

Impact of Gender on In-Hospital Mortality of Patients with Acute Myocardial Infarction Undergoing Percutaneous Coronary Intervention: An Evaluation of the TAMIS-II Data

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Abstract

Object It is a matter of concern that women have higher in-hospital mortality rates than men with percutaneous coronary intervention (PCI), however, it is not yet clear whether significant gender differences exist. We studied the influence of gender on the characteristics and in-hospital mortality among patients with acute myocardial infarction (AMI) undergoing percutaneous coronary intervention (PCI).

Methods We used data from 15 acute care hospitals included in the sample from the Tokai Acute Myocardial Infarction Study II (TAMIS-II), a prospective study of all patients admitted to these hospitals from 2001 to 2003 with a diagnosis of AMI. We abstracted the baseline and procedural characteristics from detailed chart reviews which included not only physician notes but also nursing notes, and a questionnaire which included baseline characteristics, procedural course and in-hospital mortality. Multivariate analysis was performed, controlling for age and other variables which were found to be significantly different between men and women by chi-square test or unpaired t test.

Patients A total of 566 women and 2,048 men were included in the present study.

Results There were gender differences in age, comorbid conditions, smoking status, body mass index, activities of daily livings, heart failure on presentation, duration of stay, angiographic data, transfer to ICU/CCU, and thrombolytic drugs. In univariate analysis, women had a higher in-hospital mortality rate than did men; however, this gender difference disappeared after adjustment for age and other variables.

Conclusion Our study demonstrated that women with AMI who undergo PCI do not have a higher in-hospital mortality rate than men.

Key words: sex, in-hospital death, percutaneous coronary intervention, acute myocardial infarction, Japan

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Introduction

It has been reported in the past decade that female patients who undergo percutaneous coronary intervention (PCI) at the time of presentation with acute myocardial infarction (AMI) have a higher rate of in-hospital death than that of male patients (1-4), but there is limited published data regarding the gender differences. The Tokai Acute Myocardial Infarction Study II (TAMIS-II) is a multi-

hospital prospective observational study performed in central Japan. Using this data set, we performed the present analysis to examine gender differences in the in-hospital mortality of patients undergoing PCI for AMI.

Methods

TAMIS-II (5) is a multi-hospital prospective observational study made in the Tokai region. All of the 3,274 study subjects were adult patients who had been hospitalized for

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newly diagnosed AMI at one of fifteen acute care hospitals between January 2001 and December 2003. Their diagnoses were confirmed by a later chart review. Fifteen hospitals approved the study; all of which were municipal or non-profit general hospitals that provide coronary angiography (CAG) and percutaneous coronary intervention (PCI). Thirteen out of the 15 hospitals that participated in TAMIS (6, 7), the earlier study made in the Tokai region, were included in TAMIS-II. We abstracted the baseline and procedural characteristics from detailed chart reviews, which included both physician notes and nursing notes by physicians or skilled nurses educated to obtain medical records, as soon as possible after the discharge or death of study patients. However, we did not set a time limit on the data collection due to the large number of study patients and the large amount of data. Although the physicians or nurses were asked to fill out questionnaires for accurate documentation, it was time-consuming to conduct chart reviews and some questionnaires were filled out retrospectively. However, because the study protocol was approved by all the participant hospitals, we regarded TAMIS-II as a prospective study. All of the skilled nurses were also abstractors of TAMIS. The questionnaire, which took the same form as that used in TAMIS, has been detailed elsewhere (6, 7). It contained information on baseline characteristics, procedural course, and in-hospital outcomes. The main outcomes were all-cause in-hospital mortality including 7-, 14-, 21-day mortality from the day of admission. A history of various comorbid conditions was recorded as present if it was documented in the medical charts. If no information was documented, then the comorbid condition was recorded as absent.

Of 3,274, 2,614 subjects offered PCI at any time during hospitalization were included in our analysis. We excluded from the analysis one subject whose gender had not been specified. We compared the baseline and procedural characteristics and clinical outcomes between women and men. Statistical analysis was performed using the chi-square test for categorical variables and the unpaired t test for continuous variables. We also performed multivariable logistic regression analysis to identify any independent association between gender and in-hospital death, after adjusting for baseline and procedural factors that differed significantly between women and men. Except for duration of hospital stay, univariate predictors of in-hospital death with a *p* value of less than 0.05 were allowed to enter the model. We present the results as odds ratios and 95% confidence intervals. A *p* value of less than 0.05 was considered to be statistically significant.

Results

We evaluated a total of 566 women and 2,048 men. The women were significantly older than the men (Table 1). The women were more likely to have a history of hypertension, heart failure, or dementia, but they were less likely to have a history of myocardial infarction, smoking, or peptic ulcer

disease. They were also more likely to be dependent in activities of daily livings (ADLs) and more likely to show signs of heart failure on presentation (Killip class ≥ 3 , 37.46% vs. 30.91%; for women and men, respectively) and to present with pulmonary edema. Women had a significantly longer duration of stay than men. There were significant differences between men and women in the location of myocardial infarction or in the number of coronary arteries narrowed.

Fewer women were transferred to the ICU/CCU than men. Women were also less likely to receive thrombolytic drugs (Table 2). Men and women were equally likely to receive acute PCI.

The unadjusted and multivariable-adjusted results of in-hospital mortality are shown in Table 3. Consistent with our previous study using the TAMIS data set (6), women had a roughly two-fold higher in-hospital mortality rate than men, with an unadjusted odds ratio of 1.97 (95% CI, 1.367-2.84). However, after controlling for age, sex was determined not to be a significant independent predictor of in-hospital death, with an adjusted odds ratio of 1.389 (95% CI, 0.942-2.049), nor was sex significantly related to in-hospital death when the in-hospital mortality rate was adjusted for differences in baseline characteristics (adjusted odds ratio of 0.872 (95% CI, 0.451-1.686)).

Discussion

Consistent with the results of TAMIS and other previous studies (1, 2, 6, 8), women were older and showed a greater prevalence of congestive heart failure on presentation. Some studies have demonstrated that these unfavorable factors contribute to poor in-hospital outcomes in women (2, 6, 8). A higher prevalence rate of vasopressors may be due to the higher prevalence of congestive heart failure. However, inconsistent with the TAMIS results (6), women were not more likely to be hypotensive. In addition, we observed an association between prolonged hospital stay and gender in this study. Because women were older than men, the longer length of stay among women might have two explanations. One possible explanation is that rehabilitation periods were prolonged due to longer recovery time from reduced ADLs. Another possible explanation is that early discharge was difficult for women due to increased care needs. Because explanatory data including rehabilitation was not obtained in this study, further research is needed to determine the related factors that account for the differences.

Also, we observed significant differences in the use of thrombolytic drugs. Previous research suggests that elderly patients with AMI are less likely than young patients to be given thrombolytic drugs (9, 10). In the present data, women were significantly older than men; it is possible that physicians hesitated to give thrombolytic drugs to women having a contraindication such as a risk of bleeding.

