

Editorials

JMAJ's Future Policy and Notice of Renewal

Haruo Uematsu 161

A New Era for the *Journal*

Tsuguya Fukui 162

Original Articles

The Ecology of Medical Care in Japan

Tsuguya Fukui, Mahbubur Rhaman, Osamu Takahashi, Mayuko Saito, Takuro Shimbo,
Hiroyoshi Endo, Hanako Misao, Shunnichi Fukuhara, Shigeaki Hinohara 163

School Health Research in Low-Income Countries in East Asia and the Pacific

Masamine Jimba, Krishna C Poudel, Kalpana Poudel-Tandukar, Susumu Wakai 168

Preoperative TNM Staging of Advanced Gastric Cancer with Multi-Detector Row Computed Tomography

Toshihiko Shinohara, Shigekazu Ohyama, Toshiharu Yamaguchi, Tetsuichiro Muto,
Atsushi Kohno, Toshihiro Ogura, Yo Kato, Mitsuyoshi Urashima 175

Review Articles

Epidemiology of Kawasaki Disease in Japan

Ritei Uehara, Yoshikazu Nakamura, Hiroshi Yanagawa 183

Current Treatment Strategies for Coronary Disease in Japan

Ryo Koyanagi, Naomi Kawashiro, Hiroshi Ogawa, Yukio Tsurumi, Hiroshi Kasanuki,
Katsumi Nakata 194

Current Activities of JMA

Policy Address

Haruo Uematsu 201

Current and Future Issues in Continuing Medical Education by the Japan Medical Association

Nobuya Hashimoto 204

Medical News from Japan

"Medical Ethics"

—Efforts of JAMS Specialty Societies in Japan—

Yasuhiko Morioka, Takeshi Motegi 209

JMAJ's Future Policy and Notice of Renewal

Haruo Uematsu*¹

The Japan Medical Association (JMA) is an academic professional organization with approximately 160,000 members. JMA's mission is to ensure that the universal health insurance coverage, which has been highly regarded internationally, be maintained, and to ensure a system with which safe, high-quality medical care can be provided efficiently to every citizen throughout the nation.

JMA is conducting a wide range of activities, such as the heightening of medical ethics, improving medical technologies, integrating medicine and related sciences and continuing medical education.

In the realm of international activities, JMA has played an important role in international organizations, for example, as the Secretariat of the Asia and Oceania Region of the World Medical Association (WMA) and Secretariat of the Confederation of Medical Associations in Asia and Oceania (CMAAO). Through the activities of these organizations and communication with medical associations in different countries, we have exchanged information and discussions to make a significant contribution to the development of the international medical community and the enhancement of people's health.

As part of its international activities, JMA also founded Takemi program for International Health in cooperation with the Harvard School of Public Health in 1983.

This program has cultivated many professionals in healthcare who are now working at the forefront in each country.

In conjunction with these activities, JMA has been publishing a monthly academic journal, *The Asian Medical Journal* in English since 1958 to introduce the world to quality Japanese medical science and clinical treatment. The name of the journal was changed to *The Japan Medical Association Journal* (JMAJ) in 2001 as the JMA's message to the world.

JMAJ has carried high-quality articles selected and translated from those published in *The Journal of the Japan Medical Association*. This time, however, we have decided to change the editorial policy completely and release it as a new English journal of medical science and care that can be highly regarded on the international stage.

It would be our greatest pleasure if this JMAJ, with a history spanning nearly 50 years, can be reborn by this innovative change of contents as a medical magazine that facilitates international academic exchanges, and contributes to the advancement of international medical standards.

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A New Era for the *Journal*

Tsuguya Fukui*²

(Editor-in-Chief)

It is my utmost pleasure to present this issue of the newly revamped Japan Medical Association (JMA) Journal (the *Journal*) to all readers inside and outside of Japan. The *Journal* now has a totally different look and content from past issues published during its almost 47 years of history, including its predecessor, the Asian Medical Journal.

Past issues essentially carried English versions of articles already published in Japanese in the JMA's official journal, *the Journal of the Japan Medical Association*. It has been my longtime desire to see the *Journal* develop into a high standard general medical journal carrying original and review articles closely related to clinical practice and news of medicine, medical care, and health policy in Japan, like the *JAMA* from the USA and the *BMJ* from the UK. My high hopes for such a journal coincided with the vision held by Dr. Nobuya Hashimoto, the Executive Board Member in charge of academic affairs in the JMA under the leadership of Dr. Haruo Uematsu, who took the helm in 2004.

Assuming editorship of the *Journal* in mid-2004, I immediately proceeded to the

task of revitalizing the *Journal*. With the help of my associate editors, Drs. Mitsuyoshi Urashima and Hideki Hashimoto, and my colleagues at the editorial office, I feel we have succeeded in recreating the *Journal* as a general medical journal which will be representative of the medical community of Japan. The *Journal* is now a peer-reviewed scientific journal carrying original articles, review articles, short communications and case reports, and correspondence, among others.

I sincerely hope that many readers among practicing physicians and researchers in clinical medicine and health service, inside and outside of Japan, will submit pertinent articles, making the *Journal* the stage for discussions on medical issues of international relevance and that, in the years to come, we will see many scientific achievements in medicine become more widely known internationally through the *Journal*.

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The Ecology of Medical Care in Japan

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Abstract

Background Studies on the ecology of medical care have been reported only from the USA. No similar investigation has been made for Japanese population.

Objective To sketch health care seeking behavior of people in Japan based on a prospective health diary recorded for one month.

Material and Methods A population weighted random sample from a nationally representative panel of households was used to estimate the number of health-related symptoms, self-care, and health care utilization per 1,000 Japanese population per month. Variations in terms of age, sex, and region were also examined.

Results Based on 1,286 households (3,477 persons: 2,451 adults and 1,026 children), on average per 1,000 persons, 862 had at least one symptom, 307 visited a physician's office, 232 a primary care physician, 88 a hospital-based outpatient clinic, 49 a professional provider of complementary or alternative medical care, 10 a hospital emergency department, and 6 a university-based outpatient clinic. Seven were hospitalized, 3 received professional health care in their home, and less than 1 was admitted to a university hospital. Children had more physician and emergency visits, and rural people were more likely to be hospitalized compared with the average figures. Females were more likely than males to have symptoms and to visit their physician while the reverse was true for emergency visits.

Conclusions Compared with the data from the USA, more people visit physician offices and hospital based outpatient clinics in Japan. Results of this study would be useful for further delineation of health care seeking behavior of people in the context of a health care system unique to Japan.

Key words Ecology, Medical care, Physician visit, Primary care, Health diary

Introduction

More than 40 years have passed since White et al.¹ reported the first study on the ecology of medical care based on the population of the USA and UK. They showed that the

main bulk of the health service utilization occurred at physician visits (250 out of 1,000 per month) with hospitalization only 9 incidences out of 1,000. This ecology model has been replicated over the decades,^{2–5} with findings that were consistent with those of White et al. Furthermore, this model has

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been widely referred to by policy makers and educators.⁶⁻⁹

Unlike the medical system in the USA, Japan has a universal health care system, which allows free access to everyone. In a recent study, it was reported that Japan, compared to the USA, spent considerably less money on health care in terms of total health spending per capita (US\$ 2,012 vs. 4,631) and percent of gross domestic product (GDP) (7.8% vs. 13.0%).¹⁰ Thus, it is speculated that the Japanese people's health care seeking behavior and health service utilization could be different from that in the USA. However, no well-designed studies on patients' health seeking behavior for health-related symptoms were previously conducted, although there were reports limited to very small sample sizes.^{11,12}

The objective of this study was to examine health care seeking behavior of people in Japan using a nationally representative panel of households.

Materials and Methods

Study design

Prospective cohort design was employed.

Sample

A nationally representative panel, comprised of 210,000 households, belonging to Japan Statistics & Research Co. Ltd., was used. Taking into consideration the size of the cities, towns and villages, a population weighted random sample of 5,387 households was chosen and each household was sent an offer letter with a return envelope. Of the total, 1,857 agreed to participate. The sample size was readjusted to 1,464 households to make it nationally representative.

Data collection

Questionnaires and diaries were used for data collection. The questionnaires were scripted to note individuals' baseline characteristics including past medical history. The diary was to keep record of any health related

events, symptoms, health-seeking behavior, and actual use of health services along with other variables of interest. For children younger than 13 years and those who could not write on their own, parents/other eligible persons were asked to fill out the questionnaires and diaries for them. The advantages of health diaries are that they can allow continuous and live recall of events. Utilization of diaries has shown higher compliance¹³ and has been found to be useful where the researcher does not have direct access to the situation.¹⁴ It is a highly suitable methodology for literate populations.¹⁵

After obtaining informed consent by post, health diaries (divided into two parts, each two weeks duration), questionnaires for recording baseline data and gift vouchers of about 30 US\$ per person were sent to each member of the 1,464 households in September 2003. The diaries were recorded from October 1, 2003 till October 31, 2003. A manual accompanied the health diaries to facilitate recording the required information. The diary was in the form of a softbound A4 book. The participants were asked to return the first part of the diary after entries were made for 15 days while the second part was returned after the completion of the study period. A phone call per week per family was made as a reminder.

Ethical approval was obtained from the Research Ethics Committee of Kyoto University Graduate School of Medicine, Japan.

Statistical analysis

Descriptive analyses, along with confidence intervals, were performed to estimate the number of different health care seeking behaviors per 1,000 of the population in a month.

Results

Of 1,464 households, 1,359 households (3,658 persons) returned both parts of the diary at

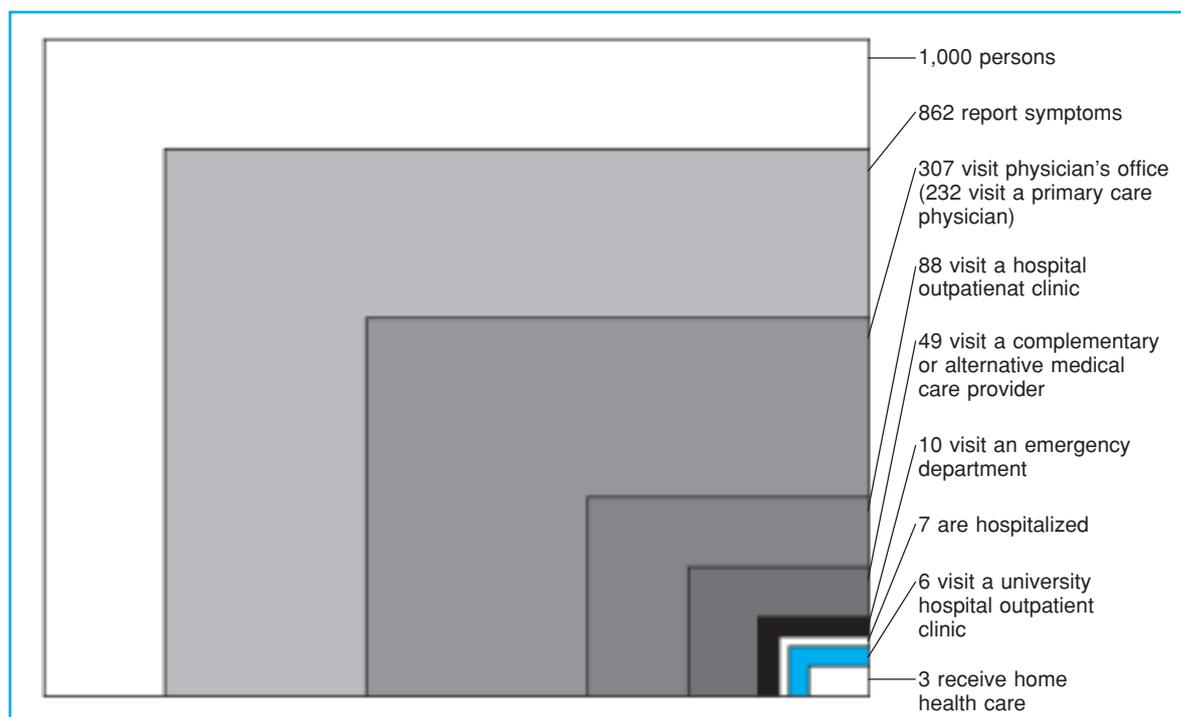


Fig. 1 Monthly prevalence estimates of symptoms and health care utilization in Japanese population

Each box does not necessarily represent a subgroup of the larger box, i.e., some values are overlapping. The values are based on 1,000 persons.

the conclusion of the time period. The data were complete for 3,477 persons out of the total 3,568 persons. Most of the respondents were females (53.2%) and adults (70.5% \geq 18 years old). Area-wise, 17% were from large cities, 24% from medium-sized cities, 38% from small towns, and 21% from rural areas.

Figure 1 shows the incidence of different health care seeking behavior in the model of ecology of medical care. Of 1,000 people in Japan, our estimates on average in a month show 862 had at least one symptom, 307 visited a physician's office, 232 a primary care physician, 88 a hospital-based outpatient clinic, 49 a professional provider of complementary or alternative medical care, 6 a university-based outpatient clinic, and 10 an emergency department. Seven were hospitalized, 3 received health care in their home, and less than 1 (0.3) was admitted to a university hospital.

Table 1 shows the variation of health care seeking behavior in terms of age, sex, and area of living. Children had more physician and emergency visits, and rural people had more hospitalization compared with the average figures. More females had at least one symptom, physician and outpatient visits, while the reverse was true for emergency room visits. People living in large cities were more likely to receive home health care and visit emergency departments, while rural people were more likely to be hospitalized.

Discussion

The results derived from our study reflect the overall pattern of health care seeking behavior in Japan as of 2003. This is the first study to provide nationally representative data. It showed that 86.2% of the respondents had at least one symptom while 30.7% used health service in a month. As a whole

Table 1 Ecology of medical care in terms of type of care stratified by age, sex and area (per 1,000 persons)

Category	Number of people with at least one symptom	Office or hospital visit	Primary care physician visit	Hospital out-patient clinic visit	Home health care visit	Emergency room visit	University medical center visit	Hospitalization
Overall	861.7 (849.7–873.0)	306.6 (291.3–322.2)	232.3 (218.4–246.8)	88.3 (79.1–98.2)	3.5 (1.8–6.0)	9.8 (6.8–13.6)	6.3 (4.0–9.6)	7.2 (4.7–10.6)
Age								
<18	872.1 (850.1–891.9)	402.3 (372.1–433.1)	335.0 (306.1–364.8)	82.0 (66.0–100.6)	3.9 (1.1–10.0)	20.5 (12.7–31.2)	4.9 (1.6–11.4)	2.0 (0.2–7.0)
≥18	857.3 (842.8–870.9)	266.6 (249.2–284.6)	189.6 (174.2–205.6)	91.0 (79.8–103.0)	3.3 (1.4–6.4)	5.3 (2.8–9.0)	6.9 (4.0–11.1)	9.4 (6.0–14.0)
Sex								
Male	819.3 (799.7–837.7)	287.0 (265.1–309.7)	216.3 (196.6–237.2)	81.7 (68.9–96.1)	4.9 (2.1–9.7)	13.5 (8.5–20.4)	5.5 (2.5–10.5)	6.8 (3.4–12.1)
Female	898.9 (884.3–912.3)	323.8 (302.5–345.6)	246.5 (227.0–266.8)	94.1 (81.1–108.3)	2.2 (0.6–5.5)	6.5 (3.4–11.3)	7.0 (3.7–12.0)	7.6 (4.4–12.7)
Area*								
Large city	879.1 (849.7–904.5)	298.8 (261.8–337.9)	219.3 (186.3–255.3)	82.9 (61.8–108.4)	10.4 (3.8–22.4)	15.5 (7.1–29.3)	8.6 (2.8–20.0)	5.2 (1.1–15.1)
≥100,000	854.4 (828.1–877.7)	304.5 (273.3–337.0)	241.9 (213.1–272.5)	80.6 (63.0–101.3)	1.2 (0.03–6.7)	9.6 (4.2–18.9)	6.0 (2.0–14.0)	6.0 (2.0–14.0)
<100,000	866.2 (846.7–884.0)	316.5 (291.6–342.3)	242.9 (220.0–266.8)	91.0 (76.1–107.7)	2.3 (0.5–6.6)	6.8 (3.1–12.8)	5.3 (2.1–10.8)	3.8 (1.2–8.8)
Rural area	848.0 (820.0–873.2)	297.2 (264.3–331.6)	213.0 (184.0–244.4)	96.3 (76.0–120.0)	2.7 (0.3–9.8)	10.9 (4.7–21.3)	6.8 (2.2–15.8)	16.3 (8.4–28.3)

*Large city: Cities with a population more than 1 million

≥100,000: Cities with a population between 100,000 to 1 million

<100,000: Town with less than 100,000 population

the results are comparable to that of the previously reported studies from the USA,^{1,2,9} although this study is based on a cohort, which is nationally representative, while those from the USA drew on different sources providing synthesized data. Compared with the most recent report by Green et al., which was representative of the whole USA population, people in Japan more often visited their physician's office (307 vs. 217) and hospital-based outpatient clinics (88 vs. 21) than their American counterparts. The same was true for Japanese children in terms of physician visits and emergency care.⁹ However, health service uses in other categories were very similar. It would be interesting to know how these costlier health service uses are more frequent in Japan compared to that in the USA, in spite of lower per capita health care expenditure and % of GDP spent for it.

