Evolution of Age-specific Health Promotion in Rural Communities

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Lifestyles at different stages of life were analyzed in rapidly changing rural communities in Japan in order to help in the establishment of a health promotion policy and measures appropriate at each stage of life from children to the elderly in farming areas.

Health Promotion Programs for childhood

One of the most alarming health problems in school children in Japan is an increasing prevalence of geriatric diseases.

Major risk factors include a quick eating tendency among obese boys and an increasing consumption of food with a high risk for geriatric diseases.

Health promotion programs for abnormal individuals should include closer guidance designed to correct undesirable eating habits. Normal individuals should also be given guidance regarding eating habits in order to prevent geriatric diseases among children.

Teachers in charge of health, public health nurses, dietitians, physicians, and parents, in particular mothers, should closely cooperate to implement general health promotion programs.

This paper deals with the Dietary Guidance for Children in Rural Communities in Japan.

The serum cholesterol value in the Japanese people has been lower than that in Europe and USA. Within Japan, the value is said to be lower in the rural area than urban area. However, the scrum cholesterol value in our country is rapidly increasing these days because our dietary life has shown a tendercy to westernization. It is reported that the level in both the males and females under 30 years old in Japan is already higher than that in the USA even though the value is still lower in those aged over 30 years old(Fig. 1a, 1b).

Objectives: To intervence the life-style of primary and junior high school students whose serum cholesterol value is high, to normalize the value and investigate the influence of the normalized value.

Subjects and Methods: Serum cholesterol was measured in the primary and junior high school

students(first to 9th graders) in a typical rural area(population 5,300) in Akita Prefecture in 1989 and a follow-up of serum cholesterol value after dietary guidance was conducted.

Results and Discussion: In 1989, the incidence of abnormal cholesterol value(200mg/dl or more) was 4 times higher than the national average of the students in the above mentioned region(Fig. 2). While giving dietary guidance, the annual change in serum cholesterol was observed(Fig. 3). As shown in the Fig., the dietary guidance in the students definitely improved the cholesterol level. The incidence of abnormal values in 1989 was 18% in males and 37% in famales. However, the dietary guidance gradually decreased the ratio 6-9% in 1995. This was close to the level observed nationwide. For dietary guidance, schools and education communites, etc. cooperated in giving advice to not only the students but to their mothers also. Close contact was also made with the school lunchcenters. Physicians, dietitians and public health nurses were in charge of guidance. The dietary campaign was not limited to schools but to the whole village. Lecture meetings on health dietary life were repeatedly held. As shown in Fig. 4, the total cholesterol value in adults measured in the adult disease checkup tended to decrease from the year when the dietary guidance was started in the students. For the purpose of investigating the background in this region, the cholesterol values obtained in the agricultural cooperative office health check from the males and females aged between 35 and 40 years old were investigated from 1968 to 1995. As shown in Fig. 5, the value kept increasing by 1mg/dl in 25 years.

It is important to set direction for the whole family in the dietary life. As was observed in this study, a splendid result can be achieved if the parents and children try to adopt healthy dietary habit together.

Considering that these students were growing up, test data were carefully examined before giving the dietary advice. As a result, no adverse influence such as anemia occurred. As shown in Fig. 6 and 7, hemoglobin and hematocrit values increased rather than decreased.

The values in those who had demonstrated high cholesterol level were normalized while hardly any change occurred in those whose value had originally been low(Fig. 8).

Conclusions: It is considerably difficult to change one's dietary life. However, it is easier to obtain an excellent result if the whole family and the whole region work together for healthy dietary life. We reported on the results obtained by improving the dietary life, especially that of parents and children.

Health promotion programs for middle age

One of the major problems in ensuring good health among individuals in their prime is their poor interest in meals and health.

Characteristically, men are less assiduous than women in taking care of their health. They usually eat quickly and consume a lot of alcohol. Among women, the percentage of those who consider themselves healthy sharply drops after 50 years of age, and these individuals take good care of themselves. Many women are cautious about not

taking an excessive amount of salt. However, many women tend to eat between meals. The number of women who daily consume sweet drinks is larger among those in their 50' s or older than among younger counterparts.

One of the most important risk factors among men is their poor interest in meals and health.