The present study demonstrates that in-hospital mortality after AMI in patients undergoing PCI was higher among

Table 1. Baseline Characteristics and Clinical Features of the Subjects

	Women (n=566)	%	Men (n=2048)	%	p value
Age (mean±SD)	71.08	±0.41	62.92	±0.24	<.01
Independent ADL	534	94.35	1973	96.34	<.05
Vital signs					
Body temperature (mean±SD)	36.18	±0.07	36.24	±0.02	0.19
Heart rate (beats/min, mean±SD)	79.63	±0.79	78.81	±0.41	0.35
Systolic blood pressure (mmHg, mean±SD)	130.04	±1.24	128.82	±0.97	0.53
Body mass index (kg/m ²)	22.76	±0.18	23.82	±0.09	<.01
Medical history					
Hypertension	287	50.71	838	40.92	<.01
Hypercholesterolemia	112	19.79	368	17.97	0.32
Diabetes	160	28.27	580	28.32	0.98
Previous angina	75	13.25	259	12.65	0.70
Previous heart failure	28	4.95	49	2.39	<.01
Previous myocardial infarction	38	6.71	206	10.06	<.05
Smoking	114	20.14	1293	63.13	<.01
Arrhythmia	21	3.71	114	5.57	0.08
Renal failure	20	3.53	48	2.34	0.12
Cerebrovascular disease	60	10.60	187	9.13	0.29
COPD	3	0.53	21	1.03	0.27
Aortic aneurysm	3	0.53	23	1.12	0.21
Peptic ulcer	25	4.42	211	10.30	<.01
Cancer	27	4.77	83	4.05	0.45
Allergy	24	4.24	116	5.66	0.18
Dementia	11	1.94	14	0.68	<.01
End of life stage	1	0.18	2	0.10	0.62
Clinical course					
Duration of hospital stay (days)	21.49	±21.80	19.17	±17.72	<.01
Shock	111	19.61	375	18.31	0.48
Bleeding	99	17.49	345	16.85	0.72
Killip class ≥ 3	212	37.46	633	30.91	<.01
Pulmonary edema (X-ray)	155	27.39	444	21.68	<.01
Locations of MI (UCG)					
Antero/septal	262	46.29	977	47.71	0.37
Lateral	33	5.83	139	6.79	
Posterior	59	10.42	264	12.89	
Inferior	219	38.69	763	37.26	
Subendocardial	6	1.06	10	0.49	
Others	15	2.65	57	2.78	
UCG-EF(% , mean±SD)	53.28	±0.76	52.65	±0.46	0.50
Number of coronary arteries narrowed					
>75% in AHA classification (Angiographic data)					
1	317	56.01	1230	60.06	<.05
>1	227	40.11	713	34.81	
Left main	3	0.53	35	1.71	<.05

COPD, chronic obstructive pulmonary disease; MI, myocardial infarction; ADL, activities of daily living; UCG, ultrasound-echocardiogram; EF, ejection fraction; AHA, American Heart Association.

women than among men before any adjustments. However, after adjustment for age alone, this gender difference disappeared. Furthermore, we were unable to detect differences after adjustment for other predictors of mortality. Thus, our findings are consistent with the results of TAMIS and other previous studies (2, 3, 11) in suggesting that older age and other baseline variables account for much of the higher in-hospital mortality in women. At least in Japan, according to secondary analysis of the TAMIS and TAMIS-II data set, we could conclude that women with AMI undergoing PCI have a similar in-hospital mortality rate to that of men. However, there is an important difference between TAMIS and TAMIS-II with regard to treatment. In TAMIS (conducted in 1995-1997), stenting was not a common therapeutic strategy for AMI (one-fourth vs. two-thirds, for TAMIS and TAMIS-

II, respectively). It should be taken into consideration that stenting has been shown to significantly improve the survival of patients with AMI (8), which may lead to different outcomes between TAMIS and TAMIS-II populations. Comparing in-hospital mortality between TAMIS and TAMIS-II, we could determine that women have a similar in-hospital mortality rate to that of men after AMI and this relationship has not changed over time.

One possible explanation is that the socio-economic situation peculiar to Japan narrows gender differences in AMI management that influence mortality. For example, in Western countries, some researchers have suggested that female patients' lack of knowledge of AMI symptoms may cause their delay in seeking medical assistance for those symptoms (12). Although our questionnaire included the time

Table 2. Procedural Characteristics of the Subjects

	Women		Men		p value
	(n=566)	%	(n=2048)	%	
Transfer to ICU/CCU	476	84.10	1800	87.89	<.05
Thrombolytics	46	8.13	290	14.16	<.01
Vasopressor	187	33.04	599	29.25	0.08
IABP	103	18.20	357	17.43	0.67
Mechanical ventilation	63	11.13	195	9.52	0.26
Acute PCI	499	88.16	1848	90.23	0.15
Stent placement	374	66.08	1418	69.24	0.15

ICU/CCU, intensive care unit/coronary care unit; CAG, coronary angiography
PCI, percutaneous coronary intervention; IABP, intra-aortic balloon pump.

Table 3. Comparison of In-hospital Mortality between Women and Men

	No. of in-hospital deaths				Odds ratio unadjusted		Odds ratio adjusted for age		Odds ratio adjusted for age and other variables*	
	Women (n=566)	%	Men (n=2048)	%	95%CI	95%CI	95%CI	95%CI		
Total	47	8.30	90	4.39	1.97	1.37-2.84	1.39	0.94-2.05	0.87	0.45-1.69
At one week	23	4.06	42	2.05	2.02	1.21-3.39	1.50	0.87-2.60	1.05	0.35-3.13
At two weeks	35	6.18	54	2.64	2.43	1.57-3.76	1.85	1.16-2.94	1.14	0.48-2.75
At three weeks	37	6.54	64	3.13	2.17	1.43-3.29	1.60	1.03-2.49	0.87	0.38-2.01

*Controlling for age, ADL, body mass index, hypertension, previous heart failure, previous myocardial infarction, smoking, peptic ulcer, dementia, pulmonary edema, angiographic results, transfer to ICU/CCU, thrombolytics, Killip score.

from onset of chest pain to coronary angiography, we had a lot of missing laboratory data and failed to obtain a precise analysis of the difference between female and male patients.

Further studies are needed to determine the extent of the differences in the socio-economic situations between Japan and Western countries.

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ORIGINAL AND CLINICAL EPIDEMIOLOGY
CLINICAL PRACTICE AND INQUIRY

Factors associated with use of percutaneous coronary intervention among very elderly patients with acute myocardial infarction: Lessons from the Tokai Acute Myocardial Infarction Study (TAMIS)

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Background: Although prior studies have shown that older patients with acute myocardial infarction (AMI) are less likely to receive percutaneous coronary intervention (PCI) than younger patients, the predictors of PCI use among the very elderly are unknown. We identified the predictors using data from the Tokai Acute Myocardial Infarction Study (TAMIS), a multi-hospital retrospective study performed in Japan.

Methods: All of the study subjects were patients hospitalized for newly diagnosed AMI at one of 13 acute care hospitals between January 1995 and December 1997. We abstracted the baseline and procedural characteristics from detailed chart reviews. Multivariate analysis was performed, controlling for the variables found to be significantly different between AMI patients aged 75 and over with and without PCI by χ^2 test or unpaired Student's *t*-test. We evaluated a total of 207 patients with PCI and 201 without PCI.

