Attitude of emergency doctors in providing palliative and end-of-life care in Hong Kong and education needs: A prospective cross-sectional analysis based on self-reported surveys.

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Abstract

Introduction: In view of the growth of the aging population in Hong Kong, the importance and need of palliative care and end-of-life (EOL) care were brought into the spotlight. The Department of Accident and Emergency (AED) was one of first medical contacts for the public. Despite the urge to investigate this issue, there were no related studies involving emergency physicians in Hong Kong previously. The objectives of this study were to evaluate the attitude of emergency doctors in providing palliative and EOL care in Hong Kong, and to investigate the education needs for emergency doctors in palliative and EOL care.

Methods: This research was a questionnaire study. Emergency physicians from 6 AED in Hong Kong were recruited. The questionnaires were designed to cover the attitudes of emergency physicians towards palliative and EOL care in terms of the role of palliative and EOL care in AED, the specific obstacles in providing it and the comfort level with the care; and further education needs.

Results: 145 emergency physicians completed the questionnaires, in which 60 respondents from the service-providing hospitals. Significant proportions from both groups recognized palliative and EOL care was an important competence for them, but was uncertain about its role and priority in AED. Lack of time and access to palliative and EOL care specialists/ teams were the major barriers. Group 1 staff was more comfortable to provide the care and discuss it with patients and relatives. Further education needs, apart from the management of physical complaints like pain management, topics including communication skills and EOL care ethics were also emphasized.

Conclusions: The study revealed several obstacles which required additional resources and manpower for overcoming them, in order to further promote the palliative and EOL care in Emergency Medicine. Further education, especially communication skills and ethical issues, were necessary as well. With the combination of elements of routine AED practice and the basic palliative medicine skill set, it would promote the development of this emerging field in Emergency Medicine in the future.

Introduction

Background

Aging population is a hot topic in the world, especially in the developed countries, because of the increasing burdens in different aspects in the society, including medical care. With the advance in medicine, elderlies with multiple comorbidities and patients with incurable diseases, such as organ failure and malignancies, could have a much longer life expectancy. With this background, specialty of palliative medicine was developed. Palliative medicine is defined by World Health Organization (WHO) as “an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness and terminal disease, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual problems” (1). Palliative medicine specialists were trained to provide

specialized palliative care for patients with terminal illness and incurable disease. Palliative care extended the traditional disease-model of medical treatments to the goals of optimizing the function of the patient, enhancing the quality of life and facilitating own decision-making for the patient and the family. Palliative care was not only limited to the terminal stage of disease. On the other hand, it could be delivered concurrently with life-prolonging care or as the main focus of care (2). Palliative care was also not limited just to cancer conditions. Other incurable conditions also required good palliative care. However, the importance of palliative care for these incurable medical conditions was often overlooked.

The importance and need of palliative care were increasing all over the world (3). Hong Kong was also facing the problem of aging population. According to the data from the Census and Statistics Department, the proportion of elderly people aged 65 and above would increase from 16% in 2016 to 31% in 2046. The overall Hong Kong population would increase from 7.3 million to 8.2 million during the same period (4). In 2014 there were approximately 46 000 deaths in Hong Kong (5), in which about 80% were elderly people aged 65 or above. In addition, three forth of elderly people suffered from one or more chronic conditions according to the data from the Census and Statistics Department the in the same year (6). The demand of palliative care service rose with increasing number of elderly patients with multiple comorbidities. Despite the great demand of palliative care service, there were only 21 registered palliative medicine specialists in Hong Kong up till 2018. The lack of professional providers in palliative care led to a service gap in nowadays health care system. The gap was anticipated to become larger in the future.

End-of-life (EOL) care, which was an important element in palliative care, encompassed the provision of care to the imminently dying patients. According to General Medical Council of the United Kingdom (7), patients were 'approaching the end of life' when they were likely to die within the next 12 months. This included patients whose death was imminent (expected within a few hours or days) and those with:

1. advanced, progressive, incurable conditions
2. general frailty and co-existing conditions that meant they were expected to die within 12 months
3. existing conditions if they were at risk of dying from a sudden acute crisis in their condition
4. life-threatening acute conditions caused by sudden catastrophic events.