Since we did not collect data on health outcomes of individual persons, we cannot make judgments on the appropriateness of particular health care seeking behavior. There is a possibility that a significant proportion of professional medical care utilization could be in fact managed by self-care. The reverse, i.e., serious health problems caused by delayed physician consultation because of time spent by self-care, might have also occurred. Overall disease burden is not known from our data, because of the lack of data on diagnoses. In this sense, it is uncertain from the current data whether the right patients get to the right care at the right time. Thus it is obvious that further research incorporating data from medical facilities is necessary.

The figures generated here in this study are not necessarily to weigh the relative importance of primary, secondary, and

tertiary cares. Nor can this study make recommendations for rationalization of health care expenditure in different settings. This study, as mentioned above, reflects the spectrum of health care utilization, but not the total burden of health care because the disease-specific data and hospitalization details, which consumes the bulk of the expenditure, remain unknown.

This study has important strengths. First, it is based on a nationally representative cohort, which is helpful in generalizing the findings. Second, the summary findings are nested since the whole scenarios are based on a single cohort. Third, all age groups were included to gain a clear picture of Japanese society.

There are, however, several limitations to our study. First, data was collected during a single month, the month of October. Seasonal variation of disease incidence

and prevalence could result in estimates different from the current data. Second, we could not ascertain the proportion of people obtaining primary or subspecialty care from a physician's office or outpatient department of hospitals. Nor we could estimate the frequency of referrals to specialists.

Health care seeking behavior will certainly change in the future due to Japan's rapidly aging society, the growing health awareness of the general public, changes in the insurance system, and abundant health information. The results of this study would be useful for further delineation of health care policy and medical education to meet the demand and needs of people in Japan.

Acknowledgements

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School Health Research in Low-Income Countries in East Asia and the Pacific

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Abstract

Although the importance of school health has been emphasized in low-income countries, comparatively little information is available. Targeting nine World Bank defined low-income countries in East Asia and the Pacific, we found only 63 published articles pertaining to these countries in nearly four decades using the Medline database as a search tool. Parasite was the most common topic and the number of articles was rapidly increasing only in Vietnam during the period between 2000 and 2004. To encourage evidence-based school health practices, we suggest the importance of more scientific research in these countries.

Key words School health, Low-income countries, East Asia and the Pacific

Introduction

Since the 1950s, the World Health Organization (WHO) has emphasized school health to show how it can contribute to improving the health of young people.¹ As a result, much progress was seen in industrialized countries during the 1970s and 80s.² However, the nutrition and health of school-age children received scant attention in developing countries until the early 1990s, although the percentage of school age children in developing countries greatly increased during this period due to successful immunization and control of diarrhoeal diseases.^{3,4}

In the 1990s, different organizations have initiated more active school health programmes in many developing countries. In 1993, for example, the World Bank included school health as one component of its essen-

tial public health package for cost-effective health programmes.⁵ Similarly, WHO regional offices for both Southeast Asia and the Western Pacific have committed themselves to reversing this trend and have published guidelines for school health actions.^{6,7} Such commitment has stimulated member countries to initiate school health activities; however initiatives in low-income countries have tended to be slower to start and/or less effective due to poor school-related infrastructure and the absence of central education systems.

In low-income countries in East Asia and the Pacific region, school health is important as it is cost-effective, has a large target population, and also improves the effectiveness of education in general.⁴ In addition, in Nepal, for example, as in several other countries in the region where the standard of living is similar, schools are also regarded as centres

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Table 1 Number of articles containing keyword 'school' according to country

Articles	Cambodia	Laos/ Lao PDR	Mongolia	Myanmar/ Burma	North Korea	Papua New Guinea	Solomon Islands	Timor-Leste	Vietnam
School health ^a	8	3	2	9	0	22	4	0	17
Not school health ^b	1	3	4	1	0	5	1	0	5
Abroad-based ^c	16	5	0	0	0	1	1	0	45
Medical/Dental school ^d	5	1	2	2	1	9	1	0	7
Total	30	12	8	12	1	37	7	0	74

^a Studies based in primary and/or secondary schools of study countries or targeting school children of these countries. One article was counted in Cambodia, Laos/Lao PDR and Vietnam therefore the total number of school health articles appears to be 65.

^b Studies based in study countries not meeting criteria of school health articles (as mentioned in ^a)

^c Studies including keyword 'school' and name of study countries but not based in study target-country.

^d Studies including keyword 'school' and name of study countries but taking place in schools other than primary or secondary schools.

for overall development in rural settings so successful interventions there often serve as the most effective way to improve overall development.⁸ Despite such importance, nationwide school health activities have been uncommon and innovative health promoting school activities have only just started in countries such as Laos, Cambodia and other low-income countries in the area.⁹

To ensure the effectiveness of school health activities in low-income countries, it is important to have a scientific foundation for practice. However, the majority of school health research has been carried out in high- and middle-income countries and school-health related review articles are rarely available for low-income countries. This situation makes it difficult for researchers and practitioners to make informed decisions when implementing school health programmes. This paper aims to establish a scientific foundation for school health in the low-income countries of East Asia and the Pacific by using Medline to review existing literature and extrapolate findings.

Methods

On 3 February 2005, we searched for articles on school health-related topics in the low-income countries in East Asia and the Pacific region using Medline. In this report, low-

income countries are defined as the nine countries out of 24 in East Asia and the Pacific region identified by the World Bank in their 2005 World Development Report.¹⁰ These countries have GNI per capita equal to or less than \$765. In South East Asia and the Pacific, these countries were Cambodia, Laos/Lao PDR, Mongolia, Myanmar/Burma, North Korea, Papua New Guinea, Solomon Islands, Timor-Leste, and Vietnam.

To identify relevant school health articles we focused on articles dealing with health in primary or secondary schools within the target countries. For school health articles in general, Medline has three medical subject heading (MeSH) categories: school health services, school dentistry, and school nursing. These MeSH categories, however, have limitations as other health issues outside those three categories may be automatically excluded. To avoid such a problem, we checked the entire database and did not just focus on those three MeSH.

We first searched for articles written in English using the keyword 'school' for the publication period between 1966 and 2004. Next, we searched for articles using the names of each low-income country in the two regions. Finally, we selected articles that included both of these key words.

For further analysis, we printed the titles and abstracts of all the articles we selected.

Table 2 School health-related articles in lower-income countries of East Asia and Pacific region according to article type

Article type	Cambodia	Laos/ Lao PDR	Mongolia	Myanmar/ Burma	Papua New Guinea	Solomon Islands	Vietnam
Journal ^a	7	3	2	8	20	4	16
Review	0	0	0	1	1	0	1
Clinical trial	1	0	0	0	1	0	0

^a One journal article was counted in Cambodia, Laos/Lao PDR and Vietnam therefore the total number of journal articles appears to be 60.

During this process we excluded six duplicated articles (three substituted the key word Laos with Lao PDR, and the other three, Burma with Myanmar). Then, we assessed each of the remaining articles independently. Next, we sorted them into article types: journal, review, or clinical trial, according to their Medline classification. In addition, we grouped them into five categories based on their publication year; before 1985, 1985 to 1989, 1990 to 1994, 1995 to 1999, and 2000 to 2004. Finally, specific topics were identified either by reading the abstract or full text of each article.

Results

We identified a total of 179 articles containing the key words 'school' and 'each country name' (Cambodia = 30, Laos/Lao PDR = 12, Mongolia = 8, Myanmar/Burma = 12, North Korea = 1, Papua New Guinea = 37, Solomon Islands = 7, Timor-Leste = 0, and Vietnam = 74) in Medline for the publication period 1966 to 2004. One article was counted in Cambodia, Laos/Lao PDR and Vietnam.

From the 179 articles, we excluded 116 as they did not provide information relevant to school health. Of these 116, 68 were based on other countries although they contained both key words (Table 1). The focus was the health of refugees from the study countries and their children studying in schools in developed countries, or the health of the American or Australian soldiers deployed in the study countries for a certain period and their school-aged children. Another 28

articles identified the word "school" but this related to medical, dental, nursing or other schools. For example, the keyword 'school' included in such articles was from 'University *School* of Medicine,' '*School* of Public Health,' or 'Liverpool *School* of Tropical Medicine.' Finally, 20 articles were not related to school health although they were conducted in the study countries and listed both the keywords 'school' and the name of the specific country. The keyword 'school' in this case was usually a defining reference such as, 'Mothers with some *school* education . . .' or '*Pre-school* children.'

After excluding these articles 63 articles remained relating to school health in the study countries: Cambodia = 8, Laos/Lao PDR = 3, Mongolia = 2, Myanmar/Burma = 9, North Korea = 0, Papua New Guinea = 22, Solomon Islands = 4, Timor-Leste = 0, and Vietnam = 17. One article was counted in Cambodia, Laos/Lao PDR and Vietnam.

Article type

Almost all of the school health-related articles (92.1%; 58/63) were published as 'Journal articles' (Table 2). Only three were 'Review articles' (one from each of Myanmar/Burma, Papua New Guinea and Vietnam). However they were not specifically the reviews of school health. The topics of the review articles were: 'Drug abuse' (Myanmar/Burma), 'Iron and Infection' (Papua New Guinea) and 'Parasites' (Vietnam). The last two articles were 'Clinical trials.'

Table 3 School health-related articles in lower-income countries of East Asia and Pacific region according to year of publication

Publication year	Cambodia	Laos/ Lao PDR	Mongolia	Myanmar/ Burma	Papua New Guinea	Solomon Islands	Vietnam
Before 1985	0	0	0	2	9	1	1
1985–1989	0	0	0	2	4	0	0
1990–1994	0	0	0	1	4	1	0
1995–1999	4	0	1	2	4	2	1
2000–2004 ^a	4	3	1	2	1	0	15

^a One article published in 2003 was counted in Cambodia, Laos/Lao PDR and Vietnam therefore the total number of articles during 2000–2004 appears to be 26.

Table 4 School health-related articles in lower-income countries of East Asia and Pacific region according to topic

Cambodia		Laos/Lao PDR		Mongolia		Myanmar/Burma		Papua New Guinea		Solomon Islands		Vietnam	
Topics	n	Topics	n	Topics	n	Topics	n	Topics	n	Topics	n	Topics	n
Parasite ^a	4	Infection	1	Blindness	1	Leprosy	3	Oral health	3	Drug resistance	1	Nutrition	4
Health programme	1	Nutrition	1	Side-effects of drugs	1	Drug abuse	2	Parasite	3	HBV	1	Asthma & Allergy	3
Nutrition	1	Parasite ^a	1			Parasite	2	Mental health	2	Nutrition & Malaria	1	Parasite ^a	2
Oral health	1					Hygiene	1	Alcohol	1	Parasite	1	Allergy, Nutrition & Parasite	1
Reproductive health	1					Nutrition	1	Contraception	1			Anemia	1
								Diabetes	1			Cholera immunization	1
								Eye problem	1			Drug resistance	1
								Genetic marker	1			Infection	1
								Health promotion	1			Injury	1
								Hearing defects	1			Oral health	1
								HIV/AIDS	1			Population education	1
								Iron & Infection	1				
								Lameness	1				
								Nutrition	1				
								School health service	1				
								Smoking	1				
								Value of children	1				

^a One article on parasite was counted in Cambodia, Laos/Lao PDR and Vietnam.

Publication year

We found the number of school health-related articles has been increasing gradually (Table 3). A total of 13 (20.6%) articles were published before 1985. Six articles (9.5%) were published during the period between 1985 and 1989, and between 1990 and 1994, respectively. The number then increased to 14 (22.2%) during the period between 1995 and 1999. It finally reached 24 (38.1%) during the last period between 2000 and 2004; Vietnam, however, is the only country where a rapid increase was seen during this period.

School health article topics

As indicated in Table 4, the school health articles included a variety of topics. Parasite was the focus of 11 articles (17.5%), while 8 articles (12.7%) were about nutrition, and 5 (7.9%) were about oral health. Three articles from Myanmar/Burma focused on Leprosy while two others were on drug abuse. Two articles from Papua New Guinea focused on mental health. Asthma and allergy were the focus of three articles from Vietnam.

Discussion

This study revealed there has been a paucity of school health research in the nine low-income countries of East Asia and the Pacific region in the past four decades. Although three review papers were published relating to school health activities, they were not specifically the reviews of school health as we showed in the results.

Although school health activities increased in the 1990s, they seemed to have only a minor effect on school health research in the target countries. Our results, therefore, may not necessarily reflect a lack of initiatives on the ground in these countries. For example, in our field research in Cambodia during June to August 2004, we found at least seven international NGOs were implementing school-based health education programmes.

In addition, the Department of School Health under the Ministry of Education, Youth, and Sports has implemented seven school health programmes including HIV/AIDS since the late 1990s (unpublished report, 2004). However, only 4 papers were published in the 2000s in Cambodia as shown in Table 3. It suggests that a huge gap exist between practice and research into school health in these countries although such a gap can be also common in other health activities.

Except for Vietnam, the increase in published school health articles remains similar in most of the targeted countries. We found only a small increase during the period between 1995 and 1999 in some of these countries considering the size of their public health problems. For example, the burden of infectious diseases in these countries remains high¹¹ and, as in Africa, there was an explosion of incidences of HIV in the 1990s. Cambodia and Myanmar recorded the estimated national HIV prevalence rate of 2.6% and 1.2% among adults at the end of 2003.¹² Despite that there has only one published report of school health initiatives for HIV in the four decades from Papua New Guinea. In contrast, school children were the target of HIV/AIDS education in African countries and reviews of a school-based approach for HIV/AIDS in Africa have been published.^{13,14} Gallent and Maticka-Tyndale reviewed 11 articles of school-based HIV prevention programmes for African youth,¹³ and Kaaya et al.¹⁴ reviewed 47 articles reporting sexual behaviours of school-based young persons in Africa.

Our study has some limitations. First, our research was based only on the Medline database. Thus, school health-related papers that were not registered with Medline were excluded. Second, this paper may not reflect the school health activities in practice in these countries as we suggested in the example of Cambodia. Finally, some papers included in our search as 'school health-related paper' were written only for aca-

demic purposes and may have little impact on practice.

In conclusion, this study revealed that school health research is limited in the low-income countries of East Asia and the Pacific region. We also hinted at a gap existing between practice and research in this region. Such a gap may lead to non evidence-

based practices in the field and repetition of mistakes. To avoid such a waste of resources, more researchers and programme managers are recommended to share lessons learned by publishing their work. To support such research practice we attach all the papers we collected in this study in the Appendix.