Results: The univariable analysis abstracted four predictors: age, previous heart failure, hospital and maximum creatine phosphokinase. After multivariable adjustment, age (odds ratio [OR] = 0.89) and previous heart failure (OR = 0.36), and number of hospital beds (351–550, OR = 0.38; ≥ 551 , OR = 0.17, respectively) were still independent predictors.

Conclusions: Our results suggest that advanced age itself and number of hospital beds are important predictors of underuse of PCI among very elderly patients.

Keywords: acute myocardial infarction, percutaneous coronary intervention, predictor, very elderly patient(s).

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Introduction

The introduction of new mechanical techniques for revascularization has been shown to significantly improve the survival of patients with acute myocardial infarction (AMI).¹⁻⁵ As AMI is a major cause of death among the elderly, these techniques have emerged as the preferred treatment even in elderly AMI patients.^{1,6-8} However, prior studies have shown that older patients with acute coronary ischemia are less likely than younger patients to receive pharmacological and thrombolytic therapies or percutaneous coronary intervention (PCI).^{1,9-13} Although Sloan *et al.*¹⁴ reported that the presence of dementia had an effect on the underuse of PCI, to our knowledge, there are few studies describing predictors of the underuse of PCI among elderly patients with acute myocardial infarction.

The Tokai Acute Myocardial Infarction Study (TAMIS) is a multi-hospital retrospective study performed in the Tokai region (Central Japan). All of the study subjects were adult patients who had been hospitalized for newly diagnosed AMI at one of 13 acute care hospitals between January 1995 and December 1997. We identified predictors using the TAMIS dataset. Our findings will help to improve in-hospital management and outcomes in elderly AMI patients.

Methods

Study population

We used data from TAMIS, a multi-hospital retrospective study in the Tokai region (Central Japan). All 2020 study subjects were adult patients who were hospitalized for newly diagnosed AMI at 13 acute care hospitals between January 1995 and December 1997. The diagnosis of AMI was based on the review of medical records of patients hospitalized with a primary or secondary discharge diagnosis of AMI, but not on the time from onset of myocardial infarction. With regard to the recruitment of participant hospitals, we first selected the major hospitals that had an interchange of personnel with Nagoya University hospital, where we are based. Second, we sent a prospectus about our research to selected hospitals. Thirteen hospitals then approved the study. The 13 hospitals were municipal or non-profit general hospitals that could provide coronary angiography (CAG) and PCI.

Data collection

We abstracted the baseline and procedural characteristics from detailed chart reviews that included both physician notes and nursing notes by skilled nurses

educated in obtaining medical records. The questionnaire contained information on age, sex, medical history, independent activities of daily living (ADL), body temperature, heart rate, systolic blood pressure, body mass index, clinical course (chest pain, shock, all sorts of bleeding including major bleeding and puncture site bleeding during hospitalization, pulmonary edema, Killip score, death), locations of myocardial infarctions (MI), Q-wave MI, maximum creatine phosphokinase (CPK) and ejection fraction. Pulmonary edema was confirmed by X-ray examination. Also, the location of the MI and ejection fraction was confirmed by an ultrasound-echocardiogram examination. A medical history was recorded as present if documented in the medical charts. In particular, dementia was also recorded as present if cognitive impairment was recognized or ascertained before admission or during hospitalization. However, the severity of dementia was not assessed in the present study.

Statistical analysis

Out of 444 patients age 75 years and older, we excluded eight subjects whose data was missing from the analysis. We also excluded 28 subjects who received thrombolytics. We compared the baseline and procedural characteristics and clinical outcomes between the patients receiving conservative therapy without PCI (CT group) and those receiving PCI (PCI group). Statistical analysis was performed using the χ^2 test for categorical variables and the unpaired Student's *t*-test for continuous variables.

We also performed multivariable logistic regression analysis to identify the independent predictors of PCI use after adjusting for baseline characteristics, medical history and clinical features factors that differed significantly between the two groups. Univariate predictors of PCI use with a *P*-value less than 0.05 were allowed to enter the model. Body temperature and heart rate were not included as controlling variables because they are not directly responsible for PCI use and because the mean values of the two groups were within normal range (Table 1). Bleeding was not included as a controlling variable because puncture site bleeding during hospitalization might be included among the PCI group. The ejection fraction was not included as a controlling variable because there were a lot of missing data (36.0%). Because bed capacity may have an influence on the cardiac care policies of the study hospitals, the number of hospital beds was included as a possible predictor. We present the results as odds ratios (OR) and 95% confidence intervals (95% CI). A *P*-value less than 0.05 was considered statistically significant. All statistical tests were performed using Statview-J5.0.

Table 1 Baseline characteristics and clinical features of the subjects

	PCI (n = 207)	%	CT (n = 201)	%	P-value
Female	97	46.86	105	52.24	NS
Age (mean \pm SD)	79.36	3.78	81.36	4.30	<0.01
Independent ADL	178	85.99	175	87.06	NS
Body temperature (mean \pm SD)	35.95	0.86	36.13	0.84	<0.05
Heart rate (beats/min, mean \pm SD)	79.78	19.86	85.75	23.29	<0.05
Systolic blood pressure (mmHg, mean \pm SD)	128.67	26.96	125.09	30.32	NS
Body mass index (kg/m ² , mean \pm SD)	21.84	3.59	22.20	4.40	NS
Medical history					
Hypertension	78	37.68	88	43.78	NS
Diabetes	37	17.87	28	13.93	NS
Previous angina	38	18.36	31	15.42	NS
Previous heart failure	11	5.31	25	12.44	<0.01
Previous myocardial infarction	23	11.11	21	10.45	NS
Smoking	50	24.15	43	21.39	NS
Cerebrovascular disease	24	11.59	34	16.92	NS
Peptic ulcer	22	10.63	13	6.47	NS
Dementia	10	4.83	8	3.98	NS
Clinical course					
Chest pain	50	24.15	52	25.87	NS
Shock	51	24.64	57	28.36	NS
Bleeding	38	18.36	15	7.46	<0.01
Killip class >1	96	46.38	113	56.22	NS
Pulmonary edema (X-ray)	72	34.78	84	41.79	NS
In-hospital death	34	16.43	64	31.84	<0.01
Locations of MI (UCG)					
Antero/septal	96	46.38	87	43.28	NS
Others	111	53.62	108	53.73	
Q-wave MI	36	17.39	30	14.93	NS
UCG-EF(%), mean \pm SD)	55.51	14.72	50.49	15.45	<0.05
Max CPK (IU/L, mean \pm SD)	1681.82	1548.50	1160.2	1254.84	<0.01
Number of hospital beds					
\leq 350 (five hospitals)	55	26.57	16	7.96	<0.01
351-550 (four hospitals)	73	35.27	54	26.87	
\geq 551 (four hospitals)	79	38.16	131	65.17	

ADL, activity of daily living; CT, conservative therapy; EF, ejection fraction; MI, myocardial infarction; PCI, percutaneous coronary intervention; UCG, ultrasound-echocardiogram.