In general, EOL care was a multidisciplinary approach care. It combined a broad set of health and community services including physicians, nurses, allied health professionals, medical social workers and chaplaincy. Provision of EOL care was not limited to the palliative medicine specialists. Physicians from other specialties, with proper training, were also eligible to provide good EOL care for the imminently dying patients. This helped fill up part of the service gap of palliative care in the healthcare system. The use of healthcare service rose in the last 6 months, especially in the last 2 months, of life. The average number of A&E attendances and hospitalization days of elderly patients in their last year of life were 5 and 10 times of other elderly patients respectively. Therefore, with the combination of aging population and increased burden from chronic diseases, emergency doctors were expected to provide care to this group of patients more frequently and played a more important role in providing EOL care.

Being a specialty focusing on the management of acute and emergency conditions, Emergency Medicine and active management were almost always put together traditionally (8, 9). In Hong Kong, most AED did not put much emphasis on palliative and EOL care. But with the above mentioned changes of population characteristics, some overseas emergency physicians had already started to promote EOL care in their AED. For example, the American Board of Emergency Medicine established a subspecialty of hospice and palliative medicine in 2006 (10). Research on implementing palliative and EOL care in AED has been conducted in different countries. Most of the research subjects were emergency nurses (11-14) and a few studies focused on emergency doctors (15-17). To conclude, emergency doctors and nurses were confident in symptom management, but not in the aspects of EOL care communication and related ethical issues. Major obstacles to providing EOL care in AED were inadequate support and training.

The AED of Queen Elizabeth Hospital (QEH) established the first comprehensive EOL care service in the Emergency Medicine Ward (EMW) in 2010. A qualitative study for the perception of nurses in the AED of QEH showed positive results of their EOL care service from the nursing staff perspective. The emergency nurses perceived that EOL care not only enhanced the patients' last moment of life and facilitated the grief process of their relatives, but also enriched the professional development for the nursing staff (14). A comprehensive EOL care program was also initiated in the EMW of North Lantau Hospital (NLTH) in 2017 upon the unique service need of the community. Similar to the EOL care service in QEH AED, the program in NLTH had become mature with protocol launched. EOL care was a potential field of development in the EM specialty in Hong Kong. However, research on the perceptions from the local emergency doctors on the provision of EOL care in the AED was still lacking.

Objectives

The objectives of this study were to evaluate the attitude of Hong Kong emergency physicians in providing palliative and EOL care, and to investigate the education needs for emergency doctors in palliative and EOL care.

Methods

Study Design

This is a multicentre prospective observational study. We collect cross-sectional data on the staff's attitude and perceived education need using self-administered surveys. These staff are then compared in two groups based on whatever their workplaces provide any EoL cares. The reporting of this study is in compliant with the The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies (18) with modification suggested by the review of Bennet et al.(19)

Setting

The participants were recruited from six AEDs in Hong Kong. Two of the hospitals have AED based EoL service, while the other four do not. (see table a) (c) In QEH, the EoL service is provided by a dedicated team of EPs with a dedicated inpatient bed inside the EMW. Consultations from other inpatient departments are assessed by EPs and patients would be taken over to the EMW for management. Some patients would be admitted to the EoL service from the resuscitation bays. (20) In NLTH, a “Comfort Care in the Last Journey” program was launched in AED to provide EoL care for patients identified by the AED team including specialists and corresponding nursing staff. The identified patients would be admitted to EMW afterwards rather than admission to other specialities.

Participants

The target population was the doctors working in the emergency departments. Doctors who were not working regularly in the AED, e.g. trainees rotated from other specialities, part-time staff were excluded.

Variables

Baseline variables of each participant were collected as part of the questionnaire. Basic trainees in emergency medicine are defined as specialist trainees who have not passed the intermediate examination of the Hong Kong College of Emergency Medicine. They typically have less than three years of experience. Higher trainees are defined as trainees who have passed the intermediate examination but not the final exit examination of the college, they typically have less than six years of training. Items and variables in the questionnaire are discussed separately.

Data sources/ measurement

Description of the research tool.