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Appendix:

List of School Health Articles for Low-Income Countries in East Asia and the Pacific

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Preoperative TNM Staging of Advanced Gastric Cancer with Multi-Detector Row Computed Tomography

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Abstract

Background Compared with early gastric cancer, advanced gastric cancer (AGC) has an aggressive nature and spreads easily via the lymphatic system and bloodstream. To completely remove tumours or to avoid excessive treatments, a precise assessment of their spread before surgery is important to determine the best surgical strategy. However, the accuracy of preoperative staging of TNM classification with computed tomography scans remains unsatisfactory. In this study, we evaluated the accuracy of multi-detector row computed tomography (MDCT) as a preoperative staging tool for advanced gastric cancer.

Methods Using histological staging as the gold standard, tumour node metastases (TNM) classification was preoperatively assessed with MDCT at a slice thickness of 2.5 mm and at surgery. The study included 112 consecutive patients with AGC.

Results In detecting invasion to adjacent organs (T4 category), the overall accuracy of MDCT and surgical findings including frozen section examination was 96% and 80%, respectively (no significant difference [NS]). In identifying the presence of lymph node metastasis (N1–N3), the overall accuracy of MDCT and surgery was 83% and 88% (NS), whereas it was 75% and 86%, respectively, in discriminating extended lymph node metastasis (N2–N3) from minimal (N0–N1) (NS). All six liver metastases were correctly diagnosed with MDCT, although only 6 of 15 peritoneal metastases were identified.

Conclusions These results suggest that accuracy of MDCT with 2.5-mm slice thickness for preoperative TNM classification may enable selection of more efficient and safer treatment strategies before surgery for patients with AGC.

Key words Gastric cancer, Computed tomography, Stage, Diagnosis, Sensitivity, Specificity

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Introduction

Compared with early gastric cancer, advanced gastric cancer (AGC) has an aggressive nature and spreads easily via the lymphatic system and bloodstream. A cure for patients with AGC cannot be obtained without complete removal of tumour tissue throughout the body. To completely remove tumours, a precise assessment of their spread before surgery is important to determine the best surgical strategy. However, the accuracy of preoperative staging of tumour, node, and metastasis (TNM) classification with computed tomography (CT) scans remains unsatisfactory.¹²⁻¹⁷ Such inaccurate preoperative diagnoses may lead to inefficient dissections, which may increase postoperative morbidity/mortality and decrease the relapse-free survival rate.^{1,2} More accurate preoperative TNM staging using modern technologies is therefore desired.

Endoscopic ultrasonography (EUS) is currently considered a useful preoperative diagnostic tool.³ EUS is good at diagnosing depth of tumour infiltration, but not at evaluating invasion to adjacent organs, lymph nodes, and distant metastases. Moreover, the accuracy of EUS for tumour detection in clinical practice has been reported to be lower than was previously thought.⁴ Recently, positron emission tomography (PET) scans have emerged, but these scans are less accurate for diagnosing locoregional lymph nodes than ordinal CT scans because of a significant lack of sensitivity.⁵

Currently, multi-detector row computed tomography (MDCT) has been introduced as a more advanced method of spiral CT.⁶ Improvements in both temporal and z-axis spatial resolution with multi-slice detectors permit higher-performance data acquisition and higher-speed image reconstruction. The purpose of this study was to evaluate the clinical value of MDCT with 2.5-mm slice thickness as a tool for preoperative assessment of TNM classification in AGC.

Patients and Methods

Patients

Between August 1999 and February 2002, a total of 112 consecutive patients with AGC at the Cancer Institute Hospital in Tokyo, Japan (excluding patients treated by exploratory laparotomy) were prospectively assigned to this study. All patients underwent preoperative MDCT performed within 2 weeks after endoscopy, gastrectomy plus dissection within 2 weeks after MDCT examination, and histological assessment. All patients underwent laparotomy at the time of surgery based on the recommendations of the Japanese Research Society for Gastric Cancer (JRS GC).⁷ All patients and their families were informed about the possible risks and benefits of the whole clinical pathway of diagnosis, including the process of MDCT, as well as treatment for the disease, and written informed consent was obtained.

Performance of MDCT

The CT images were obtained using a four channel MDCT scanner (Light Speed QX/i, GE Yokokawa Medical, Tokyo, Japan). Scanning was done in a standard abdominal examination. Scopolamine butylbromide was administered alone just before scanning. Neither water nor non-ionic contrast medium was administered orally. In all cases, MDCT scanning was performed in the supine position at 120 kV and 200 mA with a standard algorithm and a 512 × 512 matrix size. A total of 100 ml of non-ionic contrast medium (Iopamiron 300; iopamidol 300 mg/dl, Nion Schering, Tokyo, Japan) was administered intravenously by power injector using a biphasic technique, with 100 ml rapid bolus at a flow rate of 3 ml/s through an 18-F plastic catheter placed in the antecubital vein. MDCT scanning for acquisition of the first sequence during the arterial phase was started 30 s after initiating intravenous injection of the contrast medium, with the second sequence started 60 s later during the maxi-

mal portal phase. Each acquisition was performed during 20–30s of a single breath-hold. The scanning range was planned starting from the level of the dome of the diaphragm to include the entire liver to the inferior pole of the kidneys, and in some cases, to the pelvic floor. Technical parameters for the MDCT examinations were as follows: beam collimation 4×2.5mm at a pitch of 0.75 and gantry rotation time 0.8s. Image reconstruction was performed with a 2.5-mm slice thickness and interval.

MDCT assessment

The CT images, both hardcopy axial images and Cine-mode display with CT equipment, were analyzed independently by two readers (T.S and O.S) preoperatively, without information on endoscopic or X-ray examination findings. When there was a difference of opinion between observers, final classification was reached by consensus. MDCT images were prospectively analysed for detectability of the TNM classification proposed by the JRS GC.⁷ For tumour invasion, MDCT images were used to detect only direct invasion to adjacent organs, with T1–T3 category determined using a combination of EUS and X-ray examinations. Adjacent organs included the pancreas, liver, spleen, and transverse colon. These were considered to be involved when MDCT images indicated obliteration of the fat layer between the gastric tumour and the adjacent organs. MDCT also played a role in identifying lymph node metastases and distant metastases. Regional lymph nodes were considered to display metastatic involvement if they displayed either a diameter larger than 8mm and a round configuration or high-contrast medium enhancement (>100 HU).^{8–10} Regional lymph nodes of the stomach were categorized according to 16 different anatomic sites and classified into three N category compartments in accordance to the guidelines of the JRS GC.⁷ Grades in the N1, N2, and N3 categories comprised perigastric lymph nodes, lymph nodes along the left gastric artery, along the

common hepatic artery, around the celiac axis and along the splenic artery, and lymph nodes in the hepatoduodenal ligament at the posterior aspect of the head of the pancreas and para-aorta. For distant metastases, any hepatic lesion other than a cyst was regarded as potentially malignant and nodular thickening of the peritoneum or ascites was assumed to indicate peritoneal dissemination.

Statistical analysis

Preoperative staging with MDCT and surgical staging were compared with histological staging. Accuracy was first calculated as correctly predicted stages for histological TNM classification divided by the number of patients. Accuracy was further expressed as sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). Differences in sensitivity were tested using the exact McNemar test and values of $P < 0.05$ were considered significant. All statistical evaluations were performed using STATA 8.0 software (STATA Corporation, College Station, Texas, USA).

Results

Findings at surgery

The 112 patients studied included 74 men and 38 women; mean age was 62 years (range 33–86 years). The tumours were located in the proximal ($n = 22$), corpus ($n = 46$), and antrum ($n = 44$). According to Lauren's histological classification,¹¹ intestinal and diffuse types were seen in 33 and 79 cases, respectively. Total gastrectomy ($n = 47$), partial gastrectomy ($n = 58$), Appleby surgery ($n = 1$), pancreatico-duodenectomy ($n = 2$), and left upper abdominal evisceration ($n = 4$) were performed. In 83 of 112 cases (74%), curative resection was performed by removal of the primary gastric tumour with or without invaded organs and regional lymph nodes. Splenectomy ($n = 40$), distal pancreatectomy ($n = 15$), partial hepatectomy ($n = 1$), and transverse colectomy ($n = 2$) were performed in some cases. For the remaining 29



Fig. 1 Typical findings of invasion to adjacent organs in MDCT

The distal gastric wall is markedly thickened by carcinoma. The outer border of the greater curvature is indistinct. Soft tissue density cannot be seen infiltrating between stomach and pancreas.

patients (26%), palliative resection was performed due to the presence of bulky lymph node metastases, liver metastases, and/or peritoneal dissemination. In patients treated with palliative surgery, regional lymph nodes were not always resected and histologically analysed. These patients were therefore not included in evaluation for N category. Suspected metastatic lymph nodes (mean, 3.3 ± 2.2 SD) were submitted for frozen-section examination using hematoxylin-eosin staining during surgery. In the 83 patients who underwent curative resection, standard D2 dissection included complete dissection of N1 and N2 category nodes (n=39), and more radical D3 dissection included complete dissection of N1, N2, and N3 category nodes (n=44).

Accuracy of MDCT in discriminating invasion to adjacent organs

Using histological staging as the gold standard, depth of tumour invasion (T) was assessed with MDCT or surgery (Fig. 1). Although only 6 of 112 patients displayed histological evidence of invasion into adjacent organs (T4), the accuracy of assessing

Table 1 Staging of tumour invasion: MDCT vs. operative assessment; Compared with histological T category

	Histology			Total
		T1-3	T4*1	
MDCT	T1-3	103	2	105
	T4	3	4	7
Operative	T1-3	93	1	94
	T4	13	5	18
Total		106	6	112

*1: invasion into adjacent organs

Table 2 Staging of lymph node metastases: MDCT vs. operative assessment; Compared with histological N category

	Histological N category					Total
	N0	N1	N2	N3		
MDCT	N0	18	8	3	0	29
	N1	2	15	7	5	29
	N2	4	7	18	8	41
	N3	2	0	0	15	17
Operative	N0	18	6	0	0	24
	N1	4	22	6	2	34
	N2	4	1	21	4	30
	N3	0	1	1	22	24
Total		26	30	28	28	112

the tumour invasion into adjacent organs with MDCT and surgical findings was 96% (95% CI: 90% to 99%) and 80% (95% CI: 88% to 95%), respectively (Table 1). The sensitivity to detect tumour invasion into adjacent organs was not significantly different with the McNemar test between MDCT and surgical assessment. Specificity was also equivalent between MDCT and surgical findings.

Accuracy of MDCT in lymph node metastasis

Staging of lymph node metastases with



A: Lymph node metastasis of peritumoural lymph nodes (N1 category). MDCT image shows 8mm hyperattenuating round lymph node along lesser curvature; Station No3 (black arrow) that is easily distinguished from the strongly enhanced left gastric artery (white arrow). The resected specimen shows a 10mm metastasis-positive node in this location.



B: Lymph node metastasis of locoregional lymph nodes (N2–N3 category). MDCT image shows 12mm hyperattenuating lymph node (white arrow) located along the left gastric artery. The lymph node belongs to station No7 and was identical to the metastasis-positive node in the resected specimen. Black arrow shows lymph node along lesser curvature; station No3.

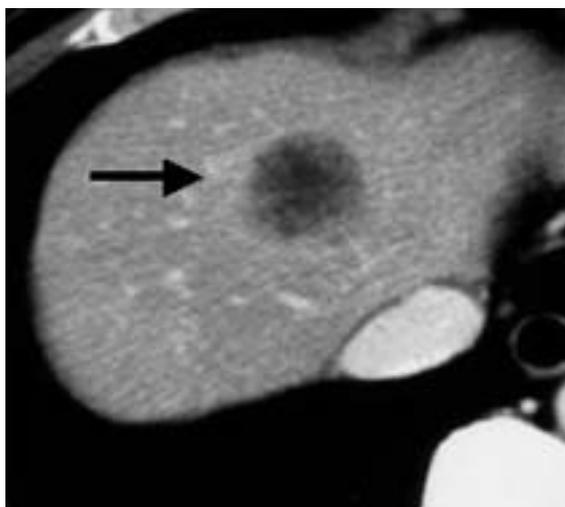
Fig. 2 Typical findings of lymph node metastasis

MDCT and surgical findings was compared with histological staging only for patients treated using curative surgery (Table 2). Lymph node metastasis was found in 86 patients (77%). The frequencies of nodal category were as follows: 26 patients (23%) with N0 category, 30 patients (27%) with N1 category, 28 patients (25%) with N2 category, and 28 patients (25%) with N3 category as a final histological study. Overall accuracy of N0 to N3 categories was 59% (95% CI: 49% to 68%) for MDCT and 74% (95% CI: 65% to 82%) for surgical findings.

MDCT could discriminate the presence of lymph node metastases (N1 to N3) from the absence of lymph node metastasis (N0) with diagnostic accuracy as follows: overall 83% (95% CI: 75% to 89%); sensitivity 87% (95% CI: 78% to 93%); specificity 69% (95% CI: 48% to 86%); PPV 90% (95% CI: 82% to 96%); NPV 62% (95% CI: 42% to 79%). On the other hand, findings during surgery, including frozen section examination, could discriminate the presence of lymph node metastases with diagnostic accuracy as

follows: overall 88% (95% CI: 80 to 93%); sensitivity 93% (95% CI: 85% to 97%); specificity 69% (95% CI: 48% to 86%); PPV 91% (95% CI: 83 to 96%); NPV 75% (95% CI: 53% to 90%). The sensitivity to discriminate the presence of lymph node metastases (N1 to N3) from the absence of lymph node metastasis (N0) was not significantly different with the McNemar test between MDCT and surgical assessment. Specificity was also equivalent between MDCT and surgical findings.

Next, the ability of MDCT to discriminate peritumoural lymph nodes (N0–N1 category) (Fig. 2A) from locoregional lymph nodes (N2–N3 category) (Fig. 2B) was evaluated with the following findings: overall 75% (95% CI: 66% to 83%); sensitivity 73% (95% CI: 60% to 84%); specificity 77% (95% CI: 64% to 87%); PPV 76% (95% CI: 62% to 87%); NPV 74% (95% CI: 61% to 85%). Similarly, the ability of surgical findings, including frozen section examination, to discriminate peritumoural lymph nodes from locoregional lymph nodes was evalu-



A: Liver metastasis. MDCT image shows a hepatic lesion; Segment 8 (black arrow). Partial hepatectomy was performed and was identical to the metastatic lesion.



B: Peritoneal metastasis. A 59-year-old woman with advanced gastric cancer. MDCT image show the nodular thickening of the peritoneum and hydronephrosis at the right kidney. Palliative resection was performed due to the presence of peritoneal dissemination.

Fig. 3 Typical findings of distant metastasis

Table 3 Staging of distant metastases: MDCT vs. histological M category

	Metastasis to liver					Total
		H0	H1	H2	H3	
MDCT	H0	106	0	0	0	106
	H1	0	1	0	0	1
	H2	0	0	2	0	2
	H3	0	1	0	2	3
Operative	H0	106	0	0	0	106
	H1	0	2	0	0	2
	H2	0	0	2	0	2
	H3	0	0	0	2	2
Total		106	2	2	2	112

ated with the following findings: overall 86% (95% CI: 80% to 93%); sensitivity 86% (95% CI: 74% to 94%); specificity 89% (95% CI: 78% to 96%); PPV 86% (95% CI: 74% to 94%); NPV 86% (95% CI: 75% to 94%). The sensitivity to discriminate peritumoural lymph nodes (N0–N1 category) from locoregional lymph nodes (N2–N3 category) was not significantly different with the

McNemar test between MDCT and surgical assessment. Specificity was also equivalent between MDCT and surgical findings.

Accuracy of MDCT in discriminating presence of distant metastasis

Distant metastases were macroscopically found in 21 patients, including 6 patients with liver metastasis (Fig. 3A) and 15 patients with peritoneal space metastasis (Fig. 3B). In addition, histologic findings showed cancer cells in samples from the peritoneal space in 9 patients. MDCT detected 6 of 6 liver metastases and 6 of 15 peritoneal metastases.