Results

There were 207 patients in the PCI group and 201 in the CT group. The patients in the CT group were significantly older than those in the PCI group (Table 1). The CT patients were more likely to have a history of heart failure, a higher body temperature and heart rate, and to present with bleeding. The CT patients had a higher in-hospital mortality rate than the PCI patients. There was no significant difference in the presence of dementia between the two groups. The CT patients frequently had a lower maximum CPK value and ejection fraction. There was a significant difference in the number of hospital beds between the two groups.

The patients of the PCI group were more often transferred to the intensive care unit/coronary care unit (ICU/CCU) than those of the CT group (Table 2). They were also more likely to receive intra-aortic balloon pumps (IABP).

A multiple regression analysis was carried out to examine the significant predictors of PCI use more systematically while controlling for statistically significant predictors of outcome. The multivariable-adjusted results of PCI use are shown in Table 3. Three variables were significant determinants of PCI use: age (OR = 0.89) previous heart failure (OR = 0.36) and the number of hospital beds (351-550, OR = 0.38; \geq 551, OR = 0.17, respectively).

Table 2 Procedural characteristics of the subjects

	PCI (n = 207)	%	CT (n = 201)	%	P-value
Transfer to ICU/CCU	175	84.54	146	72.64	<0.01
Thrombolytics	19	9.18	-	-	-
Vasopressor	95	45.89	97	48.26	NS
IABP	35	16.91	16	7.96	<0.01
Mechanical ventilation	29	14.01	34	16.92	NS

CT, conservative therapy; IABP, intra-aortic balloon pump; ICU/CCU, intensive care unit/coronary care unit; PCI, percutaneous coronary intervention.

Table 3 Independent variables predicting receipt of PCI

Independent variable [†]	Adjusted odds ratio	95%CI
Age	0.86	0.81–0.92
Previous heart failure	0.15	0.04–0.56
Number of beds (351–550) [*]	0.38	0.19–0.78
Number of beds (551–) [‡]	0.17	0.08–0.33

[†]Additional variables which did not significantly contribute to the regression model include max CPK and hospital. ^{*}Versus number of beds (≤ 350).

Discussion

Clinical guidelines strongly endorse the use of PCI in nearly all patients without an age limit who have experienced an AMI without having specific contraindications.^{7,15} Despite these guidelines, some researchers have found that elderly patients with AMI are less likely to receive PCI.^{1,9,11} These findings suggest substantial missed opportunities for the potential benefit that elderly patients with AMI may obtain from catheter-based intervention. The main purpose of this analysis is to detect the predictors for the withholding of PCI.

Baseline and procedural characteristics of the study population

We found that the patients of the CT group tended to be older, which is consistent with the above-mentioned previous studies.^{9,16} Although they showed a lower maximum CPK, CT patients showed a poor left ventricle ejection fraction. A possible reason for this paradoxical result is that patients who fail to visit a hospital immediately after onset tend to be treated conservatively, and their CPK value on admission was less than the maximum value. Also, it is possible that the lower ejection fraction was due to the delayed admission or higher prevalence of previous heart failure.

Our results demonstrate that in-hospital mortality after AMI in very elderly patients not receiving PCI was higher than in those who received it. A previous study reported that primary PCI has a beneficial effect on the

in-hospital mortality of elderly patients admitted with AMI, even very elderly patients,¹⁷ which offers a good explanation of our results. However, our results should be interpreted with caution because the time from onset to hospital admission was not investigated in our study, and because the patients who failed to visit a hospital immediately after onset tended to be in the CT group and to have an unfavorable prognosis. Although Sloan *et al.*¹⁴ reported that the presence of dementia had an effect on the underuse of PCI, our results did not show this.

In our data, there were significant differences in the procedural characteristics between patients with and without PCI. We detected significant differences in the transfer to ICU/CCU or the use of IABP. Because the therapeutic options may be strongly related to an aggressive treatment approach including PCI, it is natural that patients undergoing PCI were more likely to be transferred to the ICU/CCU or to be given IABP than those who were conservatively treated.

Predictors of PCI use among very elderly patients

As mentioned above, the univariable analysis abstracted four predictors: age, previous heart failure, number of hospital beds and maximum CPK. However, after multivariable adjustment, age, previous heart failure and number of hospital beds were still independent predictors. Thus, our findings are consistent with a previous study¹⁶ in suggesting that advanced age accounts for much of the lower use of PCI in elderly patients with

AMI, even those aged 75 and over. The use of age as an indicator of benefit of care is imprecise, in that elderly persons differ appreciably in physical and mental status and in life expectancy. In addition, wide variation in the likelihood of receiving PCI between hospitals suggests a need for better-standardized methods for managing very elderly patients admitted to hospitals with AMI. Because a byproduct of the aging of the population has been an increase in the number of elderly patients with AMI,^{11,12,18} we hypothesize that physicians increasingly need to manage various clinical problems of very elderly patients with AMI in addition to the improvement of mortality. However, it is currently difficult to adequately meet the demand for clinical guidelines for geriatric cardiology.^{11,19-21}

The present study adds to a growing body of evidence indicating a negative relation between previous heart failure and PCI use. To explain the reason for the relation, we conducted additional analysis by comparing patients with a previous history of heart failure to those without it. The results showed that patients with a previous history of heart failure were more likely to present with shock ($P < 0.05$, χ^2 test) and pulmonary edema ($P < 0.01$, χ^2 test) than those without it (data not shown). Although there were no significant differences in the presence of a poor clinical condition between patients with and without PCI, we may attribute the lower use of PCI to a higher prevalence of a poor clinical condition such as shock or pulmonary edema caused by a previous heart failure. However, we cannot fully explain why there is a negative relation between previous heart failure and PCI use, because we did not obtain the ejection fraction of all of the patients in this study.

Finally, there were several important limitations of the present study. First, the data were collected 1995-1997. The diffusion of medical technology (e.g. stenting) could have led to different results if the study had been conducted more recently. In other words, if the use of technology had been rapidly expanding during the study period, it is possible that more very elderly patients on the margin would have received these procedures, mitigating the differences among very elderly patients. Second, due to the small number of patients and limited study settings, our study patients may not be representative of the general population. Finally, our database does not always capture the full extent of the study subjects' characteristics and clinical course; some omitted characteristics could contribute to PCI use, especially the time from onset of MI to admission or the socioeconomic status of each patient.

Conclusions

Using TAMIS data, we identified the predictors of PCI use among very elderly patients with AMI. Our results

suggest that advanced age, previous heart failure and number of hospital beds are significant predictors of underuse of PCI. Because advances in the treatment of AMI have improved the survival of elderly patients with AMI, the use of age or number of hospital beds as an indicator of benefit of care is imprecise. There is a need for clinical practice guidelines for geriatric cardiology.

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ORIGINAL ARTICLE: NAGAYA, M. HIRAKAWA
PALLIATIVE AND END-OF-LIFE CARE

Non-medical palliative care and education to improve end-of-life care at geriatric health services facilities: A nationwide questionnaire survey of chief nurses

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Background: Geriatric health services facilities (GHSF) are expected to assume a growing role in caring for the dying elderly. However, research in this area has so far been scant. The purpose of the present study is to reveal the status of non-medical palliative care and staff education aiming at improving and enhancing end-of-life care at GHSF.