In health promotion programs, individual guidance is important for high-risk individuals in order to increase their awareness. Guidance for prevention should be provided with accurate basic knowledge taking each individuals lifestyle into account. It is also important to strongly recommend health checks and human dry dock followups based on data obtained.

Health promotion programs for elderly

One of the major concerns of elderly individuals regarding their health is the worry that they may cause trouble to their family by becoming bed-ridden or demential.

Among men, the percentage of those who are confident about their health sharply drops after 60 years of age. Men aged 60 years or older are more careful about their health and more assiduous in following a recommended lifestyle than men of any other age bracket. They are generally satisfied with interacting with their friends, participating in leisure and social activities, and they enjoy their life as a whole. Most of them take good care of what they eat and avoid salt, sugar and oil. Many prefer fish to meat. They also refrain from consuming a large amount of alcohol.

The older the individual, the healthier his or her lifestyle is, and elderly individuals are generally cautious about their eating habits in many aspects. For healthcare providers, however, it is important to not only impose restrictions but also respect individuals own will in giving guidance.

For example, measures for lifestyle-related diseases for the elderly and younger citizens should be taken from different viewpoints.

Most of the studies on risk factors for lifestyle-related diseases conducted to date have focused on general adult citizens, and there is almost no data that is specifically related to elderly citizens. Ten years ago, we conducted a basic medical examination and lifestyle survey in 15,729 residents(Table 1), including 11,757 aged between 40 and 64(middle aged group) and 3,972 aged between 65 and 74(elderly group), in 6 municipalities in Hiraka-gun, Akita Prefecture, where 88.4% to 96.7% of residents received medical examinations and health promotion projects were enthusiastically conducted over the subsequent 10 years. The survival rate for the 10-year period was determined. In the 10-year period, a total of 959 residents, 411 in the middle aged group and 548 in the elderly group, died. Their causes of death are shown in Table 2.

Because the presence of latent cancers before starting the survey may have affected physiochemical data, BMI, and other parameters, data were also analyzed after exclusion of residents who passed away within 5 years of starting the survey.

Lab test data obtained from residents in the 6 municipalities in 1989(systolic and diastolic blood pressure, BMI, hemoglobin, fasting blood glucose,

GOT, HDL cholesterol, serum total cholesterol and serum albumin) and their lifestyle were analyzed by sex, and the survival rate by age in dead residents was determined by the Kaplan-Meier method. The results of these analyses, as well as the correlation between each of these parameters and death determined by Cox's proportional hazard regression analysis, were compiled. Naturally, the age was found to be the strongest determinant, followed by blood pressure, with the survival rate falling with increasing systolic and diastolic blood pressure(Fig. 9 and 10). This finding confirms previous reports made by many authors and is consistent with the nationwide trend. In Akita Prefecture, however, blood pressure was found to be the determinant for mortality due to cardiovascular disease which was much stronger than any other risk factors, indicating that more effective measures to control blood pressure were necessary. Interesting findings were also obtained regarding other risk factors. Those which should be useful for lifestyle guidance in elderly residents are reported below. 1) BMI: The survival rate was lower among slimmer men. Among elderly men, this was also true even if those who died due to cancer were excluded(Fig. 11). In women, the survival rate was not affected by the BMI. 2) Serum total cholesterol level: The survival rate curve showed only minor differences in the middle-aged male group, but the survival rate was significantly lower in those with low cholesterol levels(170 mg/dl or less) than in those with higher cholesterol levels. However, these differences were lost when residents who died due to cancer were excluded, indicating that the

differences were due to the effects of cancer. In the elderly male group, the survival rate in those with low serum total cholesterol levels was apparently lower than in the middle aged group, and this trend was not lost after exclusion of residents who died due to cancer within five years. This finding indicates that the same dietary guidance provided to younger patients should not be provided to elderly hypercholesterolemia patients discovered in basic medical examinations(Fig. 12). In contrast, no significant differences were seen between the middle aged group and the elderly group. Since women live longer than men, analysis will also be necessary for those aged 75 or older. 3) Serum albumin and serum total cholesterol levels: Significant positive correlation was noted in both men and women regardless of their age, even if residents who died due to cancer were excluded. The correlation increased with age(Fig. 13a, 13b). This finding also indicates that the same dietary guidance should not be given to the elderly and younger groups.