Discussion

The study confirmed sufficient diagnostic value of MDCT as a preoperative diagnostic tool, since its accuracy was equivalent to assessment during surgery. Particularly, MDCT was effective in detecting invasion to adjacent organs, presence of lymph node metastasis and liver metastasis. Moreover, peritumoural lymph nodes (N0–N1 category) could be distinguished from locoregional lymph nodes (N2–N3 category). On the other hand, MDCT had limitations in detecting

peritoneal metastasis. The overall accuracy was considered as excellent compared with previous literature.^{3,4,12-17}

Previous studies have reported that the sensitivity for a diagnosis of invasion to adjacent organs varied, ranging from 0% to 69%.¹⁴⁻¹⁷ Some authors suggested that laparotomy has been considered the gold standard in staging T4 category. However, surgical assessment for T4 category is not 100% accurate in others' studies, as well as ours.^{14,18} There is a high incidence of false-positive findings due to the difficulties in distinguishing between inflammatory adhesions, edema, and true tumour invasion, even during surgery. In our study, overall accuracy of detecting invasion to adjacent organs with MDCT and with surgical findings, including frozen section examination, displayed good scores: 96% and 80%, respectively. The faster acquisition time and smaller scan collimation of MDCT, which allows less respiratory miss-registration and decreased partial volume effects, may have contributed to the accuracy of the results.

Detection of involved lymph nodes represents one of the most powerful predictors of survival following curative resection for AGC.¹⁹⁻²¹ Overall accuracy to discriminate the presence of lymph node metastases was 83% for MDCT and 88% for surgical findings using frozen section examination. Moreover, the accuracy to discriminate locoregional lymph nodes metastases from peritumoural lymph nodes was 75% for MDCT and 86% for surgical findings. MDCT is thus clinically worth performing for preoperative N category, given the importance of selecting an appropriate surgical strategy. According to the Japanese gastric cancer treatment guidelines,²² D2 dissection and sometimes more radical D3 dissection are the preferred options for AGC. Extensive lymphadenec-

tomy is expected to improve survival time in patients with resectable AGC.²⁰ Conversely, even with radical lymphadenectomy, some of patients with locally advanced disease (ie, N2 and N3 category) cannot achieve total resection of tumours.²¹ Recently, preoperative neoadjuvant chemotherapy in such cases has received increasing attention.^{23,24} The preoperative demonstration of locoregional lymph nodes with MDCT may help clinicians decide on the need for preoperative neoadjuvant chemotherapy in patients with locally advanced disease.

For radical resection, the most important information required is whether distant metastases are present, as these imply that potentially curative resection is not feasible, or that patients should be treated with preoperative chemotherapy to reduce tumour size and clear distant metastasis. Resection should be particularly avoided for patients with two or more metastatic sites, as no significant survival advantage is conferred.²⁵ MDCT could predict the presence or absence of liver metastases with high sensitivity and specificity. On the other hand, nine patients were diagnosed with malignant ascites without peritoneal metastases, which was hard to assess using MDCT. Even with thinner-sliced MDCT, it was difficult to accurately detect peritoneal metastases before surgery.

In conclusion, MDCT with 2.5-mm slice thickness may raise the accuracy of preoperative TNM classification, enabling selection of more efficient and safer treatment strategies for patients with AGC before surgery.

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Epidemiology of Kawasaki Disease in Japan

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Abstract

Kawasaki disease was first described by Dr. Tomisaku Kawasaki in 1967. This disease is an acute, febrile illness primarily affecting infants and children younger than 4 years old. Although this disease is characterized by systemic vasculitis, the etiology is still unknown. To clarify the epidemiologic features of Kawasaki disease, nationwide surveys have been conducted since 1970. Approximately 186,000 patients were identified in 17 surveys completed prior to 2002 based on similar diagnostic criteria. From the results of these surveys, not only the disease distributions, such as annual or monthly changes and geographical shift, but also the clinical characteristics of this disease were clarified. Epidemiologic studies of this disease in Japan provide useful results for physicians and researchers around the world who are involved in treating Kawasaki disease.

Key words Kawasaki disease, Epidemiology, Nationwide survey, Diagnostic criteria, Distribution, Prognosis

Introduction

Dr. Tomisaku Kawasaki first encountered a 4-year-boy with the unique clinical characteristics of muco-cutaneous lymph node syndrome (MCLS) in 1961 and described a further 50 cases that had similar characteristics to the first case in the journal *Arerugi* in 1967.¹ Now more commonly known as Kawasaki disease, MCLS is acute self-limited vasculitis that occurs predominantly in infants and children younger than 4 years old. This disease is characterized by fever, bilateral nonexudative conjunctivitis, erythema of the lips and oral cavity, changes in the extremities, polymorphous exanthema, and non-purulent cervical lymphadenopathy. Cardiac sequelae, such as coronary arterial dilatation

and aneurysms, are the most important issues in this disease. The etiology is still unknown.

To clarify the characteristics of this disease, epidemiologists have contributed to the research since 1970. In this review, we introduce the results from epidemiologic studies conducted in Japan, predominantly from nationwide surveys of Kawasaki disease.

The Diagnostic Guidelines and Nationwide Epidemiologic Surveys of Kawasaki Disease

After publication of the case series on Kawasaki disease by Dr. Kawasaki, a Ministry of Health and Welfare medical research grant in fiscal year 1970 enabled formation of the Kawasaki Disease Research Committee. The group's first project was a

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Table 1 The fifth revised edition of the Diagnostic Guidelines

This is a disease of unknown etiology affecting most frequently infants and young children under 5 years of age. The symptoms can be classified into two categories, principal symptoms and other significant symptoms or findings.

A. PRINCIPAL SYMPTOMS

1. Fever persisting 5 days or more (inclusive of those cases in which the fever has subsided before the 5th day in response to therapy)
2. Bilateral conjunctival congestion
3. Changes to lips and oral cavity: Reddening of lips, strawberry tongue, diffuse injection of oral and pharyngeal mucosa
4. Polymorphous exanthema
5. Changes to peripheral extremities:
 [Initial stage]: Reddening of palms and soles, indurative edema
 [Convalescent stage]: Membranous desquamation from fingertips
6. Acute nonpurulent cervical lymphadenopathy
 At least five items of 1–6 should be satisfied for diagnosis of Kawasaki disease. However, patients with four items of the principal symptoms can be diagnosed as having Kawasaki disease when coronary aneurysm or dilatation is recognized by two-dimensional echocardiography or coronary angiography.

B. OTHER SIGNIFICANT SYMPTOMS OR FINDINGS

The following symptoms and findings should be considered in the clinical evaluation of suspected patients.

1. Cardiovascular: Auscultation (heart murmur, gallop rhythm, distant heart sounds), ECG changes (prolonged PR/QT intervals, abnormal Q wave, low-voltage, ST-T changes, arrhythmias), chest X-ray findings (cardiomegaly), 2-D echo findings (pericardial effusion, coronary aneurysms), aneurysm of peripheral arteries other than coronary (axillary etc.), angina pectoris or myocardial infarction
2. GI tract: Diarrhea, vomiting, abdominal pain, hydrops of gall bladder, paralytic ileus, mild jaundice, slight increase of serum transaminase
3. Blood: Leukocytosis with shift to the left, thrombocytosis, increased ESR, positive CRP, hypoalbuminemia, increased α_2 -globulin, slight decrease in erythrocyte and hemoglobin levels
4. Urine: Proteinuria, increase of leukocytes in urine sediment
5. Skin: Redness and crust at the site of BCG inoculation, small pustules, transverse furrows of the finger nails
6. Respiratory: Cough, rhinorrhea, abnormal shadow on chest X-ray
7. Joint: Pain, swelling
8. Neurological: CSF pleocytosis, convulsions, unconsciousness, facial palsy, paralysis of the extremities

REMARKS :

1. For item 5 under principal symptoms, the convalescent stage is considered important.
2. Non-purulent cervical lymphadenopathy is less frequently encountered (approximately 65%) than other principal symptoms during the acute phase.
3. Male: Female ratio: 1.3–1.5 : 1, patients under 5 years of age: 80–85%, fatality rate: 0.1%
4. Recurrence rate: 2–3%, proportion of siblings cases: 1–2%
5. Approximately 10 percent of the total cases do not fulfill five of the six principal symptoms, in which other diseases can be excluded and Kawasaki disease is suspected. In some of these patients coronary artery aneurysms (including so-called coronary artery ectasia) have been confirmed.

nationwide survey of the disease, utilizing the “Diagnostic Guidelines of Kawasaki Disease (first edition)” compiled prior to the survey so that uniform and clearly defined criteria would be available to the many pediatricians cooperating in the case collection effort. This principle of epidemiologic surveys is one of the most important procedures to researchers in the field.

Kawasaki disease was not widely known among pediatricians at the time. For a start,

the survey aimed to ensure that reported cases were identified on the basis of uniform criteria. In addition, the objective was to make the disease’s existence more widely known.

The diagnostic guidelines succinctly list Kawasaki disease’s main symptoms together with relevant information. For easy understanding, color photographs on the back page illustrate the disease’s main manifestations. Because the descriptions of the main symp-

Table 2 Survey years and number of hospitals in 17 nationwide epidemiologic surveys in Japan

Survey number	Covered years	Number of hospitals
1	—1969	1,458
2	1970–72	1,452
3	1973–74 (June)	1,638
4	1974 (July)–76	1,683
5	1977–78	1,688
6	1979–80	1,697
7	1981–82 (June)	1,940
8	1982 (July)–84	2,315
9	1985–86	2,379
10	1987–88	2,250
11	1989–90	2,686
12	1991–92	2,652
13	1993–94	2,640
14	1995–96	2,627
15	1997–98	2,663
16	1999–2000	2,619
17	2001–02	2,413

toms in the diagnostic guide follow those given in the original edition, even over four revisions over the past 30 years, the general construct of patients' characteristics collected in the surveys has varied little. The fifth revised edition of the guidelines has been available since February 2002 (Table 1). Approximately 186,000 patients reported in 17 surveys over the past 30 years (1970–2002) were diagnosed using basically the same criteria. Therefore, comparability of the epidemiologic features of the disease in these data sets is well guaranteed.

The Results of the Past 17 Nationwide Surveys on Kawasaki Disease

Since the first nationwide survey of Kawasaki disease in 1970, 17 surveys have been conducted and data on approximately 186,000 patients (covering a 32-year period ending on December 31, 2002) have been collected. In each survey, the targets were hospitals with 100 or more beds and a pediatric department, which were selected from medical facilities located throughout the country. Starting from the 11th survey, those hospitals

specializing in pediatrics and having less than 100 beds were also included. For the selection of these hospitals, the latest edition of "Listing of Hospitals" (compiled by the Ministry of Health and Welfare and published by Igaku Shoin) that was available at that time was used.

These nationwide surveys for Kawasaki disease have been conducted biannually for the past 32 years since 1970 (Table 2). Throughout this period, patients' data were collected based on generally uniform diagnostic criteria. Although the criteria was updated 5 times, the basic clinical findings described in them remained unchanged, enabling annual comparisons of the data. The surveys were conducted throughout the country, targeting all the facilities with pediatric departments among major hospitals equipped with 100 or more beds. It is plausible to assume that this is the most reliable data available exhibiting epidemiologic features of Kawasaki disease in Japan.

This section focuses on changes in the epidemiologic profile of Kawasaki disease that took place during these 32 years and was noted in the 17 nationwide surveys described above.^{2–28}

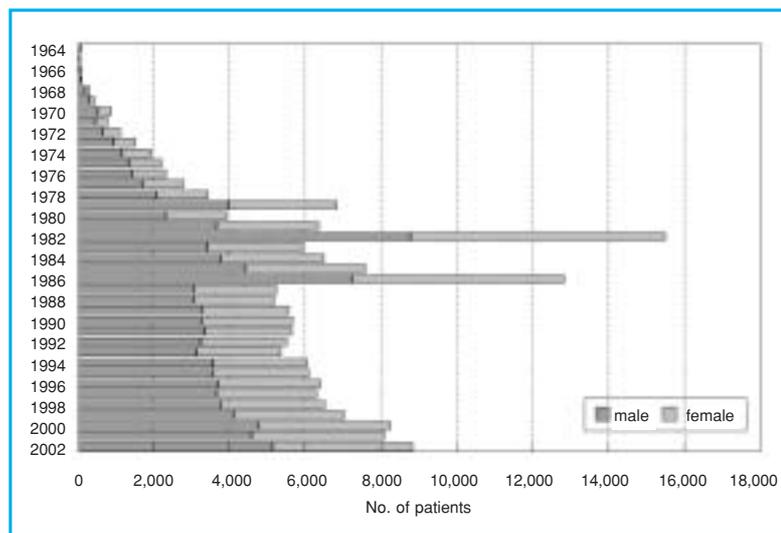


Fig. 1 The number of patients with Kawasaki disease by sex

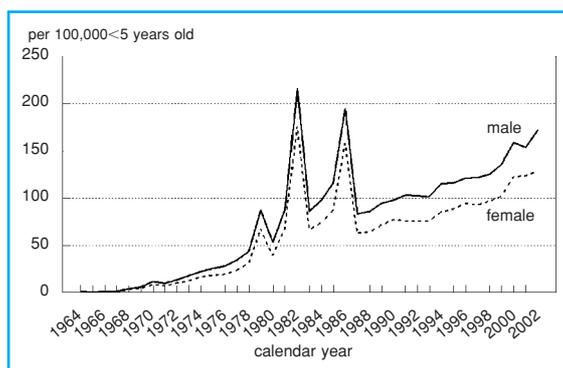


Fig. 2 The incidence rates of Kawasaki disease by sex

(1) Annual changes

Annual changes in the number of patients by sex are shown in Fig. 1. The total number of patients was reported to be 186,069 (107,876 males and 78,193 females).

Between 1965 and 1986, the number of patients mounted steadily: during this time, sudden outbreaks were noted 3 times, forming high peaks when compared with the statistics of the year before or after (1979, 6,867 patients with an incidence rate of 78.0, 2.1 times the previous year; 1982, 15,519 patients with an incidence rate of 196.1, 2.5 times the year before; and 1986, 12,847,

with an incidence rate of 176.8, 1.7 times the preceding year). Between 1987 and 1998, the number of patients increased gradually within a range of 5,000 to 7,000. In 1999, it exceeded 7,000; and in 2000, 8,000. In the last two years, this rising trend appears to be continuing. The sex ratio has been 1.38, according to the surveys.

In examining the annual changes in incidence rate (Fig. 2), the continued drop in the population between the ages of 0 to 4 years must be considered, making the rising trend in incidence rate since 1987 appear more drastic than suggested by the curve representing the number of patients. Compared with a rate of 73.8 in 1987 (the year immediately after the third outbreak), those for 1998, 2000, and 2002 were 111.5 (1.5 times), 141.1 (1.9 times), and 151.2 (2.0 times), respectively.

Due to a lack of knowledge of Kawasaki disease among pediatricians, the rate of responses from the target facilities was low until around 1978, when the number of patients involved in the annual fluctuations perhaps reflected a change in attitude by the pediatricians towards the disease, compounding the actual increase in incidence.

However, triggered by the nationwide epidemic witnessed in 1979, interest in Kawasaki disease among pediatricians intensified. Since the 6th nationwide survey, the response rate has always exceeded 60%; therefore it is believed that since this time, the survey data faithfully reflected the true annual changes in the incidence of this disease. Since 1970, the response rate has been maintained between 60 to 70%. However, compared with ordinary hospitals, the response rate of major hospitals caring for a large number of patients is higher;²⁹ and most of the patients who initially visited hospitals equipped with less than 100 beds (not targeted in the current surveys) are eventually referred to those with a bed capacity of more than 100.³⁰ In view of these facts, one can safely assume that since 1979 the surveys encompass more than 80% of the patients in this country.

(2) Monthly changes

When incidence during the last 10 years is examined in quarterly periods (January to March, April through June, July through September, and October through December), the incidence is found to be lower without exception in the fourth quarter for both sexes.