Methods: The subjects were 2876 chief nurses of GHSF. Data was collected through a mailed questionnaire in 2003. The questionnaire covered the following: (i) staff perception of end-of-life care policies; (ii) staff education; and (iii) available non-medical care. To evaluate the factors correlated with end-of-life care policies at GHSF, we divided the facilities into two groups.

Results: We analyzed the answers collected from 313 facilities with a progressive policy toward end-of-life care (PP group) and 818 with a regressive policy toward it (RP group). It was found that staff training was conducted more frequently among PP facilities. Generally, nurses in the PP facilities were more confident that they could provide comprehensive on-site end-of-life care and grieving support, but did not feel so sure about their ability to provide better end-of-life environments for dying residents and family by organizing outside support from voluntary and/or governmental organizations and religious organization for healing and to pursue appropriately a written follow-up communication with the bereaved family.

Conclusions: Our results suggest that providing GHSF staff with education about end-of-life issues or setting up collaboration with the outside is an important factor to enhance overall end-of-life care at these facilities.

Keywords: education, elderly, end-of-life care, long-term care facilities, palliative care.

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Introduction

While aging of the population, preferences of elderly patients and rising health care costs have been ongoing, long-term care facilities are becoming a notable site of death in Japan.¹ Therefore, end-of-life care of the elderly at long-term care facilities has become a serious issue of discussion.

Geriatric health services facilities (GHSF) are public long-term care facilities (which include nursing homes, geriatric health services facilities and geriatric hospitals) covered by public insurance.² GHSF provide nursing care and rehabilitation services to enable the elderly who do not need to be hospitalized to return home, and thereby are positioned intermediately between nursing homes and geriatric hospitals (<http://www.roken.or.jp/english.htm>). Thus, GHSF staff are not prepared for end-of-life care, and provision of quality end-of-life care to GHSF residents therefore poses a challenge.

However, it was reported that not many clients and their family caregivers want to go back to their homes after discharge from GHSF due to lack of social resources.³ As a result, it is anticipated that GHSF will be a death site and assume a growing responsibility in caring for the dying elderly in near future. A national consensus on reforming the end-of-life care system at long-term care facilities such as GHSF is needed.⁴

At present, there is only limited information about the current state of end-of-life care and related education at long-term care facilities. In order to facilitate discussions on the issue of end-of-life care among GHSF and relevant authorities, the present study examines current practices and staff education at GHSF and outlines a number of steps to improve end-of-life care for residents from the standpoint of chief nurses.

Methods

Study sample

The study covered 2876 GHSF, which belonged to the Japan Association of Geriatric Health Services Facilities as of November 2003 and respondents were chief nurses who were assumed to know the services provided at their facilities, such as direct care and staff education.

Research content

Data were collected through a mailed, self-reported and structured questionnaire. The questionnaire covered the following: (i) staff perception of end-of-life care policies; (ii) staff education; and (iii) available non-medical physical, psychosocial or spiritual care support including bereaved care. Due to the limited research data available concerning end-of-life care at GHSF, the questionnaire was designed through interviews with

several leading members of the Japan Association of Geriatric Health Services Facilities. As for non-medical care support, we chose 19 key items based on a review of previous published works and experts' opinions (see Table 1).

Data analysis

To evaluate the factors correlated with end-of-life care policies at GHSF, we divided the GHSF into two groups according to their end-of-life care policies: GHSF with a progressive policy toward end-of-life care (PP group) and GHSF with a regressive policy toward end-of-life care (RP group). The GHSF was assigned to the PP group when a reply was "will offer" regarding end-of-life care policy. If a reply was "will not offer" or "unknown" the GHSF was regarded as RP group. We then compared the characteristics of the two policy groups. We analyzed the data using Statview-J5.0 and compared the group differences using the unpaired Student's *t*-test and the χ^2 test. $P < 0.05$ were considered to be significant.

Results

Of the 2876 subjects sent the questionnaire, 1324 responded producing a response rate of 46.0%. We excluded 193 GHSF that failed to provide data on their policies in responding to the questionnaire. Therefore, we analyzed 313 PP facilities and 818 RP facilities in the present study.

Table 2 details the types of end-of-life care training and education that staff received. Three-quarters of PP facilities and one-third of RP facilities provided education, most frequently focused on the following: residents' living will, communication skills, progressive clinical course of advanced diseases and accompanying symptoms, physical care, and psychological support to patients and families. Staff training was found to be more frequent among PP facilities.

Table 1 lists the optional non-medical end-of-life care services and grieving support assistance available at the facilities. Overall, the majority of subjects responded that their facilities were prepared to provide physical, psychological or social care; however, the provision of spiritual care or grieving support for the bereaved family was confirmed by very few GHSF. Generally, PP facilities were more confident that they could provide comprehensive on-site end-of-life care and grieving support, but did not feel so sure about their ability to provide better end-of-life environments for dying residents and family by organizing outside support from voluntary and/or governmental organizations and religious organization for healing, and to pursue appropriately a written follow-up communication with the bereaved family.

Table 1 Non-medical end-of-life care services available at facilities

Variables	PP (<i>n</i> = 313)		RP (<i>n</i> = 818)		<i>P</i> -value
	Number	%	Number	%	
Physical					
Touch	268	85.62	515	62.96	<0.01
Get close	229	73.16	399	48.78	<0.01
Massage	183	58.47	368	44.99	<0.01
Support comfortable posture	295	94.25	573	70.05	<0.01
Others	35	11.18	38	4.65	<0.01
Psychological/Social					
Touch	240	76.68	478	58.44	<0.01
Get close	228	72.84	392	47.92	<0.01
Massage	163	52.08	329	40.22	<0.01
Ask user's wish	252	80.51	476	58.19	<0.01
Ask family's wish	284	90.73	468	57.21	<0.01
Provide good environment	132	42.17	312	38.14	NS
Encourage family participation	215	68.69	411	50.24	<0.01
Provide family with information	210	67.09	316	38.63	<0.01
Get support from the outside					
Municipalities	33	10.54	116	14.18	NS
Communities and voluntary organizations	47	15.02	184	22.49	<0.01
Others	4	1.28	6	0.73	NS
Spiritual					
Heal religiously	17	5.43	78	9.54	<0.05
Others	11	3.51	27	3.30	NS
Grief care for the bereaved family					
Overall	106	33.87	140	17.11	<0.01
Telephone	50	15.97	66	8.07	<0.01
Letters	14	4.47	25	3.06	NS
Others	47	15.02	59	7.21	<0.01

PP, progressive policy; RP, regressive policy.