In health promotion programs, individuals lifestyle and eating habits should be closely monitored and appropriate suggestions and advice should be provided to each individual. It is also important to take advantage of health checks and mass examinations to provide education on health. Suitable menus for guidance should also be developed.

In the health promotion programs for elderly individuals, it is important to utilize organizations such as clubs for senior citizens and to organize recreational and other activities to improve their QOL.
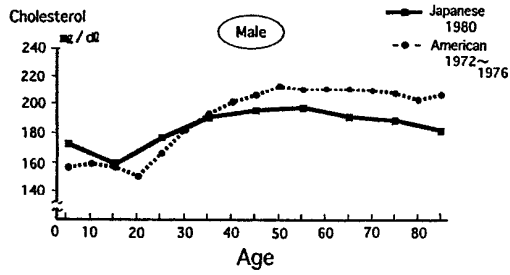
Cholesterol
240 mg/dl
220
200
180
160
140

Male

Japanese 1980
American 1972~1976

0 10 20 30 40 50 60 70 80
Age

Fig.1a Compaison of Cholesterol Values
in Japan and U.S.A

Cholesterol
240 mg/dl
220
200
180
160
140

Female

Japanese 1980

American 1972~1976

0 10 20 30 40 50 60 70 80
Age

Fig.1b Compaison of Cholesterol Values
in Japan and U.S.A

(%)
40
30
20
10

Male
Female

36.6
18.4
6.3 9.1

study group   national average
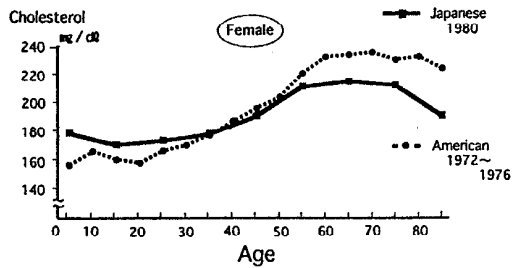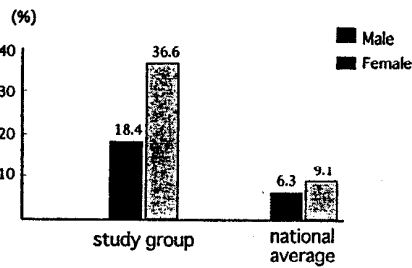
Fig.2 Abnormal Frequency of Cholesterol Values
Above 200mg/dl in Children

Abnormal Flequency (%)
40
30
20
10

Typical Rural area in Akita Prefecture

Male
Female

1989 1990 1991 1992 1993 1994 1995 1996
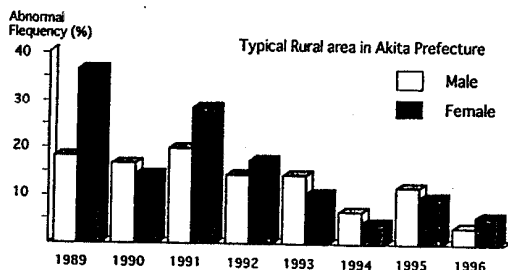
Fig.3 The Influence of Dietary Guidance
for Children on Serum Cholesterol Levels
(Abnormal Flequency of Serum Cholesterol
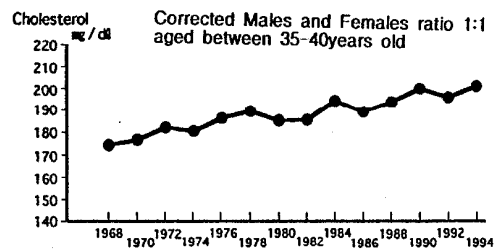Values Above 200mg/dl)

Cholesterol
(mg/dl)
240
220
200
180
160

Adult Male
Adult Female
Children Male
Children Female

222
202
201
194
190
189
181
178
161
156

85 86 87 88 89 90 91 92 93 94 95 96
year

Fig.4 Changes in Serum Cholesterol Levels

Cholesterol
mg/dl
220
210
200
190
180
170
160
150
140

Corrected Males and Females ratio 1:1
aged between 35-40years old

1968 1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994
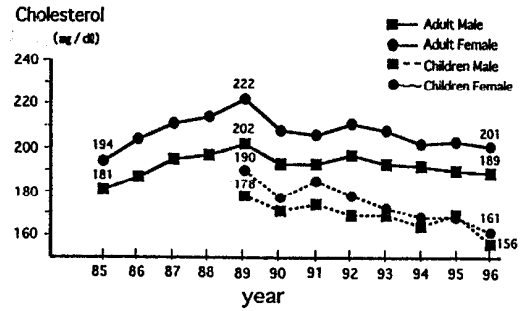
Fig.5 Changes in Serum Cholesterol of
Agricultural Cooperative Workers