(3) Geographical shift in epidemiologic trends

The 16th nationwide survey recorded more than 7,000 patients in 1999. In 2000, the number exceeded 8,000, which surpassed the 6,867 patients of 1979 (the year of the first epidemic). The geographic difference in incidence was examined for 1999 and 2000: in September and October of 1999, the incidence was slightly higher in Kyushu; in November and December, the area of high incidence spread and a high incidence was noted even on the Japan Sea side of the Tohoku region. In January and February of 2000, the high incidence, which originally occurred mainly in the western part of Japan, spread gradually throughout the country, continuing to spread in March–April, May–

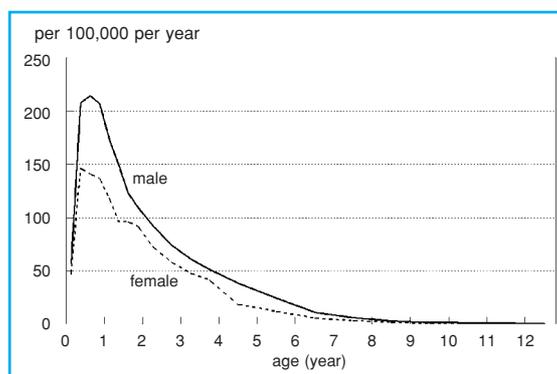


Fig. 3 The incidence rates of Kawasaki disease by sex and age (average from 1991 through 1996)

June, and July–August. Areas of high incidence rate remained in part of Tohoku in September and October and on the Pacific Ocean side of the country in November and December.

The initial increase in the number of patients occurred in specific areas but spread throughout the country within 3 to 6 months. Similar epidemiologic patterns have been observed overseas,^{31–33} supporting the hypothesis that a viral infection is involved in the cause of Kawasaki disease. No abnormal incidence rates that may qualify as an epidemic were noted between 1987 and 2000. In 1999 and 2000, the observed trend then changed: the incidence rate rose slightly (in 2000, the incidence exceeded that of 1979). Like the pattern in past epidemics, the incidence during this period shifted from one geographic area to another. However, unlike the past pattern, the epidemic had not evidently ended at the time of the conclusion of this study.

(4) Age distribution

With hardly any exceptions since the 1st nationwide survey, the age-specific incidence rate was expressed by a single-peak curve (the peak representing 0 to 11-month-old infants): under one year, 27.8% (males, 28.8%; females, 26.5%) and under 4, 81.7% (males, 82.3%; females, 81.0%). Fig. 3 shows the sex and age specific incidence rates com-

puted from the means of each year from 1991–1996.

The results of the nationwide surveys exhibit the following patterns: the incidence rate for Kawasaki disease is markedly low from birth to 2 months of age, rises suddenly between 3 and 5 months, peaks between 6 and 8 months and 9 and 11 months, and undergoes a sudden decline thereafter. To explain this pattern, the following scenario is cited: micro-organism(s) of unknown pathogenicity commonly exist in the living space of children; and the morbidity among them rises, corresponding to the time when the maternally derived immunity level declines after birth.

(5) Incidence among siblings and recurrences

Questions on family history and recurrences were added in 1977.

The familial incidence has always been around 1%, which is more than 10 times the level expected from the general incidence. The possibility of a risk from common exposure, familial transmission, and common host factors should be considered.³⁴ The proportion of Kawasaki disease patients whose parents suffered from the same disease was 0.2% in the 16th survey. When compared with parents in the general population, the probability of a history of Kawasaki disease was significantly higher in those parents whose children had the same disease. This suggests that a genetic predisposition to Kawasaki disease may be implicated in its occurrence.³⁵

Recurrences were observed in approximately 3%, a rate that varied little over the years. There were some patients who suffered from the disease 3 or more times. The sex ratio for recurrence was 1.6 (the risk of a recurrence for patients who had a history of Kawasaki disease was 1.1; thus no difference was observed vis-à-vis sex). Fatalities were high among those suffering a recurrence [0.9%; 3 times higher than the rate for all cases (0.3%)]. A positive correla-

tion was observed between the recurrence rate and morbidity for season and geographic area. The incidence among siblings was high in those who suffered a recurrence — 3 times higher than the rate for all cases studied. The recurrence rate during an epidemic was 950 in every 100,000 patients, which is 6 times higher than the morbidity rate observed among 0–4 year olds during the same period (150 in every 100,000).³⁶

(6) Cardiac sequelae

Questions on cardiac sequelae were added in 1983. Until 1996, the question on the incidence of cardiac sequelae was posed in a “yes” or “no” format, while the sequelae were clearly defined in the survey form as “recognition of dilation of the coronary artery (including aneurysms), coronary artery stenosis (including obstruction), and myocardial infarction or valvular lesions, all developing at least one month after onset.” On the other hand, since 1997 when the 15th nationwide survey was conducted, the question on the sequelae was subdivided into two parts, acute stage cardiac dysfunction (within one month of onset) and cardiac sequelae (occurring at least one month after onset). One should note that some of the symptoms corresponding to acute stage cardiac dysfunction defined above might have been reported as sequelae in the surveys that were conducted up to 1996.

The percentage for those with cardiac sequelae was 16.7% in 1983, which gradually decreased since then to 12.1% (1996), 5.1% (1997), and 5.7% (2000), showing a clear-cut drop between 1996 and 1997. One reason for this phenomenon may be the deviation caused by having created a separate question for acute stage cardiac dysfunction; but it is also due to the tendency for reductions in the development of this dysfunction.

According to the 17th survey, 16.2% of reported patients (18.6% male, 13.0% female) had acute cardiac disorders, the rate being high among infants less than 6 months old and older infants. On the other hand, 5.0%

(6.9% male, 3.8% female) of patients had cardiac sequelae, which is a third of the proportion of acute cardiac disorders for both males and females. In terms of age, the proportions were higher in infants of less than 6 months old and in older children, thus forming a gentle U-shaped curve dipping at the 2 year-old mark. The proportion of patients with acute cardiac dysfunctions included: 12.97% for coronary artery dilatation, 1.96% for aneurysms, 1.58% for valvular lesions, 0.27% for giant aneurysms, 0.05% for coronary stenosis, and 0.02% for myocardial infarctions. The proportion of patients with cardiac sequelae were: 3.13% for coronary artery dilatation, 1.36% for aneurysms, 0.29% for giant aneurysms, 0.31% for valvular lesions, 0.06% for stenosis, and 0.04% for myocardial infarctions.

For the factors contributing to the development of cardiac sequelae, the following have been cited: male sex; age under 6 months or over 7 years; a recurrence of Kawasaki disease; and a low level of serum albumin.³⁷⁻⁴⁰ To clarify the etiological factors for the development of giant aneurysms, a case-control study was conducted, in which the clinical findings up to 20 days after onset were compared. Subsequently, the following were suspected to be risk factors for the development of a giant aneurysm: a low serum potassium level at admission, low minimum platelet count, a high maximum platelet count, high level of maximum C-reactive protein, low minimum hematocrit level, minimum hemoglobin level, maximum white blood cell count, and late development of minimum albumin level.⁴¹ The incidence of cardiac sequelae was high among recurrent cases, irrespective of the association of cardiac sequelae with the first affliction.⁴²

(7) Mortality

Until 1974, the case-fatality rate exceeded 1%, which gradually decreased and remained around 0.1% in the 1990s. The mean for all the surveys is 0.25%. A reduction in fatality rate was evident, which is probably due to

the efficacy of gamma-globulin therapy and a relative drop in incidence due to the dissemination of information on this disease among pediatricians and the resultant inclusion of many milder cases in the reports.

Yashiro, et al. observed the 449 fatal cases reported by 1998 (which include the fatal cases plus 40 patients who were alive at the time of the survey but whose death was confirmed later).⁴³ The results showed a fatality rate of 0.29% (and 0.63%, a particularly high rate among children under one year of age); the male/female ratio was 1.5; extensive use of gamma-globulin treatment served to reduce the fatality rate markedly; and 11.5% of the patients died one year after the initial diagnosis. Nakamura, et al. conducted a follow-up study on 8,417 patients, each diagnosed in one of 52 hospitals during a period between July 1982 and December 1992.⁴⁴⁻⁴⁶ They followed-up on these patients until the end of 1999 and reported that the standardized mortality ratio increased during the 2-month acute stage after the first diagnosis; no increase was observed after the acute stage; and the standardized mortality rate among those with cardiac sequelae was high.

(8) Treatment in the acute stage of Kawasaki disease

The use of therapeutic agents — steroid preparations (1974–1990), antibiotics (1974–1990), aspirin (1974–1990), and gamma-globulin (1974–1990) — was investigated. Steroid preparations were used for 53% of cases in 1975 but fell rapidly to 6.3% in 1983, then were almost completely abandoned in the 1990s. Antibiotics were used for 92% of cases in 1974 but their administration was gradually reduced to a 70% level in the 1990s. Aspirin use was around 90% throughout the entire survey period. Gamma-globulin was first dispensed around 1983, exceeded the use of steroids that same year, and has been prescribed for more than 80% of cases since 1992. Its use is now maintained at around 85%.

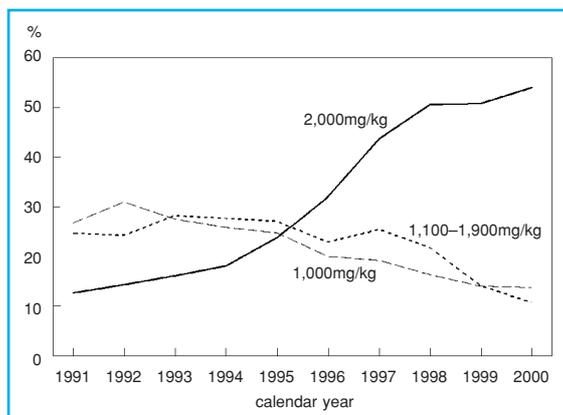


Fig. 4 The proportion of patients with Kawasaki disease treated with gamma globulin by total dosage

The dosage of gamma-globulin used for treatment appears to have increased annually. As shown in Fig. 4, the common dosage was 1,000mg/kg until around 1995 but a dosage of 2,000mg/kg suddenly became dominant and was applied to more than 50% of the patients in 1998. For the gamma-globulin regimen applied to prevent cardiac sequelae, the following have been cited: initiation soon after onset and administration of a sufficient dosage (2,000 mg/kg), which may be given in massive dosages over a short period, such as 2,000 mg/kg for 1 day or 1,000 mg/kg for 2 days.^{47,48}

Other Epidemiologic Studies on Kawasaki Disease in Japan

(1) Descriptive epidemiology of the patients

1) Geographic distribution

The municipalities neighboring those with high incidence rates also indicated high rates.^{49,50} The clustering pattern was found in many regions and was also prevalent on the prefectural level, indicating that the prefectures with high incidence rates tended to cluster. The clustering of regions with high incidence rate is probably related to public transportation channels and the movement of people. Simultaneous occurrences on an isolated island and in housing complexes were reported. With regard to the contact

between patients, there were instances of specific kindergartens where clustering was evident and others where no such pattern was recognized.⁵¹⁻⁵³ In the 1-year, 4-month period between March 1979 and July 1980, 13 individuals living in a new residential area (population aged 9 or under: 6,300) in the suburbs of Yokohama City contracted the disease. They resided within a 2 km radius of each other; however, Takahashi, et al. found no evident contact among these patients. These patients became affected between November 1979 and July 1980, later than the time when most patients developed the illness during the nationwide outbreak (between March and May 1979).⁵⁴

2) Occurrences among siblings

Nanri, et al. examined the repeated occurrence of the disease (amounting to 27 times altogether) in 12 recurrent cases.⁵⁵ The outlines of these cases are as follows: (1) in monozygotic twins suffering the disease four times, the first child occurred when he was 10 months old and the second child when he was 10 months old (with the interval between the two being 9 days). For the second occurrence, the second child was 1 year 10 months old and the first child was 1 year 9 months old (the interval being 18 days); (2) for recurrences in dizygotic twins, the first incidence occurred when the first and second children (a boy and a girl) were 10 months old (the disease developed on the same day), and the second incidence occurred when the boy was 2-years 4 months old and his sister developed aphthous stomatitis 11 days later; and (3) in a brother-sister case, the brother occurred 3 times. A case of Kawasaki disease developing simultaneously in monozygotic twins living in a mountainous region of Kumamoto Prefecture was reported.⁵⁶ The area offered little contact with people in the surrounding areas. Prior to the development of the disease, 4 older siblings (starting with the oldest) had exhibited cold-like symptoms with a fever. In research conducted by Kumamoto University, it was reported that symptoms occurred 8 times among 3 siblings.

A survey conducted by Tsuchiura Kyodo General Hospital introduced cases of Kawasaki disease occurring a total of 8 times among 3 siblings. The symptoms were first noted in the oldest brother who was going to kindergarten, followed by two younger sisters within one week (with onsets one day apart among the sisters). The number of absentees from the kindergarten and the statistics on the patients visiting local clinics around the same time offered no information to support a marked increase in absenteeism.

3) Similarity to other major infectious diseases

Among the infectious diseases reported in the Ministry of Health and Welfare Infectious Disease Surveillance System, 13 diseases that occur mainly in young children were selected. The number of cases reported per fixed point was compared against cases of Kawasaki disease as reported in the Nationwide Surveys for the same period. Infections such as rubella and exanthema subitum showed a curve similar to that of Kawasaki disease. The peak for hemolytic streptococcal infection, which is the focus of attention as a possible cause of Kawasaki disease, was seen to occur between the autumn and winter.⁵⁷

4) Cases occurring in hospitals

Kato, et al. in Kurume University reported that 54 days after a patient with Kawasaki disease was admitted to the hospital, another patient who had been admitted in the same room (with congenital laryngomalacia) developed Kawasaki disease. Both patients had coronary artery aneurysms.⁵⁸ Other cases involving inpatients are rare.

(2) Analysis of the etiological factors

To clarify the possible etiological factors of Kawasaki disease, Kubota, et al. in 1975 conducted a case-control study on mothers of patients with Kawasaki disease, with the cooperation of 128 facilities in 43 municipalities across the country.⁵⁹ In 295 pairs of patients and the control (patients' mother selected from her acquaintances controls

who had children of the same sex and similar age), 233 attributes were compared, including home environment, medical history, tendency to contract illness, family history, history of inoculations, nutrition during infancy, type of everyday goods used, pregnancy complications, and usage of certain medications. The results can be summarized as follows: a tendency for the patients' parents to contract tonsillitis, stomatitis, eczema, and conjunctivitis; higher incidences of stomatitis, allergic rhinitis, and chapped lips among the patients and their siblings; no difference in the history of inoculations in comparison with the controls; a slightly higher frequency in early disruption of breast feeding and switching to bottle-feeding immediately or shortly after birth; and a slightly higher incidence of tonsillitis or a more frequent use of antibiotics or anti-allergy drugs when the mothers were pregnant. There was no difference between the two groups when the housing where they resided or other environmental conditions were compared (e.g., type and age of the building, number of floors, type of air conditioning, and presence of pests, animals, and pets). The mothers' speculations on the cause of the disease included: bathing in the sea or a swimming pool, playing with water, traveling, going for a ride, and enrolling in kindergarten. Kishimoto, et al. conducted an interview with patients admitted to 3 city hospitals and the controls who were matched to the patients in sex and age.⁶⁰ The results showed that there was no difference in the history of inoculations; the patients' families were more vulnerable to colds; and there was a tendency among the patients' mothers not to give colostrum in early infancy and to rely on bottle feeding.

Conclusions

Kawasaki disease was discovered in Japan and is now known around the world. A lot of evidence about this disease, especially that related to epidemiology, has been sent from Japan to the world. Epidemiologic studies

of this disease not only provide clarifying explanations of distribution, but also basic data that are useful for an understanding

of etiological and prognostic factors, and, thereby greatly contribute to furthering future research.

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Current Treatment Strategies for Coronary Disease in Japan

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Abstract

Despite the remarkable progress in diagnosis and treatment, acute coronary syndrome (ACS) remains an important public health problem demanding much effort from cardiologists.