Table 2 Staff education concerning end-of-life care

Variables	PP (<i>n</i> = 313)		RP (<i>n</i> = 818)		<i>P</i> -value	
	Number	%	Number	%		
Staff education concerning EoL content	Present	237	75.72	305	37.29	<0.01
	Physical care	174	55.59	178	21.76	<0.01
	Mental support for family	174	55.59	178	21.76	<0.01
	tiology/symptoms	169	53.99	177	21.64	<0.01
	Communication skills	166	53.04	160	19.56	<0.01
	Mental support for dying patients	154	49.20	180	22.00	<0.01
	Living will	138	44.09	159	19.44	<0.01
	Technical terms	51	16.29	66	8.07	<0.01
	Social problems	50	15.97	62	7.58	<0.01
	Legal system	27	8.63	43	5.26	<0.01
	Domestic and foreign affairs	43	13.74	62	7.58	<0.01
	Others	3	0.96	18	2.20	NS

EoL, end-of-life.

Discussion

The present study is actually the first trial to provide an overview of the current state of non-medical end-of-life care for elderly residents at long-term care facilities in Japan. It reveals the need for providing comprehensive end-of-life care at these facilities by highlighting the differences in level of care and staff education between PP and RP facilities. Availability of quality end-of-life care is related with appropriate end-of-life policy and staff education, which suggests that staff education and end-of-life care policy are important to enhance end-of-life care at long-term care institutions.

The positive relationship between staff education and end-of-life care policy may be in part explained by the fact that the decision to provide end-of-life care prompted GHSF managers to implement staff education programs. Our results suggested a need for further staff education on end-of-life care in both of the two policy groups. As much as a quarter of PP facilities confirmed they did not provide end-of-life care education. Staff educational programs can greatly improve the quality of end-of-life care at GHSF, by targeting precisely the main providers of direct care, including nurses and nursing assistants.^{1,5,6} Moreover, staff education works to produce job satisfaction.⁷ Previous studies have called attention to the lack of end-of-life care education for non-medical professionals.⁷ Thus, we need to develop effective educational programs for non-medical professionals regarding end-of-life care.

Meanwhile, because very few people experience death at home nowadays, non-medical staff lacking training may be terribly shocked when they face a death of a resident.¹ Still, at the very least, death education not only improves the quality of care provided by the staff but also supports their own mental health.¹ In our results (data not shown), 186 RP facilities (22.7%) provided end-of-life care up to the last moment at their own facilities. This suggests that GHSF staff possibly experience the death of resident at RP facilities, and that staff education concerning end-of-life is also necessary for GHSF with a regressive policy toward end-of-life care.

As for non-medical care, few GHSF of the two groups reported that social or spiritual assistance and bereaved care were available at their facilities. Although the benefits of help from the outside have not been examined frequently in the long-term care published work, Zimmerman *et al.*⁸ have suggested that insufficient outside help represents a barrier to the provision of good end-of-life care. Palliative care is the total care of end-of-life patients,⁷ and includes social and spiritual aspects of care and families' bereavement.^{9,10} Because palliative care is wide-ranging, it is important to increase collaboration with the outside such as voluntary organizations. As an explanation for the insufficient collaboration with the outside, a previous study has pointed out the pref-

erence of long-term care staff to provide end-of-life care throughout the dying process of a resident by themselves.⁸ Also, in comparison with Western countries, it is possible that GHSF clients do not want to receive outside non-medical assistance including spiritual care in Japan. However, because it is difficult to determine the reasons from this study, we need to perform a narrative study to gather further in-depth data.

Meanwhile, the availability of physical and psychological care was closely related to policy. Greater knowledge in these areas of care is needed to enhance and improve end-of-life care at GHSF;¹¹ this was confirmed by our results showing that physical or psychological care factors were frequently included in staff education programs. Although we did not investigate other possible factors that may shape particular policies towards end-of-life care provision such as staffing shortages, financial hardship or limitations in medical resources,^{11,12} we did confirm that education was essential to quality improvement in end-of-life care at GHSF. Staff educational programs emphasizing quality end-of-life care for elderly residents in long-term care settings should be developed.

Conclusions

We conducted the present questionnaire study to clarify the differences in end-of-life care options and staff education between GHSF with progressive and regressive policies toward end-of-life care provision. Our results suggest that providing education about end-of-life issues, especially about physical and psychological care, among GHSF staff is an important factor to improve and increase overall end-of-life care. The results also suggest that it is important to increase collaboration with the outside such as voluntary organizations to enhance end-of-life care at GHSF. Additional studies and staff educational programs emphasizing quality end-of-life care for elderly residents in long-term care settings should be undertaken.

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(原 著)

終末期医療・看護に関する授業と医学生の死生観との関係

平川 仁尚¹⁾ 益田雄一郎¹⁾ 葛谷 雅文¹⁾ 井口 昭久¹⁾ 植村 和正²⁾

要約 目的：医学教育において、医学生に死生観の形成の場を提供することが必要であるが、終末期や死に関する授業が医学生の死生観にどのような影響を与えているかはいまだ明らかではない。本研究は、終末期医療・看護の授業の有無と医学生の死生観との関連を明らかにすることを目的としている。**方法：**2004年3月に、全国の医学科79校の教育責任者宛てに、5年生もしくは6年生全員に対する終末期医療・看護に関するアンケート調査の依頼状と調査票を送付した。調査時期は2004年4月から2006年3月までとし、実施方法は各校に任された。調査内容は、学生の属性、家族との同居の有無、信仰している宗教の有無、家族の信仰している宗教の有無、ペットの死の経験、家族の死の経験、親しい友人の死の経験、近親者の終末期に立ち会った経験、大学入学前に死に関する学習をした経験、平井らの開発した死生観尺度、であった。さらに、終末期医療・看護に関する授業と学生の死生観との関係を検討するため、入学後に選択・必修を問わず授業を受けた学生とそうでない学生との2群に分け、比較を行った。**結果：**調査協力の承諾が得られたのは16校(20.3%)で、協力校の入学定員合計は1,510人であった。その67.4%にあたる1,017人の学生から回答を得た。授業を受けた学生は受けていない学生に比べて【死後の世界観】・【死への関心】・【寿命観】の得点が高い傾向がみられた。授業の有無を従属変数としたロジスティック回帰分析を行った結果、それらの傾向はみられなくなり、【死への不安・恐怖】のみ授業を受けた群で得点が高い傾向がみられた。**結論：**死への不安の増加は死に対する認識が深まった結果と解釈できるが、医学科で行われている終末期医療・看護に関する授業が医学生の死生観形成に十分に影響を与えているとは必ずしもいえない。

Key words：終末期ケア、教育、死、死生観、医学生

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緒 言

わが国において、終末期医療のあり方をめぐる問題が社会的関心事となっている。良い終末期医療を行うためには、患者を身体的・精神的・社会的・スピリチュアル、すなわち全人的に診ることが必要であるといわれている。そのため、医師自身の死生観すなわち生と死に対する考え方が終末期医療の場では重要な意味を持つ。医学教育において、医学生に死生観の形成の場を提供することが必要であるが、わが国では、諸外国に比べて、終末期や死に関する科目を独立科目として設置している医学科は少ない^{1,2)}。しかも、そうした科目の存在が医学生の死生観にどのような影響を与えているかは、いまだ十分な検討がなされているとは必ずしも言えない。

本研究は、平井らが開発した死生観尺度を用いて、終末期医療・看護の授業の有無と医学生の死生観との関連を明らかにすることを目的としている。尚、本調査は日本老年医学会倫理委員会の委託を受けて実施された。