Hb (g/dl)
15
14
13
12
11

Whole
Male
Female

1989 1990 1991 1992 1993 1994
Children in Akita
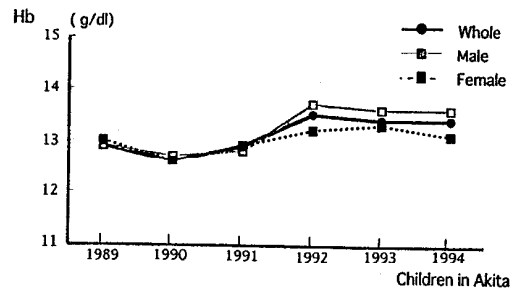
Fig.6 Changes in the Hemoglobin Concentrations
(1989 — 1994)

Ht (%)
42
41
40
39
38
37
36
35

Whole
Male
Female

1989 1990 1991 1992 1993 1994
Children in Akita
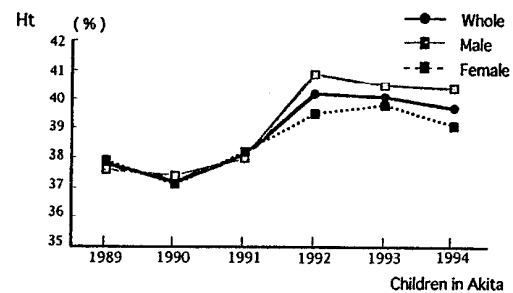
Fig.7 Changes in the Hematocrit Values
(1989 — 1994)
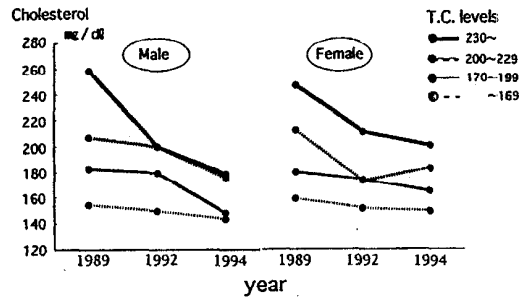
Fig.8 Baseline T.C. levels were obtained 1989
and Difference of T.C. decrease in Children

Table 1　Subjects

	Male	Female	Total
middle age (40-64y)	4,675	7,082	11,757
elderly (65-74y)	1,658	2,314	3,972
Total	6,333	9,396	15,729

Table 2　Cause of Death

Cause	40-64y Male	40-64y Female	65-74y Male	65-74y Female
Cancer (within 5y)	49	32	59	43
Cancer (over 6y)	82	49	98	42
Cerebrovascular disease	35	17	45	49
Cardiovascular disease	19	16	30	29
Pulmonary disease	8	10	46	13
Suicide	16	16	5	13
Accident death	20	6	9	8
Others	25	11	34	25
Total	254	157	326	222
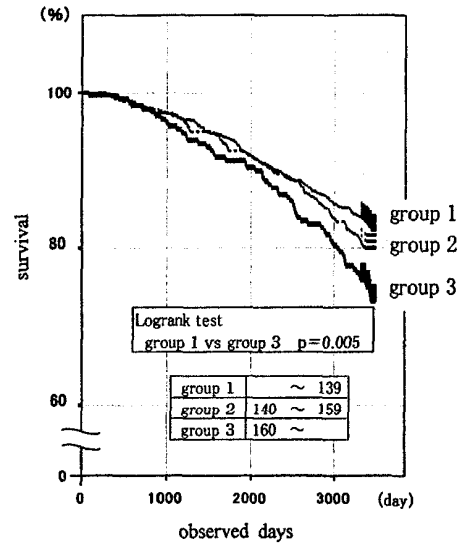
Fig. 9　Syst Pressure
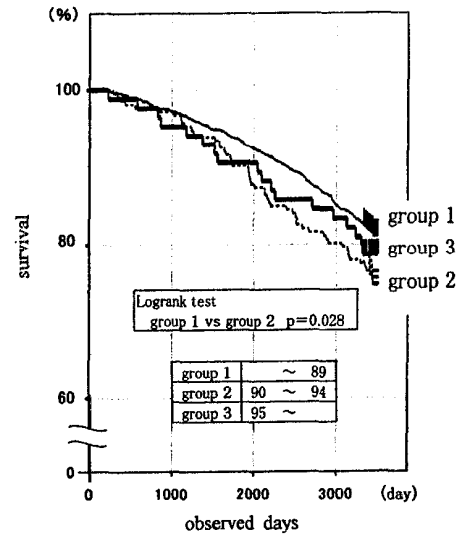Survival Curve (Male 65~74y)