The contents of the questionnaire were derived from a validated questionnaire (20), an overseas palliative and EOL care study (21) and local expert opinions. Permissions for using the context of the questionnaire and the overseas study had been obtained from the authors. For the content of the questionnaire, apart from the baseline characteristics of the participants (Part A, question 1-9), 2 main dimensions were assessed in the survey including their attitude in providing palliative and EOL care (Part B, question 10-24 (15 statements)), and their education needs (Part C, questions 25-35 (11 items)). The participants were asked about their overall attitude in providing palliative and EOL care in their AED. The statements in Part B would be divided into 4 domains, including the role of palliative and EOL care (statements 1-3,6,7), specific obstacles (statements 4,8,9,11-14), the comfort level with palliative and EOL care (statements 5 and 10) and overall impression towards palliative and EOL care (statement 15).

Instrument reliability and validity

The content validity of the questionnaire was done by Rivera et al (21). We sought opinion from a panel of experts, including three experienced emergency physicians and a palliative medicine specialist, for grammar, syntax, organization and appropriateness. The questionnaire was then modified according to their comments.

Scoring Method

There were 5 Likert scale options for each questions in Part B and Part C of the questionnaire, which included strongly agree, agree, neutral, disagree and strongly disagree. Besides, the participants were invited to indicate on which topics they would like to have further education on palliative and EOL care.

Method of questionnaire administration

Hard copies of the questionnaire were distributed by the investigators through direct personal invitation. Consent was implied when the questionnaire was returned. i.e. informed consent was implied if the participants returned the completed questionnaire to the investigators in the sealed envelope provided. No personal identifying data was collected so as to maintain anonymity. The data access was restricted to the investigators only. The Research Ethics Committee of Kowloon West Cluster (KWC REC) would also have the right to access the study data as well. The master dataset was kept by the investigators on a computer. The data would be used for the project dissertation and also publication in journal. It would be kept for 3 years after submission of the project dissertation and publication. It would be destroyed afterwards.

Bias

One potential source of bias is the research tool. It was not validated in Chinese populations. Sampling bias was present as only 6 of 18 AED in public hospitals were included, not to mention the private ones. Common to other questionnaire studies, response bias e.g. demand characteristic bias and desirability bias, and non-response bias were possible.

Study Size

All the AED medical staff of the six hospitals were included for recruitment and determined the sample size.

Method of sample selection

Target participants were identified according to the most updated staff list from the corresponding departments.

Quantitative Variables

Staff experience was separated into groups of 5 years intervals. This was done arbitrarily. No other quantitative data needed modification or grouping.

Statistical methods

The Statistical Package for Social Sciences (SPSS) version 20.0 for Windows was used for analysis. Variables were assessed for normality with the Shapiro-Wilk test. Mean/median and frequencies were used to describe data. Scores were assigned for the 5 Likert scale options of each question (5=strongly agree, 4=agree, 3=neutral 2=disagree, 1=strongly disagree) and mean/median scores of each question were calculated to reflect the level of agreement for each item. In those items related to the participants' attitude in providing EOL care, the correlations between the level of their attitude in the individual items and their overall attitude in providing EOL care in the AED were calculated using Spearman's correlations coefficient. The internal consistency of the questionnaire was assessed by Cronbach's Alpha.

Results

Participants

Total 145 returned questionnaires out of total staff of 195 in the six AEDs (response rate 74.3%). Sixty are from EoL departments and 85 are from Non-EoL departments. Both EoL and Non-EoL group had similar response rates (77.9% vs 72.0%).

Descriptive data

100 male doctors and 45 female doctors were recruited, similar ratios in both groups (male: female, 2.21:1 in group 1, 2.27:1 in group 2). Staff with experience equal or less than 5 years constitute the main part of the respondents (group 1: 30%, group 2: 37.6%). Distribution of training status of specialty of Emergency Medicine was similar (non-specialist: specialist ratio: 1.31: 1 in group 1, 1.36: 1 in group 2). In group 1, more staff could receive on job training about palliative and EOL care (29, 48.3%) compared to group 2 (27, 31.8%), although there was a significant number of staff in group 1 claimed they did not receive any training. (28, 46.7% vs group 2: 57, 67.1%). Besides, despite the difference in the availability of training, self-ratings for knowledge of palliative and EOL care were similar in both groups (no knowledge: 25% vs 22.4%; general knowledge: 71.7% vs 77.6%). Apart from the availability of palliative and EoL care training (p-value 0.032), there were no statistically significant differences in 1) years of AED

experience, 2) AED training status and 3) self-rating for knowledge of palliative and EOL care. (corresponding p-values: 0.342, 0.841, 0.212).