方 法

2004年3月に、全国の医学科79校の教育責任者宛てに、5年生もしくは6年生全員に対する終末期医療・看護に関するアンケート調査の依頼状と調査票を送付した。5、6年生を対象としたのは、臨床に関する系統的講義が終了している時期であると考えたためである。調査協力の承諾が得られたのは16校で、2006年4月時点での入学定員は合計1,510人であった。尚、各校の学生数の調査を行わなかったため、回収率を算出しなかった。調査時期は2004年4月から2006年3月までの間とし、実施方法は各校に任された。

調査内容は、学生の属性、家族との同居の有無、信仰している宗教の有無、家族の信仰している宗教の有無、ペットの死の経験、家族の死の経験、親しい友人の死の

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表1 各医学科の入学定員と回答者数

学校	入学定員 (人)	回答者数 (人)	(%)
合計	1,510	1,017	67.4
A	90	106	117.8
B	90	98	108.9
C	95	90	94.7
D	90	81	90.0
E	100	80	80.0
F	100	73	73.0
G	100	71	71.0
H	110	77	70.0
I	95	60	63.2
J	100	62	62.0
K	80	49	61.3
L	80	45	56.3
M	90	47	52.2
N	100	45	45.0
O	95	23	24.2
P	95	10	10.5

経験、近親者の終末期に立ち会った経験、大学入学前に死に関する学習をした経験、大学入学後に終末期医療・看護をテーマにした授業を受けた経験、平井らの開発した死生観尺度、であった。平井らの死生観尺度³⁾は、日本人の死生観を測定するための簡便な尺度で、①死後の世界観、②死への恐怖・不安、③解放としての死、④死からの回避、⑤人生における目的意識、⑥死への関心、⑦寿命観、という7因子から構成されている。各因子とも得点が高いほど態度が強く表れていることを意味する。

終末期医療・看護に関する授業と学生の死生観との関係を検討するため、入学後に選択・必修を問わず終末期医療・看護をテーマにした授業を受けた学生とそうでない学生との2群に分け、比較を行った。尚、授業を受けたかどうか不明な学生は解析から除外した。比較にはカイ2乗検定もしくは対応のないt検定を用い、 $P < 0.05$ を統計学的に有意差があるものとした。さらに、授業の有無が死生観にどの程度関与しているかを評価するため、授業の有無を従属変数、学生の属性、家族との同居の有無、信仰している宗教の有無、家族の信仰している宗教の有無、ペットの死の経験、家族の死の経験、親しい友人の死の経験、近親者の終末期に立ち会った経験、大学入学前に死に関する学習をした経験を調整変数としたロジスティック回帰分析を行った。データの解析にはStatview 5.0Jを用いた。

成績

表1に各医学科における回収状況を示す。入学定員数に対する回答者数の割合が10%と低い学校はあったが、全体としてはその割合は約70%であった。表2に学生の背景について示す。医学生の実年齢は、授業を受けた群で23.8歳、受けていない群で24.0歳であり、両群で統計学的有意差はみられなかった。授業を受けた群で、女性である、家族と同居していない、ペットの死を経験している、大学入学前に死に関して授業などで学習した経験がある割合が大きかった。

また、授業を受けたかどうか死生観尺度得点に与える影響を因子ごとに分析を行ったところ(表2)、授業を受けた学生は受けていない学生に比べて【死後の世界観】・【死への関心】・【寿命観】の得点が高い傾向がみられた。関連要因を調整変数としてロジスティック回帰分析を行った結果、それらの傾向はみられなくなり、【死への不安・恐怖】のみ授業を受けた群で得点が高い傾向がみられた(オッズ比1.18; 95%CI 1.02~1.36)(表3)。

考察

それぞれの医学科における回収率は高かったが、調査協力校は全国の医学科の約20%であったため、今回の結果は必ずしも全国の医学科および医学生の実態を正確に反映していない。しかし、全国の医学生を対象にした先行調査はほとんどないため、この分野の教育カリキュラムのあり方を議論するための貴重なデータとなり得ると考える。

今回の結果では、終末期医療・看護に関する授業を受けた学生は、そうでない学生と比べて、女性が多く、ペットの死の体験や大学入学前に終末期に関する学習をした経験を持つ者が多かった。こうした違いが終末期医療・看護に関する授業を受ける動機付けになった可能性はあるが⁴⁾、我々が実施した先行研究の結果では全ての医学科において終末期医療・看護に関する授業は必修であったこと¹⁾、女性が男性に比べて出席率が高い可能性があること、授業を受けた学生は大学入学前から終末期に関する関心が高かったため入学前に自己学習していた可能性があること、などを考慮して結果を注意深く解釈する必要がある。また、今回の結果では大学入学前に終末期医療・看護に関する学習の機会を得ていたのは学生全体の半数以下であった。糸島⁵⁾はわが国において大学入学までに行われる死の教育は十分ではないとしており、今回の結果もこれに矛盾しない。

終末期医療・看護に関する授業を受けたかどうか死

表2 医学生の背景

	授業あり (N = 740)		授業なし (N = 264)		p
	n	%	n	%	
年齢 (歳 ±SD)	23.8 ± 2.4		24.0 ± 2.8		NS
性別 (女)	367	49.6	85	32.2	< 0.01
家族との同居	175	23.6	86	32.6	< 0.01
信仰している宗教 (本人)	61	8.2	21	8.0	NS
信仰している宗教 (家族)	187	25.3	62	23.5	NS
ペットの死の経験	494	66.8	164	62.1	< 0.05
家族の死の経験	455	61.5	167	63.3	NS
友人の死の経験	240	32.4	72	27.3	NS
死にゆく近親者の世話をした経験	173	23.4	52	19.7	NS
終末期に関する学習 (入学前)	374	50.5	77	29.2	< 0.01

表3 医学生の死生観

尺度内容	授業あり (N = 740) 得点 ±SD	授業なし (N = 264) 得点 ±SD	オッズ比 Crude	95%CI	オッズ比 Adjusted	95%CI
死後の世界観	2.88 ± 1.04	2.63 ± 1.09	1.24	1.09 ~ 1.42	1.10	0.95 ~ 1.27
死への恐怖・不安	3.26 ± 1.04	3.15 ± 1.11	1.11	0.97 ~ 1.27	1.18	1.02 ~ 1.36
解放としての死	2.14 ± 0.94	2.01 ± 0.94	1.16	1.00 ~ 1.36	1.11	0.94 ~ 1.30
死からの回避	1.98 ± 0.83	2.10 ± 0.90	0.85	0.72 ~ 1.00	0.95	0.80 ~ 1.14
人生における目的意識	3.09 ± 0.86	3.01 ± 0.93	1.12	0.95 ~ 1.31	1.07	0.90 ~ 1.27
死への関心	2.80 ± 0.87	2.63 ± 0.95	1.24	1.05 ~ 1.46	1.12	0.94 ~ 1.33
寿命観	2.47 ± 1.05	2.26 ± 1.14	1.20	1.05 ~ 1.38	1.10	0.95 ~ 1.26

