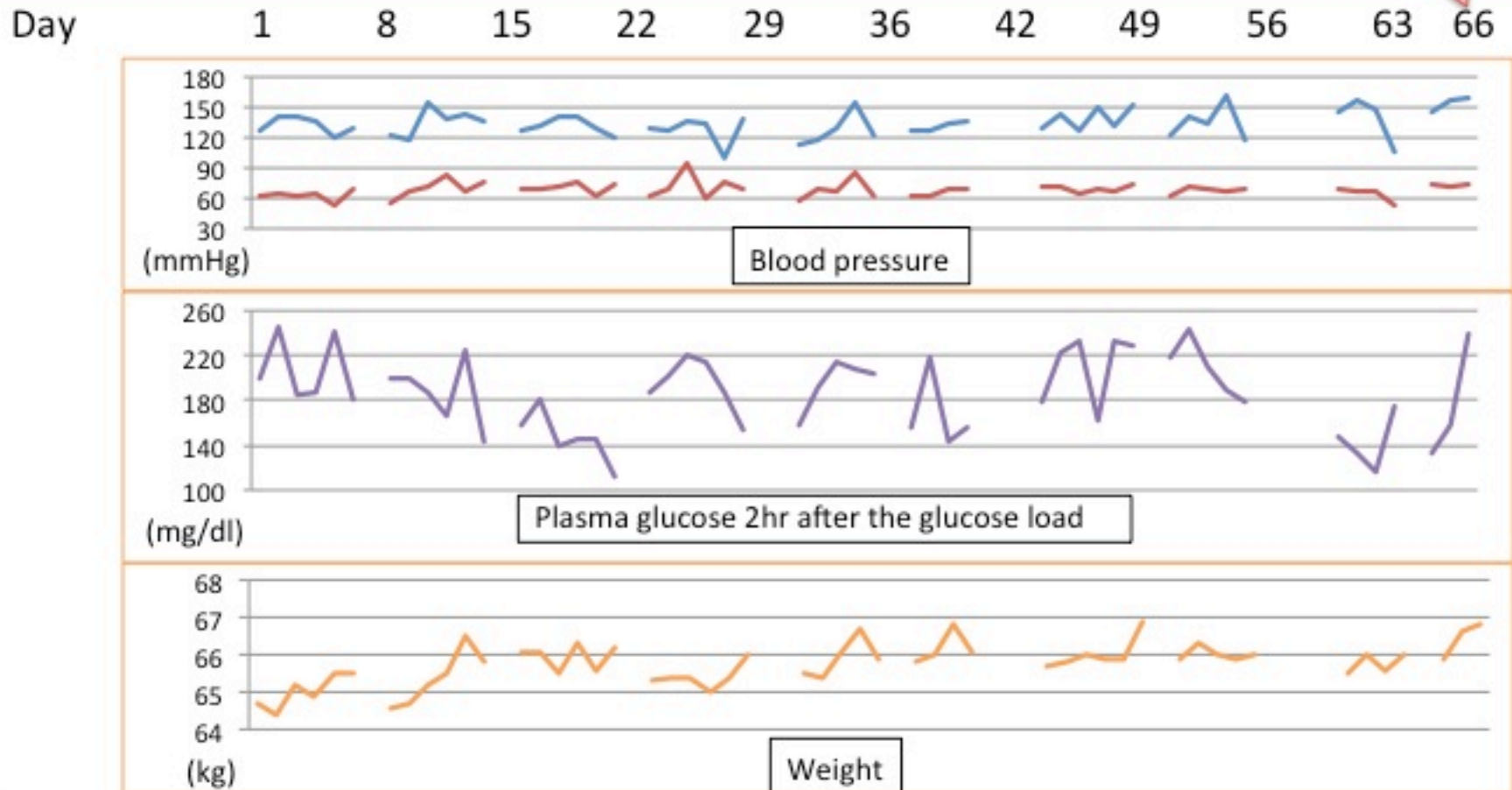
- The 1-minute mental status examination
- HDS-R

Check drug effects and
side effects by
interviewing his health
condition

- Appetite
- Fatigue
- Pain
- Hemorrhage

Result

End of the trial



Drug
compliance

A drug compliance rate more than 80%

Exercise
therapy

We could not elevate his exercise load because of his right knee pain.

Drug effects
and side effects

His pharmacotherapeutics continued without side effects.

Result

Cognitive function

Day	1	32	59
The 1-minute mental status examination	4	14	14
HDS-R	19	18	25

Laboratory data

Day	3weeks before intervention	40	89 (3weeks after intervention)
HbA1c(NGSP) %	9.3	8.1	7.5
Fasting blood glucose mg/dl	318	250	239
LDL cholesterol mg/dl	112	108	100

Conclusion

Because of low exercise load and no weight loss, this reduction of HbA1c and LDL-C seemed to be due to his good compliance.

Involvement of a pharmacist kept pharmacotherapeutics safety and improved drug compliance and lifestyle-related disease.

It was suggested that exercise therapy served to prevent dementia.

We concluded that we could show a new approach to pharmacy community medicine.