A comparison of the Japanese and the U.S. guidelines for ACS shows that they differ in the provisions concerning institutional requirements and the skill of persons performing the procedure. If we apply the U.S. guidelines to the situation in Japan, 46.9% of PCI cases are receiving PCI at centers failing to meet the U.S. standards.

While the inclination toward the use of PCI in Japan is considered to expand further, care providers are expected to make self-imposed effort aiming at the establishment of more stringent institutional requirements and further skills accumulation. They should improve the ability to deduce well-balanced conclusions through the process of analyzing actual needs based on the combination of social, basic, and clinical medicine.

Key words Acute coronary syndrome, Acute myocardial infarction, Institutional requirements, Pre-hospital care system, Guidelines, Drug-eluting stent

Introduction

According to the Vital Statistics Report published by the Ministry of Health, Labour and Welfare (MHLW), heart disease was responsible for 152,000 deaths in 2002 in Japan. It was the second most important cause of death representing 15.5% of all deaths.¹ The 5th National Survey of Circulatory Disorders indicated that a history of myocardial infarction (MI) was found in 2.4% of males and 1.1% of females, while a history of angina pectoris was found in 3.6% of males and 2.9% of females.²

In the recent analysis of MI patients from the Japanese Coronary Intervention Study, Nishigaki et al.³ of Gifu University reported that the occurrence of MI in Japan (about 52 per 100,000 population) was 4 times lower than that in the U.S. (192 per 100,000 population). The majority of this difference may be due to diet and other acquired factors, in addition to hereditary factors.

Among the various types of heart disease, acute coronary syndrome (ACS) including MI remains the main challenge for cardiologists, although the diagnosis and treatment of ACS have progressed remarkably in recent years by the use of diagnostic imaging, reper-

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fusion therapy, and other techniques. The difficulty arises from the facts that ACS shows rapid progression in a very concentrated time span; it requires approaches not only in the area of cardiology but also from emergency medicine, social medicine, and medical economics; and that careful initial assessment and accurate treatment definitely contribute to the survival prognosis of patients.

For these reasons, this review focuses on ACS among other types of coronary disease.

Definition

ACS is defined as a clinical syndrome characterized by acute myocardial ischemia resulting from coronary plaque rupture and thrombosis. It encompasses a wide range of conditions from acute MI and unstable angina to sudden cardiac death.

Coronary Disease Practice in Japan

The geography and health care systems of Japan are important factors in considering ACS in Japan. Japan has a very high population density: 90% of the 127 million people inhabit coastal areas occupying a small proportion of the 378,000-km² national land area.⁴

With this densely distributed population, effective emergency care systems have been established under the lead of the government.

In particular, the MHLW and the Fire and Disaster Management Agency, Ministry of Internal Affairs and Communications have been developing a system for providing pre-hospital care. The scope of medical treatment that emergency medical technicians (EMTs) are allowed to perform has been expanded gradually. For example, they have been allowed to perform electrical cardioversion under the general direction of a physician (without specific instruction) since April 2003. Endotracheal intubation has been permitted for EMTs completing

schooling and hospital training under the specific instruction of a physician since July 2004. As for drug use, a study on the minimal use of epinephrine and other drugs was conducted to evaluate the efficacy and safety in the use by EMTs, and the government has decided to permit the use of epinephrine by EMTs from April 2006.

The MHLW has been leading the development of primary, secondary, and tertiary emergency care systems organized according to new function-based role sharing. As of March 2005, 176 emergency care centers have been established to provide medical services as tertiary emergency care facilities.⁵

Under this system, all Japanese citizens are given unrestricted access to any medical institution under the national health insurance system. A person developing ACS in Japan can visit any appropriate medical institution. At some medical centers, the unit prices of health care cost (drugs and medical supplies) are standardized uniformly according to the Diagnosis Process Combination (DPC) system. This factor is exerting a decisive effect on the behavior of patients.

Treatment Strategies for Coronary Disease

Several sets of guidelines are provided for the management of ACS in Japan. The guidelines for the management of acute MI have been developed by the MHLW study group led by Kanmatsuse. Those for non-ST-segment elevation ACS have been formulated by the joint study group of the Japanese Circulation Society, the Japanese College of Cardiology, the Japan Society for Intervention, the Japanese Coronary Association, the Japanese Association for Thoracic Surgery, the Japanese Society for Cardiovascular Surgery, and the Japanese Society of Intensive Care Medicine.

In the U.S., the American Heart Association (AHA) has established ACC/AHA Guidelines for the Management of Patients with Acute Myocardial Infarction, as well as

Table 1 Comparison of Japanese and U.S. guidelines concerning primary PTCA and institutional requirements

	ACC/AHA guidelines for the management of patients with acute myocardial infarction	Guidelines for the diagnosis and treatment of acute myocardial infarction
Primary PTCA	<p>As an alternative to thrombolytic therapy in patients with AMI and ST-segment elevation or new or presumed new left bundle branch block who can undergo angioplasty of the infarct-related artery within 12 hours of onset of symptoms or beyond 12 hours if ischemic symptoms persist, if performed in a timely fashion by persons skilled in the procedure*² and supported by experienced personnel in an appropriate laboratory environment*¹.</p> <p>*¹: At least 200 cases of PTCA per year. *²: At least 75 cases of PTCA per year.</p>	<p>In patients with AMI and ST-segment elevation or new or presumed new left bundle branch block who can undergo angioplasty of the infarct-related artery within 12 hours of onset of symptoms or beyond 12 hours if ischemic symptoms persist, if performed by persons skilled in PTCA in an appropriate institutional environment (meeting the institutional requirements specified by MHLW).</p> <p>Institutional requirements specified by MHLW:</p> <ol style="list-style-type: none"> 1. A medical institution practicing in cardiovascular medicine. 2. At least 1 full-time physician with 10 or more years of experience in the procedure. 3. At least 1 full-time cardiovascular surgeon with 5 or more years of experience or a partnership with a medical institution employing a physician with such experience. 4. At least 1 full-time clinical engineer. 5. At least 100 cases in the institution per year.

ACC/AHA Guidelines for the Management of Patients with Unstable Angina and Non-ST-Segment Elevation Myocardial Infarction for other types of ACS.⁶⁻¹⁰

Comparison with Other Countries

The treatment strategies for ACS are divided into early invasive treatment and early conservative treatment according to the timing of coronary angiography (CAG) and revascularization. In the early invasive strategy, elective CAG is performed early in all hospitalized cases unless there is a contraindication, and revascularization is performed if indicated. In the early conservative strategy, CAG is selected only in cases that are considered clinically high risk and those experiencing repeated myocardial ischemic attacks despite adequate drug therapy. Thus, the timing of CAG is a major difference between these strategies. No conclusion has been reached as to which of these strategies is better.

As shown in Table 1, there is little difference in primary PTCA in acute MI between the Japanese and American guidelines.

In both countries, the recommendations for Class I conditions specify the following: "In patients with acute MI and ST-segment elevation or new or presumed new left bundle branch block (LBBB) who can undergo angioplasty of the infarct-related artery within 12 hours of onset of symptoms or beyond 12 hours if ischemic symptoms persist, if performed . . . by persons skilled in the procedure and . . . in an appropriate laboratory environment." They also state, "In patients who are within 36 hours of an acute ST-elevation/Q-wave or new LBBB MI who develop cardiogenic shock, are <75 years old, and in whom revascularization can be performed within 18 hours of onset of shock."

The difference lies in the definitions regarding the institutional requirements and the skill of the persons performing the procedure. According to the health insurance

Table 2 Comparison of medical therapies in Japanese and U.S. guidelines

	ACC/AHA guidelines for the management of patients with acute myocardial infarction	Guidelines for the diagnosis and treatment of acute myocardial infarction
Treatment for ventricular tachycardia/ventricular fibrillation	<p>Class I</p> <p>Sustained monomorphic VT not associated with angina, pulmonary edema, or hypotension (blood pressure less than 90 mmHg) should be treated with one of the following regimens:</p> <ol style="list-style-type: none"> Lidocaine. Procainamide. Amiodarone. Synchronized electrical cardioversion starting at 50 J (brief anesthesia is necessary). 	<p>Class I</p> <ol style="list-style-type: none"> Intravenous lidocaine or procainamide for sustained monomorphic VT not associated with angina, pulmonary congestion, or hypotension (systolic blood pressure less than 90 mmHg). Synchronized electrical cardioversion for sustained monomorphic VT not associated with angina, pulmonary congestion, or hypotension (systolic blood pressure less than 90 mmHg) (brief anesthesia is necessary).
	ACC/AHA guidelines for the management of patients with unstable angina and non-ST-segment elevation myocardial infarction	Guidelines for the management of acute coronary syndrome
Antiplatelet and anticoagulation therapy	<ul style="list-style-type: none"> ● Clopidogrel should be administered to hospitalized patients who are unable to take ASA because of hypersensitivity or major gastrointestinal intolerance. (Level of evidence: A) ● In hospitalized patients in whom an early noninterventional approach is planned, clopidogrel should be added to ASA as soon as possible on admission and administered for at least 1 month (Level of evidence: A), and for up to 9 months. (Level of evidence: B) ● In patients for whom a PCI is planned and who are not at high risk for bleeding, clopidogrel should be started and continued for at least 1 month (Level of evidence: A), and for up to 9 months. (Level of evidence: B) 	<ul style="list-style-type: none"> ● Chewable aspirin 162 to 325 mg should be administered as soon as possible, followed by long-term administration of 50 to 100 mg. ● Ticlopidine should be administered to patients who are unable to take aspirin.

reimbursement standards of Japan, a center performing PTCA must have at least 1 full-time physician with 10 or more years experience and there must be at least 100 cases operated on at the center per year. There are no requirements concerning the skill of physicians and the number of cases operated on by each physician. On the other hand, the guidelines in the U.S. provides for specific numerical requirements that each physician must have experienced 75 or more cases of PTCA and each center must be performing 200 or more cases of PTCA per year.

Another difference between the Japanese guidelines and the AHA guidelines relates to arrhythmia. The Japanese guidelines do not indicate amiodarone for ventricular

tachycardia and ventricular fibrillation (Table 2) because intravenous amiodarone is not provided for under the national health insurance. Nifekalant, a K ion channel blocker of Japanese origin, is already covered by the national health insurance, and this drug may appear in the Japanese guidelines ahead of Western countries after further accumulation of evidence.

In addition, the Japanese guidelines do not contain clopidogrel as an antiplatelet drug (Table 2). Like amiodarone, this drug is not provided for under the national health insurance. Since clopidogrel acts more quickly than ticlopidine and has a better safety profile, it is the first-choice drug among thienopyridine derivatives in the U.S.

Table 3 Number of coronary intervention cases in Japan and the U.S. in 2000

	Japan		United States	
	Cases	Per 100,000 population	Cases	Per 100,000 population
CAG	543,046	428	1,318,000	468
PCI	146,992	116	561,000	199
CABG	23,584	19	519,000	184

Because ticlopidine causes granulocytopenia as a serious adverse effect, clopidogrel should be covered by the Japanese national health insurance as soon as possible.

PTCA or CABG

In the above-mentioned guidelines, recommendations concerning emergency or urgent bypass graft for Class I conditions differ little between Japan and the U.S. These are: “Failed angioplasty with persistent pain or hemodynamic instability,” “AMI with persistent or recurrent ischemia refractory to medical therapy in patients . . . who are not candidates for catheter intervention,” and “Postinfarction ventricular aneurysm associated with intractable ventricular tachyarrhythmias and/or pump failure.” A notable difference is found in the recommendations for Class III (conditions for which there is evidence and/or general agreement that a procedure/treatment is not useful/effective and in some cases may be harmful). While the AHA guidelines only state, “When the expected surgical mortality rate equals or exceeds the mortality rate associated with appropriate medical therapy,” the Japanese guidelines contain the following: “When PTCA has failed but reperfusion is impossible because of a no-flow condition,” “In the case of reperfusion beyond 12 hours of an ST-segment elevation (Q-wave) infarction without ongoing ischemia,” and “When the expected surgical mortality rate equals or exceeds the mortality rate associ-

ated with appropriate medical therapy.”

It is often pointed out that percutaneous coronary intervention (PCI) is performed much more frequently than coronary artery bypass graft (CABG) in Japan, while the difference is smaller in Western countries. According to the above-mentioned nationwide survey on coronary intervention performed in 2000, reported by Nishigaki et al.¹¹ in 2003, there were 543,046 cases of CAG (428 per 100,000 population), 146,992 cases of PCI (116 per 100,000 population), and 23,584 cases of CABG (19 per 100,000 population) performed in Japan. The corresponding figures in the U.S. were 1,318,000 cases of CAG (468 per 100,000 population), 561,000 cases of PCI (199 per 100,000 population), and 519,000 cases of CABG (184 per 100,000 population) (Table 3). Because the prevalence of coronary artery disease (CAD) per 100,000 population was 4,584 in the U.S. versus 3,199 in Japan (data for 2000), the fraction of CAD cases receiving CAG was 1.4 times higher in Japan than in the U.S.

In Japan, 59.8% of the medical centers performing PCI were each performing less than 100 cases of PCI per year, and 20.9% of all PCI cases in Japan received PCI at such centers. Furthermore, 46.9% of PCI cases received this procedure at centers performing less than 200 cases of PCI per year.

Only 20.7% received PCI at the centers performing 400 or more cases of PCI per year.

With respect to the number of centers performing these procedures, the data from

this survey and those from a similar questionnaire survey conducted by Takeshita et al.¹² in 1997 indicate that the number of centers performing PCI increased from 1,023 to 1,240, and those performing CABG increased from 486 to 581.

While CABG was performed in over 20,000 patients in the year, 91.7% of the centers performing CABG were each performing less than 100 cases of CABG per year, and as many as 71.2% of all CABG cases in Japan received CABG at such centers. The centers performing less than 50 cases of CABG per year represented 70.9% of the centers performing CABG and 37.2% of the patients receiving this procedure.

The ratio of PCI to CABG was as high as 6.23 in overall average. It was "0 to 3" in 30% of centers, "3 to 5" in 20%, "5 to 8" in 23%, and "8 or more" in 27%. Larger numbers indicate a stronger bias toward the use of PCI relative to CABG. About 60% of centers were performing more CABG than PCI.

These data indicate that about half of patients with acute coronary disease in Japan are receiving PCI at centers that are performing less than 200 cases per year, which do not meet the standards of AHA guidelines. They also suggest that the treatment of coronary disease is biased toward the use of PCI.

Although PCI is used actively for left main trunk (LMT) disease in Japan, a survey by Nishida¹³ showed that the mortality rate associated with elective PCI for LMT disease is significantly higher than that associated with CABG. Unfortunately, there has been no move to correct this perturbing situation.

Nishida et al.¹⁴ remarked, "While surgeons work with CABG and cardiologists work with PCI toward improvement of techniques and outcomes, they lack sufficient information exchange concerning the selection of treatment methods both at the level of individual hospitals and at the level of academic societies." We need to promote closer communication among cardiologists

and surgeons in order to realize better demarcation based on objective data.

Toward Further Skill Accumulation

While PCI and CABG are performed at many centers in Japan, 46.9% of PCI cases are performed at centers treating less than 200 cases, failing to meet the AHA standards, and 91.7% of CABG cases are performed at centers treating less than 100 cases. This fact suggests the direction that should be pursued in future cardiovascular practice.

In the present system, a patient developing coronary disease anywhere in Japan is sent to the nearest secondary care center on a free (uncontrolled) access basis. After the emergency room physician makes diagnosis of coronary disease, PCI, CABG, or other treatment is given, if the center is capable of performing the needed procedure. If not, arrangements are made for transporting the patient to a center with the necessary facilities.

The free access system may seem ideal, but it could end in loss of life, if the patient is sent to a center with little experience and insufficient technical skill. In fact, about half of the medical centers in Japan are deficient in skill according to the AHA guidelines.