調整変数：年齢、性別、家族との同居、信仰している宗教 (本人)、信仰している宗教 (家族)、ペットの死の経験、家族の死の経験、友人の死の経験、死にゆく近親者の世話をした経験、大学入学前に終末期に関する学習をした経験

生観尺度得点に与える影響を因子ごとに多変量解析を行ったところ、授業を受けた学生は【死への不安・恐怖】の得点にのみ高い傾向がみられた。本問らの看護学生を対象にした調査においても、終末期看護の授業により学生の「死の不安」が強くなったと報告されている。本問らは死への不安の増加は死に対する認識が深まった結果と解釈しており⁶⁾、そうした視点から今回の結果を解釈すれば、医学科における終末期医療・看護に関する授業の望ましい効果と考えられる。

しかし、死への不安の増加だけでは、医学科で行われている終末期医療・看護に関する授業は医学生の死生観形成に十分に影響を与えているとは必ずしもいえない。わが国の終末期医療・看護教育は欧米諸国と比べて普及が遅れており、内容・時間とも不十分であると指摘されている¹⁾。また、ロールプレイや死に行く患者の話の聞くなどの体験型教育は、人の終末期に直面した経験が少ない現在の学生にとって臨床の現場で働き始める準備となるが、我々の先行研究では、全国の医学科では体験型教育の実施率は低かった¹⁾。これらが、【死への不安・恐怖】以外の死生観の項目に影響を与えなかった今回の結

果を説明するものとする。臨床実習で死に行く患者を担当するなど終末期医療・看護を体験できる機会を学生に積極的に提供していく必要があるだろう。

また、多変量解析の結果から、性別、大学入学前の様々な体験・学習機会などと医学生の死生観が関係している可能性が示唆された。大学入学までに行われる死の教育は学生の死生観形成に影響を与えたとの指摘はあるものの⁴⁾、学生、特に医学生の背景と死生観との関係について検討した先行研究はほとんどないため、今回の結果を確認するための更なる調査が必要であろう。

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本調査にご協力いただいた16大学 (愛知医科大学・秋田大学・愛媛大学・大阪大学・大阪市立大学・岡山大学・京都大学・杏林大学・岐阜大学・高知大学・埼玉医科大学・自治医科大学・東京医科大学大学・長崎大学・名古屋大学・山形大学) の関係者および医学生の方々に深謝する。また、データの集計・解析にご協力いただいた名古屋大学大学院医学系研究科老年科学教室の篠田純子氏と佐野典子氏に謝意を表します。

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Effect of end-of-life care teaching on the attitude of medical students to death

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Abstract

Aim: We conducted a national survey to examine how programs to teach end-of-life care to medical students in Japanese medical schools influence their death attitude.

Methods: Sixteen medical schools participated. We conducted a questionnaire survey on fifth- or sixth-year medical students' death attitude at each medical school. Attitude of death was analyzed by the Death Attitude Inventory formed by Hirai et al, which is composed of seven factors: Afterlife belief, Death anxiety, Death relief, Death avoidance, Life purpose, Death concern, and Supernatural belief. We studied how students' attitude to death relates to programs to teach end-of-life care.

Results: Overall 1,017 of 1,510 students (67.4%) from the 16 medical schools participated. The students who took a program to teach end-of-life care presented Afterlife belief, Death concern and Supernatural belief score higher than those who did not participate in any program. Multiple logistic regression analysis was conducted and it was found that those trend disappeared, and the students who took a program had greater Death anxiety significantly higher than those who took no program.

Conclusion: We concluded that the attitude of medical students to death was not related to programs to teach end-of-life care in medical schools. Our survey suggested that improving end-of-life care education is needed to mold the attitude of medical students to death.

Key words: *End-of-life care, Education, Death, Attitude to death, Medical student*
(Nippon Ronen Igakkai Zasshi 2007; 44: 247-250)

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終末期医療・看護教育に関する医学生の意識調査

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要 約 緒言：終末期医療・看護に関する教育が重要になってきているが、わが国では教育プログラムの整備が遅れている。本調査は終末期医療・看護に関する教育プログラムを開発するための基礎資料を得ることを目的に実施された。方法：2004年3月に、全国の医学科79校のうち、協力が得られた16校の5年生もしくは6年生の全員を対象にアンケート調査を実施した。調査時期は2004年4月から2006年3月までとした。調査票のなかで、終末期医療・看護の授業を受けている学生には、授業・実習で学習した内容・受けてみてよかった内容と受けてみてよかった授業の形式について質問した。授業を受けていない学生には、授業・実習で学習してみたい内容と希望する授業の形式について質問した。また、全員に対して、終末期医療や看護に対する関心・自信と終末期医療・看護の授業の必要性について質問した。結果：1,039人（入学定員の68.8%）の学生から回答を得た。授業内容について、授業を受けた学生の間で満足度が高かったのは「患者とのコミュニケーション技術」や「患者・家族に対する心理的サポート」であった。また、授業を受けなかった学生の間でもそれらの内容を聞いてみたいという希望が多かった。希望する授業形式について、「講義」の他に、「ホスピス訪問」や「患者の話聞く」が多かった。終末期医療・看護に関する関心について、両群とも「ある程度」あると回答した学生が最も多かった。また、終末期医療・看護を行う自信について、両群とも「中間」「あまりない」と回答した学生が多くみられた。授業の必要性については、両群ともほとんどの学生が感じていた。結論：終末期医療・看護教育プログラムの導入とその内容の検討が急務と考えられた。

Key words：終末期ケア，医学教育，医学生の意識，授業，カリキュラム

（日老医誌 2007；44：380-383）

緒 言

医師は患者の死に関わる機会が多い職業であるため、医学科において、終末期医療・看護に関する教育を充実させていくことが重要である。現代の医療においてわが国が手本としてきた欧米では、終末期医療・看護を教育プログラムに取り入れる大学が増加している。そして、教育プログラムのあり方に関して広範な議論が起こっている¹⁾²⁾。

しかし、わが国では終末期医療・看護に関する教育は十分に行われておらず、その教育を、どのような内容・方略で行うべきかについてもいまだ十分な検討がなされていない³⁾。こうした観点から、終末期医療・看護に関する教育プログラムを開発するための基礎資料を得ることを目的に、全国の医学生を対象にしたアンケート調査

を実施した。尚、本調査は、日本老年医学会倫理委員会の委託を受けて実施した。

方 法

本調査は、全国の大学医学部・看護学部の教育担当者および学生を対象に実施された「終末期医療および看護の卒前教育に関するアンケート調査」の一環として実施された³⁾。2004年3月に、全国の医学科79校の教育責任者宛てに、5年生もしくは6年生全員に対する終末期医療・看護に関するアンケート調査の依頼状と調査票を送付した。5、6年生を対象としたのは、臨床に関する系統的講義が終了している時期であると考えたためである。調査協力の承諾が得られたのは16校で、2006年4月時点での入学定員は合計1,510人であった。尚、各校の学生数の調査を行わなかったため、回収率を算出できなかった。調査時期は2004年4月から2006年3月までの間とし、実施方法は各校に任された。

調査票のなかで、「終末期医療・看護をテーマにした授業を受けたか」を全員に質問した後、受けている場合には、授業・実習で学習した内容・受けてみてよかった

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