Fig. 10　Diast Pressure
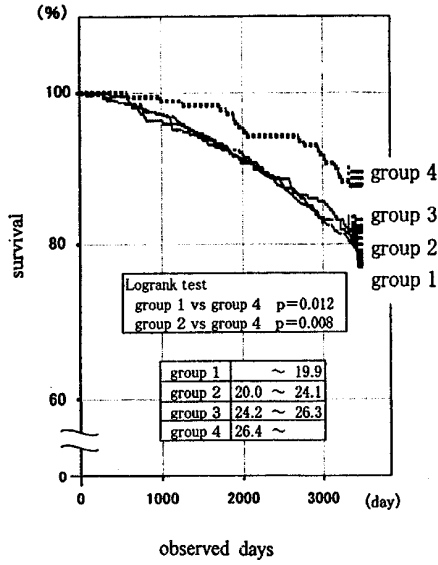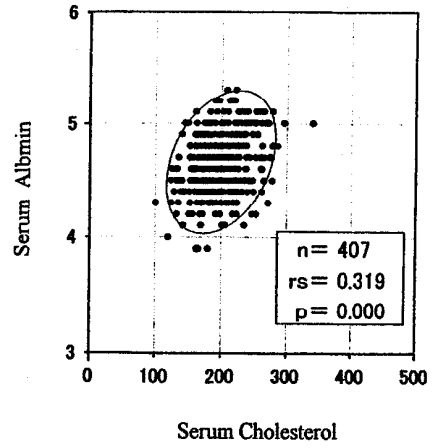Survival Curve (Male 65~74y)

Fig. 11 BMI
Survival Curve (Male 65~74y)

Fig. 13a Correlation Serum Albmin and
Serum Cholesterol (Male 65~74y)
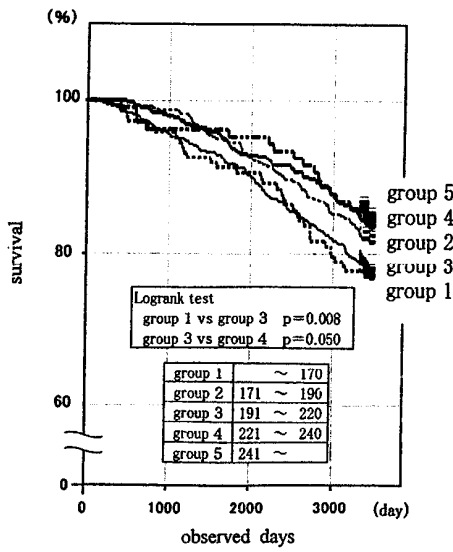(except cancer within 5 year death)

Fig. 12 Scrum Cholcstcrol
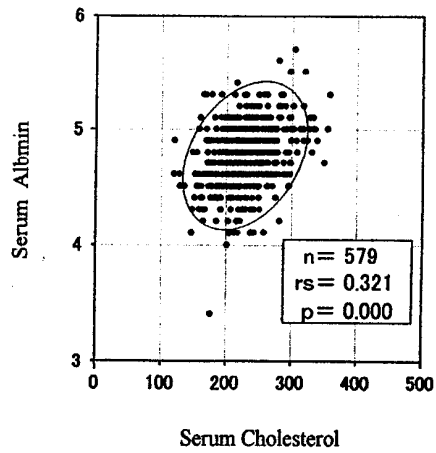Survival Curve (Male 65~74y)

Fig. 13b Correlation Serum Albmin and
Serum Cholesterol (Female 65~74y)
(except cancer within 5 year death)