Ideal emergency cardiovascular care should begin with effective pre-hospital care. In our opinion, emergency personnel in the ambulance should be able to conduct initial triage, judge the presence of coronary disease, and transport the patient to a center treating a sufficient number of PCI or CABG cases with highly experienced, skilled physicians.

To this end, we need to build on the current efforts to develop the medical control system, to improve the abilities of EMTs such as advanced cardiovascular life support (ACLS), and to reinforce pre-hospital care systems in communities. On the side of health care providers, we need to continue further development of the guidelines both for PCI

and CABG, incorporating more stringent institutional requirements and establishing the potential for skill accumulation.

Final Remarks and Remaining Problems

As discussed above, the treatment selection for ACS in Japan is too biased toward the use of PCI. A new type of stent called drug-eluting stent (DES)¹² came into clinical use recently, and was popularized quickly to be employed in over 70% of cases nationwide within months of introduction. We do not discuss the merits and demerits of this treatment here, but this device has the potential to intensify the excessive use of PCI. In addition, the antiplatelet agent used in Japan is ticlopidine hydrochloride, because clopidogrel has not been approved. Almost nothing is known about the short- and long-term outcome of ticlopidine hydrochloride administration in patients receiving DES, and the results of data analysis from DES patient registration in Japan (e.g., J-cypher) are

awaited. This drug causes granulocytopenia as a serious adverse effect, which poses an important problem for clinicians in terms of patient's safety.

On the other hand, the widespread use of DES and the further development of diagnostic imaging are expected to decrease the need for invasive CAG for follow-up purposes. This should be good news for patients.

Finally, patients with ACS in Japan are more frequently complicated with diabetes than those in Western countries, as a result of the genetic predisposition of the Japanese people. This fact is extremely important from the standpoint of prophylaxis.

Cardiologists and cardiac surgeons in Japan should not simply depend on the advancement of treatment methods and uncritically adopt the newest therapies. Rather, they should develop the ability to deduce well-balanced conclusions through the process of analyzing the actual needs based on the combination of social medicine, basic medicine, and clinical medicine.

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Policy Address

JMAJ 48(4): 201–203, 2005

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We saw the occurrence of many natural disasters in Japan last year, beginning with the typhoons and flooding in Fukui Prefecture and other regions, the Chuetsu earthquake in Niigata Prefecture, and the offshore earthquake in Fukuoka Prefecture. I would like to express my condolences to each prefectural medical association in these affected regions, and hope for a quick recovery.

In addition, thanks to your cooperation, the JMA was able to raise 117 million yen (about US\$ 1.1 million) in donations for the relief activities in the regions hit by the offshore Sumatra earthquake and tsunami in the Indian Ocean. The total amount was duly donated to the Japanese Red Cross Society through the services of the Japan Broadcasting Corporation (NHK) on March 25. Thank you very much for your support.

Contributing to Health Policy with the Japanese Public

Like the vast majority of JMA members, I am also seriously concerned about the regulatory reforms that are being pursued based on market economy principles advocated by the Council on Fiscal and Economic Policy, the Ministry of Finance, and others, and I recognize how important it is for us to take action that communicates our concerns. Our basic stance, which we have consistently advocated, is to adhere to social security

principles and to firmly maintain the universal health insurance.

We have been galvanized into resolutely opposing the removal of the ban against an attempt to mix public and private insurance (mixed public/private insurance) as stated in Prime Minister Koizumi's policy speech on October 12, 2004 because we believe that this will lead to the destruction of the universal national health insurance system and stratification between the rich and poor in terms of equal access to health care services.

But, an opposition movement comprised of health related associations headed by the JMA will only serve to dismiss our efforts as being self-serving. Therefore, we carried out our activities to safeguard the universal health insurance in conjunction with the support and cooperation of the Japanese people.

In line with this strategy, the JMA established the Committee on National Health Promotion, which is composed of 37 organizations and aims at organizing a public movement to safeguard the universal health insurance and to oppose the removal of the ban on mixed public/private insurance. An opposition petition drive was started to collect the signatures of each local medical association. Over 6,600,000 signatures were collected, and on November 30, we petitioned the presidents of both the Upper and Lower Houses and won the approval of about 80

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percent of the ruling party members. Subsequently, it was adopted on December 3, 2004. This is the first time in constitutional politics where a petition opposing the administrative policy of a prime minister was successfully adopted.

I would like to express my deep gratitude to you in conjunction with the great joy that I feel at successfully achieving our initial goals with the support and participation of the Japanese people. During this critical time, the JMA was able to set up health promotion councils in different regions nationwide. We will continue to expand our ties with medical associations, other health organizations, and with the public through our suggestions and proposals on a variety of health care issues and thereby contribute to Japan's health policies.

Through these activities, Mr. Hidehisa Otsuji, the Minister of Health, Labour and Welfare and Mr. Seiichiro Murakami, the Minister of State for Regulatory Reform have reexamined the Special Healthcare Expenditure scheme and an understanding was reached on such issues as the introduction of insurance coverage for new medical technology, patient choice or the number of treatments under insurance coverage, and unapproved drugs in Japan. However, the specific content of each of these issues must be further reviewed and deliberated. Therefore, we will actively continue our lobbying activities.

With regard to the reexamination of the Central Social Insurance Medical Council (Chuikyo), our efforts have achieved some success and progress when it was decided that the body responsible for reviewing the members of Chuikyo, would be established in the Ministry of Health, Labour and Welfare as we had advocated, despite the fact that the initial plan was to assign it within the Cabinet Office.

Expanding Financial Resources to Meet Healthcare Costs

After obtaining information that the introduction of a medical license renewal system had been included in the initial report on regulatory reforms, we took immediate political action to oppose it and we were able to successfully eliminate it the following day. A detailed examination of their deliberations showed that they were tenacious in advocating their viewpoints even after they had been officially defeated. Therefore, we must remain vigilant and must not miss timely opportunities to voice our opposition and to advocate our views.

This coming year is extremely important to JMA in terms of the draft revision for the Long-Term Care Insurance Law that has been submitted to the Diet as well as the revision of medical fee schedule to be enforced in April, 2006. Although issues such as controlling health costs and reviewing the range of public insurance coverage are under debate by government and business leaders who feel that health costs should not be increased, what is presently demanded by the public is patient safety, improved quality in health care, and expanding the Special Healthcare Expenditure. Thus, curbing health costs is a difficult task.

In order for its view to be publicly acknowledged, the JMA must promote its efforts among the Japanese people. It is important for the public to be aware of our activities to promote CME, to achieve self-improvement, to address ideas about medical license renewals, and to carry out preventive measures that protect national health, in order to control increasing health costs in future.

Although the JMA has been continuously active in the antismoking movement, we have now created a new conference to promote countermeasures against diabetes in cooperation with the Japan Diabetes Society etc. Through these activities, we will promote our view that health care should not be

tailored to meet economic needs, but rather, the economy should be tailored to meet health care needs. Based on this view, we will continue to demand that financial resources be increased to meet health costs.

Establish a Health Care System that the Public Truly Needs

Presently, the fifth revision of Medical Service Law is underway, and we will continue our efforts to create a safe and quality healthcare system demanded by the Japanese people.

As of April 1, 2005, the Act for Protection of Computer Processed Personal Data held by Administrative Organs was enforced, and the JMA is giving guidance to local medical associations and its members on how to comply with it. I would like to ask that cooperation be given without any errors, but since we, physicians, have always placed importance on protecting individual data, I, personally, believe that we need not be

excessively concerned.

Many have vociferously pointed out the shortage of physicians that has accompanied compulsory clinical training for new physicians, but it is unclear as to whether there is an absolute shortage or whether regional factors or uneven distribution according to preference in selecting specialties by young physicians is the cause of this shortage. To accurately assess the situation, JMA has begun a survey study.

In addition, informal discussion meetings for JMA's women members were started and active discussions have taken place. A gender equality forum will be held in July aimed at exploring new perspectives and different viewpoints. It is anticipated that this forum will also contribute ideas on the issue of physician shortages.

In conclusion, I hope that I have adequately discussed JMA's current activities and policies. Thank you very much for your kind attention.

Current and Future Issues in Continuing Medical Education by the Japan Medical Association

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Introduction

In 1984, the Japan Medical Association (JMA) focused attention on the importance of continuing medical education (CME) for physicians by organizing a committee for the promotion of this topic.

Based on the recommendations of the CME promotion committee, the JMA organized a second committee to study CME programs in 1985. After considerable discussion and a 6-month trial period, a CME program officially started for all JMA members in April, 1987.

Since then, 17 years have passed. Thanks to input from many fields as well as the active participation and cooperation of JMA members, the CME program has successfully developed.

This paper reports the current situation of the CME program of the JMA, and touches upon the future issues.

Transition of CME Filing Ratio

Since the start of the CME program, the JMA has required its members to voluntarily file the number of units representing their annual performance related to CME such as attendance at lectures and participation in academic conferences. To streamline the

filing system, however, a new “collective filing” system was introduced in 1996 where each local medical association collectively manages a computerized database of its members.

The filing ratio was good, 64.2% on an average, just after the CME program started in 1988. Regretfully, however, it continued decreasing, and finally dropped below 40%, 39.8% exactly, in 1994, seven years after the introduction of the program. The filing ratio for physicians at clinics was 51.3, while that for hospital physicians was 24.0 (See Fig. 1). It was assumed that hospital physicians actually received continuing medical education through daily clinical activities including clinical and academic conferences, and various academic activities, but did not report these activities as required by the JMA.

Assuming the filing ratio is the only data that represents CME performance status for physicians, however, a filing ratio of 40% cannot be ignored. This low figure created a sense of crisis among CME committee members.

At that same time, there was a movement toward accreditation of specialists within each medical society. Associated with this movement, announcement of a medical specialty and public advertisement issues became a focus of attention. As a result, an increasing number of general practitioners

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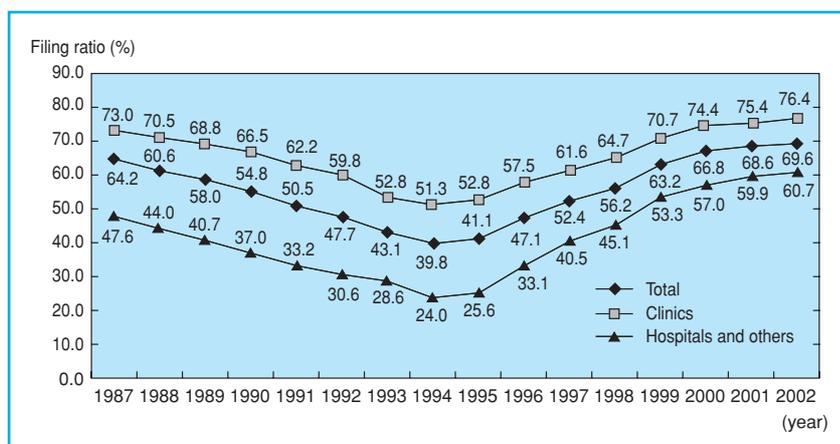


Fig. 1 Transition of filing ratio

re-joined the medical society they once quit to obtain a “qualification certificate” issued by the medical society.

As a result, the JMA was often asked by its members, “What are the merits to us of the system of CME designed by the JMA?”

Through detailed analysis of the situation and repeated discussion about its “carrot-and-stick strategy in continuing education,” the CME committee of the JMA concluded that the CME program should be based on what is called intrinsic motivation in the educational field. That is, physicians as professionals should receive continuing education voluntarily for the sake of their patients, but it should not be obligatory, just like when children are told to study by their parents.

After that, thanks to the efforts of many people involved, the filing ratio increased. It was back to 60% in 1999, almost the same level as that at the start of the CME system, and it reached as high as 70% (69.6%) on an average in 2002. This increase means an improvement in awareness of CME among JMA members, and can be highly evaluated. From now on, I hope the filing ratio will further increase, without lowering again.

CME Curriculum

When the result of the CME program is

assessed from a quantitative viewpoint, a filing ratio of 100% will be most desirable. This could be achieved by making the CME system obligatory.

However, what is important is the quality of continuing medical education, that is, the contents of the CME curriculum.

The JMA developed the CME curriculum in 1991, and has periodically revised it.

The CME curriculum should be practical and helpful for each physician from the viewpoints of “improvement of quality in medical treatment” and “assurance of patient safety.”

The CME curriculum developed by the JMA addresses issues of two main Parts, Part I and Part II. Part I is related to clinical science which includes knowledge of both high-frequency and serious diseases that will assist primary physicians to provide medical care.

Part II, on the other hand, includes “mind, attitude, and behavior as a doctor”, which are important for clinical physicians. In other words, these issues cover a wide range from humanics, medical ethics, philosophy, law, economics, society, and welfare to assessment of medical quality. Thus it is Part II that the JMA regards as an important feature of its CME.

To meet demands from a changing society,

the JMA has revised the Parts of the curriculum several times. Similarly, various learning strategies and educational media have been developed.

Promotion of Recurrent Education

Education for physicians should include the acquisition of skills and learning of effective attitudes in addition to medical knowledge. Conventional continuing education was often based on attendance at lectures or academic conferences.

To acquire new medical or clinical skills, recurrent education with practical training is required. Here recurrent education means participation-type work-study courses including skill practice performed intensively over a short period.

For example, permission for tracheal intubation has been recently granted to emergency life guards. In response to this, a sample program for maintaining open airways was prepared so that a JMA member can knowledgeably instruct an emergency life guard to perform tracheal intubation in a primary emergency situation.

Of course, this is just one example, and other examples of recurrent education with practical training include ACLS, AED, cardiac echo, and abdominal echo. Such skills cannot be acquired through lectures only, and practical training in a small group is required.

Some local medical associations have already conducted such continuing medical education. I hope to see further diffusion.

Educational Workshops for Supervisory Doctors (Preceptors)

Another new strategy introduced for the CME system is educational workshops for supervisory doctors (preceptors).

The medical education system in Japan has been drastically changed over the past few years. Now many medical universities, colleges, and faculties entrust clinical train-

ing for medical students to local clinics. Moreover, clinical training became mandatory in April 2004. The new clinical training system places emphasis on primary care, and requires residents to receive local medical training.

For this reason, even JMA members engaged in community health care are required to help educate medical students and residents in any way possible. One can easily imagine that educating medical students and residents will impose an additional burden on JMA members who are busy practicing daily medical care.

However, every physician has a responsibility to foster young promising physicians for the future of the medical field. As expressed in the saying, "Teaching is learning", to teach someone, we also learn for ourselves, which is the essence of continuing education.

At the same time, a closer relationship is promoted between JMA members engaged in community health care and local hospitals, joined by the common objective of "medical education." An ideal hospital-clinic partnership can be established on this basis.

The first educational workshop for supervisory doctors was held by the JMA in July 2003, and subsequently many workshops were held by local medical associations nationwide. There will be an additional number of workshops planned in the future. This reflects the great interest of local medical associations in this issue.

Participation of JMA in Preparation of the National Examination for Medical Licensure

Another factor affecting the CME system for the development and improvement of medical education in Japan is to ask the medical colleges nationwide to submit drafts of questions for the national examination for medical licensure.

Recently, our national examinations for medical practitioners have been consider-

ably improved and modified in many ways such as an increased number of questions, a review of the contents of questions, the setting of a pass/failure standard, the introduction of a pooling system for exam questions, the collection of examination sheets, and the notification of examination results. Public submission of questions for the national examination for medical licensure is one of such improvements.

Though many medical colleges are asked to develop questions because tens of thousands of questions are required each year, there is still a demand for an even greater number of questions. Thus the JMA is considering meeting this request as part of its continuing education program.

Progress of Educational Media

As various CME strategies evolve, educational media used for the CME system have also been developed.

Print media such as journals, books, and texts as well as radio and television are gradually being pushed into the background, while the internet plays a vital and growing role in the CME program.

Of course, conventional media including lectures, seminars, academic journals, videos, and CD-ROMs still play a certain role. However, online CME courses which have increased in number partly supported by sponsorship from many companies have been taking a leading position.

Evaluation of CME

The JMA has often revised the curriculum, aims, and strategies of the CME program to improve its quality.

The most important and difficult point is how to evaluate the CME activities.

Evaluation is classified into two categories, based on purpose: formative and summative evaluation. The purpose of formative evaluation is to assist a learner in his/her study process by providing feedback.

In contrast, the summative evaluation aims to judge whether a learner reaches an acceptable level or not at the final stage of study.

Since physicians are established professionals, the widely held idea was that formative evaluation which requires frequent feedback was more suitable for CME than summative evaluation which judged the final level of achievement.

In fact, the report issued by the CME committee of the JMA in 1998 contained such a description.

However, drastic changes in society in recent years have greatly affected social demands on medical care in many ways. Mass media such as newspapers and television often reports the occurrence of medical accidents and errors, cases questioning the ethics of physicians, and hospital directors bowing in apology.

There is not a physician in Japan who is not concerned about the effects of such reports. There is a tendency seen in parts of society and mass media to join in criticism of physicians, and this arouses mistrust towards medical care.

The way to cope with these circumstances may be considered from the viewpoint of continuing education.

The causes of recent medical errors include, but are not limited to, a lack of medical knowledge on the part of physicians, low medical skill levels, and inappropriate attitudes toward patients.

Thus most medical errors are associated with knowledge, skill, or attitude, all of which are covered by the CME curriculum. Therefore, promoting the CME system can be one of the most appropriate actions to control medical accidents.

The principles of CME are “to provide quality medical service for patients” and “to improve medical services.”

I believe most JMA members are engaged in their CME activities with these principles in mind. However, even if we conduct CME based on these principles and make further

efforts to develop effective programs through the feedback we receive from participants, society will never remain blind to frequent medical accidents.

All these situations may have led the government to its recent proposal for renewal of medical licenses. To resolve this situation, we need to establish objective criteria for evaluation of CME within our organization, and publicly advocate them.

In other words, society requires us in the CME system to employ summative evaluation rather than formative evaluation, which cannot stand in the face of criticism from society.

The problem is how to establish the criteria for summative evaluation.

Basically, evaluation means to measure whether things are good or bad, and judge them. Thus evaluation consists of two steps: measurement and judgment.

As a first step, CME results can be measured by totaling the number of units earned. For example, units can be earned from attendance at lectures in one case, and from participation in recurrent education in another.

However, the next step judgement of the results may be a difficult task. How and by what criteria can we judge a physician who has earned several dozens of units in the past several years?

The lowest criterion may be CME accreditation by the JMA, and the highest, renewal of medical licenses. We cannot discuss medical licensure lightly now, because it is a national qualification.

There are still many other issues to be solved. One of them is the handling of penalties imposed on those who are not interested in joining the CME program, who repeat medical errors, who show a bad attitude toward patients, or who repeat such actions. This is expected to need further discussion in the future.

The CME promotion committee for this term will study these problems in accor-

dance with the inquiry by Dr. Haruo Uematsu, JMA President.

In particular, a mandatory CME program and the introduction of a renewal system for medical licenses are urgent matters we cannot avoid. The committee will also discuss the relationship between the JMA CME system and accredited specialty boards. I will report the results at a later date.

Conclusion

The current and future issues for the CME program of the JMA were discussed above.

A physician is a professional, which means someone engaged in an occupation that requires highly specialized training and talent. Those who are engaged in a profession generally organize a group, establish their own constitutions and comply with them, and educate each member of the group to improve their knowledge and skills. The organization thus established is autonomous in that it is voluntarily managed and controlled. It is this autonomy that is the essence of professionalism.

In this sense, we physicians should hold our autonomy as professionals in the highest esteem.

Professional autonomy means self-driven decision making to assume the responsibilities of his or her selected profession.

In other words, the essential principles of professional autonomy require that he or she should display self-discipline and continuously keep up-to-date with medical knowledge and skills to fulfill the responsibilities of the profession selected.

The term, autonomy, can be traced to Kant. He advocated, "reason, good conscience, and good will". This is the very spirit that is required in a physician.

Physicians as professionals should disciple themselves based on good will, practice medical care with a patient-centered attitude, and continue learning throughout their lives.

“Medical Ethics” —Efforts of JAMS Specialty Societies in Japan—

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Abstract

The principal purpose of medical specialty societies is the advancement and dissemination of scientific study, and thus they have been highly regarded as places for presenting research reports. In addition, specialty societies are now addressing social problems and the issues of physician's ethics in clinical practice with strong awareness of their social responsibility as professional associations, reflecting the increasing interest in research ethics and as a result of the fact that they are entrusted with the responsibility for certifying specialist physicians.

Mainly based on the results of a questionnaire survey on the 97 specialty societies (as of March 31, 2003) affiliated with the Japanese Association of Medical Sciences (JAMS), the present state and problems of the actions of these societies addressing medical ethics issues were examined.

Of the 97 specialty societies, 32 had an ethics committee inside their organization. These societies clarified their positions regarding ethics in research execution and presentation, as well as the ethical problems relating to organ transplantation, genetic testing, reproductive medicine, etc., to help improve the ethical quality of members. Among others, the Japan Society of Obstetrics and Gynecology has long endeavored to develop ethics guidelines in the field of reproductive medicine and ensure that members comply with these guidelines.

The JAMS specialty societies are associations with voluntary membership, and their legal capabilities are limited. However, they have social responsibilities as professional associations, and they must strive for improvement of the ethical quality of members. Since it may be difficult in some cases to reach a consensus regarding ethical issues within a society, it is important to seek external cooperation.

Key words JAMS specialty societies, Ethics committee, ELSI,
Japan Society of Obstetrics and Gynecology, Reproductive medicine

Introduction

With the recent progress of medical science and medical care, problems related to medical ethics have become important issues of public concern. This situation necessitates

that all professionals involved in medicine and medical care straighten themselves out and promptly endeavor to improve the ethical quality of their practice.

Medical ethics includes a wide range of issues from bioethics to clinical ethics and vocational ethics. One of the issues requiring

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particular emphasis is the roles played by associations of professionals in various fields of medical science and medical care, i.e., the Japan Medical Association (JMA) and the Japanese Association of Medical Sciences (JAMS) specialty societies (hereinafter referred to as “societies”) in establishing and ensuring compliance with ethical codes of conduct.

While ethics is essentially an internal, private and non-mandatory matter, the acts and behavior of persons in medical care and research as part of their profession need to be controlled under widely-accepted ethical rules observed by every professional. Ethical issues of particular importance are regulated by national laws and administrative guidance, but such legal and administrative regulation has inherent limitations. Basically, professional associations should establish rules and enforce self-imposed control over ethical issues.

In this situation, JMA and specialty societies have recently been clarifying their positions concerning ethical problems for the public and endeavoring to improve the ethical quality of members. This article examines how medical societies in Japan are addressing ethical issues and discusses problems in their endeavors.

Actions Concerning Ethical Issues Taken by JAMS Specialty Societies

Main medical societies in Japan are affiliated with JAMS, which is an organization under JMA. As of March 31, 2003, there were 97 affiliated societies (99 at the present count). Based mainly on the results of a questionnaire survey conducted by the JMA secretariat, the actions of these societies addressing ethical issues were examined.

1. Ethical principles and ethical committees of societies

Of the 97 societies, 8 had announced codes of ethics. These societies and those having ethical provisions in the articles of association

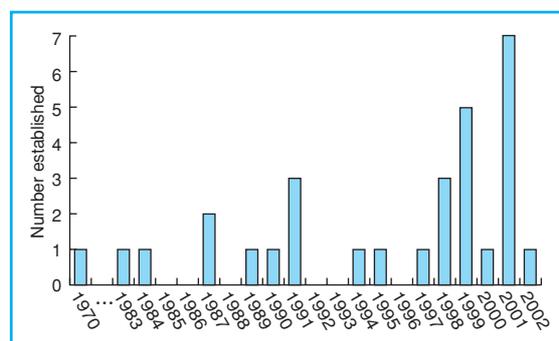


Fig. 1 Number of ethical committees (or equivalent) in 97 JAMS specialty societies established in each year

amounted to 22 societies.

On the other hand, 32 societies had ethical committees or equivalent, many of which had been established in recent years (Fig. 1).

Many societies are intended to serve as places for research presentation and academic information exchange for the principal purpose of promoting advancement and development of academic study. Hence, they traditionally did not pay much attention to the issues of ethics in medical care and research. However, this situation has begun to change. The ethical, legal, and social issues (ELSI) related to medical research have become the subject of intense argument. Societies related to clinical fields are urged to train certified physicians and specialist physicians. The amendment of legal regulation has enabled hospitals and clinics to announce practice in specific specialties. Each medical society now bears an important responsibility to guarantee the quality of physicians as specialists for the public. Societies are now directing much attention to the member's acquisition of specialist knowledge and skills, as well as ethical issues.

2. Subjects covered by ethical committees of societies

The subjects covered by ethical committees vary from society to society. In an overview, these include (1) animal experiments, in particular the welfare and protection of

laboratory animals; (2) use of autopsy organs and pathological specimens in research and education; (3) cerebral death and organ transplantation; (4) corpses in abnormal conditions; (5) psychiatric medicine and laws, gender identity disorders, psychiatric research and human rights; (6) genetic testing, analysis of human genome and genes; (7) research in the field of congenital anomalies; (8) blood transfusion to Jehovah's Witnesses; (9) reproductive medicine and assisted reproductive technology; (10) presentation of research reports; (11) sanctions against member's tort; (12) recommending expert witnesses; etc. Though not directly related to ethical issues, actions in response to the increasing media reports of medical accidents have also been taken, including the system for accident reporting from members, establishment of safety measures committees, and enhanced training for physicians repeating medical accidents.

As seen in the above, various societies are now strongly interested in ethical issues, ensuring the member's compliance with ethical codes and making social statements. The most typical example of specialty societies that have been faced with a demanding need to address medical ethics issues may be the Japan Society of Obstetrics and Gynecology. The following section will examine and review the activities of this society, and discuss the problems which it faces.

Activities of the Ethical Committee of the Japan Society of Obstetrics and Gynecology

The Japan Society of Obstetrics and Gynecology (JSOG) has long had an ethical committee within the Board of Directors to discuss issues of reproductive medicine. Since it was reorganized as a separate committee in 1984, the Ethical Committee has been issuing many opinions and guidelines, and requesting members to comply with them (Table 1). These guidelines have undoubtedly had a major influence on the

Table 1 Notifications of Japan Society of Obstetrics and Gynecology (as of March 31, 2004)

- Opinions concerning "in vitro fertilization and embryo transplantation" (October 1983)
- Opinions concerning the research using human sperm, eggs, and preembryo (March 1985, revised January 2002)
- On the "registration and reporting system" concerning the "clinical implementation of in vitro fertilization and embryo transplantation" (March 1986)
- Opinions concerning whether and to what extent the organs from dead fetuses and dead newborns may be used in research (January 1987)
- Opinions on fetal diagnosis of congenital anomalies, in particular chorionic villus sampling in early pregnancy (January 1988)
- Opinions concerning the frozen storage of human preembryos and eggs and the preembryo transplantation (April 1988)
- Opinions concerning the clinical implementation of microscopic insemination (January 1992)
- Opinions concerning the safety of Percoll in X-Y sperm separation (August 1994)
- Opinions concerning "multi-fetal pregnancy" (February 1996)
- Opinions concerning "artificial insemination by donor and sperm donation" (May 1997)
- Opinions concerning "the scope of clinical application of human in vitro fertilization and preembryo transplantation" and "pre-implantation diagnosis" (revised July 5, 1999)
- Opinions concerning surrogate motherhood (April 2003)

practice of many physicians, both members and non-members.

One of the most notable disputes occurred in 1973, when Dr. K, a physician in Miyagi Prefecture, was found to have been mediating the adoption of babies against the related laws. He advised pregnant women, who did not wish to have children for some reason, to avoid abortion, and issued false birth certificates stating that the babies were born to other women who wanted to foster the babies. These babies were registered as the biological children of these women and their husbands. This "true child" mediation case attracted much publicity in the media.

In 1975, JSOG and its regional branch dismissed Dr. K from membership. Consequently, the Miyagi Prefectural Medical

Association revoked the designation under the former Eugenic Protection Act (the responsibility for designating physicians under the former Eugenic Protection Act and the present Maternal Protection Law resides in prefectural medical associations; Article 14 of the Maternal Protection Law). Dr. K was prosecuted, and was fined for violating the Medical Practitioners Law and for making and using counterfeit authentic deeds in 1978. Based on this criminal conviction, his physician's license was suspended in 1979. Dr. K appealed for the withdrawal of this administrative disposition, but the High Court and the Supreme Court dismissed his appeal. However, Dr. K received much sympathy, as his actions were conducted from the standpoint of social justice to save the lives of fetuses (and newborn babies). This prompted the movement toward the creation of the special adoption system, and the legislature for special adoption (e.g., Articles 817-2 to 817-11 of the Civil Code) was enforced in 1988.

There was another old dispute on the long-standing issue of artificial insemination by donor (AID). The first case of the birth of a child by means of AID in Japan took place as early as 1949, and a limited number of facilities subsequently continued the practice of AID. From the beginning, there were arguments both for and against it. While JSOG was considering this issue, it did not express its position for many years. AID had been performed by connivance until JSOG finally made an announcement to permit it in 1997.

In 1986, a controversy was raised by the media coverage that Dr. N in Nagano Prefecture performed multi-fetal pregnancy reduction. The problem of multi-fetal pregnancy arose with the widespread use of in vitro fertilization. At the time, the Association of the Japan Maternity Protection Doctors objected to fetal reduction, but JSOG did not express its opinion. Although JSOG stated later in 1997 that the number of embryo transplants in extracorporeal insemination

should be limited to 3 or less to avoid multi-fetal pregnancy, it withheld judgment as to whether fetal reduction is acceptable or not, and this issue remains unresolved today.

In 1998, the aforementioned Dr. N was reported to have performed in vitro fertilization using donor eggs. JSOG considered it a breach of the Society's guidelines published in 1983, and immediately revoked the membership of Dr. N. The President of JMA supported this decision, but Nagano Medical Association did not revoke the designation under the Maternity Protection Law. Recently, Dr. N promised to observe the Society's guidelines, and his membership was restored.

Among the most recent incidents, Dr. O in Hyogo Prefecture was dismissed from membership of JSOG for conducting sex selection using preimplantation diagnosis which is against the JSOG guideline.

As the above examples indicate, there have been many occasions in which new techniques were used before the Society expressed its position and procedures were performed against the Society's guidelines. JSOG has had major difficulties coping with such problems. While issues related to reproduction pose delicate problems for physicians conducting diagnosis and treatment, even physicians and medical scientists specializing in this field often find it difficult to reach a consensus on these issues. Because the member's affiliation to the Society is voluntary, there are limitations on the ability of the Society to enforce its guidelines. The past experience of JSOG provides many insights that may help improve the capability of other professional associations in resolving ethical issues.

Conclusion

As associations of medical specialists, specialty societies have been playing the role of providing places for research presentation principally for the sake of the advancement of academic study. However, the situation

has changed as a result of the facts that the importance of research ethics has become emphasized and medical societies in clinical fields are now engaged in the system for certified physicians and specialist physicians. Medical Societies achieving a certain level of quality are now entrusted with the responsibility for certifying the qualification of physicians that can announce practice specific specialties. As these societies must guarantee the quality of specialist physicians for the public, they are suddenly being faced with the significant need for ensuring the member's performance in the acquisition of medical knowledge and skills, as well as compliance with ethics.¹

On the other hand, there still remain many problems and issues with regard to the development of the specialist physician system in Japan.² And as exemplified by the issues in reproductive medicine, ethical

problems often pose difficulties in a consensus being reached among members. Questions are also raised over the effectiveness of the professional association's self-imposed regulation in ensuring the compliance with ethical codes. To deal with these problems, various schemes may need to be devised and utilized, such as seeking assistance from third-party specialists outside the medical society. Each society should strive to make itself a transparent organization trusted by the public.

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