In group 1, a larger proportion of staff felt confident at least most of the time when looking after those who were dying, compared to that in group 2, though the difference was not statistically significant (19, 31.7% vs 11, 12.9%, p-value 0.171).

Outcome data

Attitude in providing EOL care

Results were illustrated in table 2. For the role of palliative and EOL care (statements 1-3,6,7), group 1 staff was more likely to agree with the affirmative statements (questions 1 and 2) and disagree with the opposing statements (questions 3,6,7). P-values of all these 5 statements were less than 0.05, which were statistically significant. For affirmative statements, statement 1 ("Palliative and EOL care is an important competence for an emergency medicine physician.") had the highest score in group 1 (3.62, SD 0.922). For group 2, only statement 2 ("I have a clear idea of the role of palliative and EOL care in the emergency department.") showed significant deviation from neutral (i.e. score 3), and its score tended to be against the clarity of the role of palliative and EOL care in AED.

For specific obstacles (statements 4,8,9,11-14), statement 14 had the highest score (3.62, SD 1.010) while statement 4 had the lowest score (1.95, SD 0.910), i.e. more colleagues in group 1 thought they did not have enough time during their shifts to provide palliative and EOL care; while they confirmed the presence of palliative and EOL care in their AED. In group 2, question 8 had the highest scores (3.91, SD 0.718), followed by question 14, while question 11 scored the lowest point (2.78, SD 0.931). It indicated that the lack of access to palliative and EOL care specialists/ teams in the emergency department was the most salient concern, while the identification of patients in need of palliative and EOL care was not difficult for group 2 colleagues. Most of the statements had the p-values less than 0.05, except statements 9 and 14 (0.104, 0.296 respectively).

For the comfort level with palliative and EOL care (statements 5 and 10), group 1 staffs felt more comfortable in providing palliative and EOL care and less difficult in discussing palliative and EOL issues with patients and/ or their relatives, in which the difference in the mean scores of 2 groups was statistically significant (p-values of both statements were less than 0.05).

For overall impression, i.e. statement 15, the score of group 1 was close to 3 (2.93, SD 1.056) while group 2's score was 3.55 (SD 0.906). P-value was 0.001, which was statistically significant. It would indicate group 1 was slightly more eager to initiate palliative and EOL services in AED.

Correlation between specific obstacles and overall impression

In order to evaluate the impacts of specific obstacles on the development of palliative and EOL care in AED, Spearman's rank correlation coefficients (r) were calculated for each obstacle. From table 3, we could appreciate that all r 's had the same sign i.e. positive, which meant the preset opposing statements very unlikely scored high marks while the mark of overall impression was low in the same questionnaire sample. The value of r was the highest for statement 13 (0.334) while that of statement 12 was the lowest (0.043). It showed that the medicolegal issue would likely discourage the implementation of palliative and EOL care in AED while lack of training in palliative and EOL care did not have significant negative effects. However, in general all r 's were less than 0.5, which meant these obstacles only have weak associations with the overall impression. Most of the p -values were less than 0.05, except question 9 and 12.

Further education needs

The results were demonstrated in table 4. From all respondents, most of them wanted to learn more about the pain assessment and management in palliative and EOL care ($n=100$, 69.0%), while less colleagues were interested to the management of spirituality and cultural aspects ($n=45$, 31.0%). In group 1, the education of communication skills was seemed to be the most necessary ($n=42$, 70%), while group 2 colleagues were more concerned about the pain assessment and management ($n=60$, 70.6%). In contrast, the education need for last office and ritual arrangement was less emphasized in group 1 ($n=24$, 40%), while group 2 was less interested in the management of spirituality and cultural aspects ($n=16$, 18.8%).

For between-group comparison, only 4 of 11 statements had p -values less than 0.05 (the management of death rattle, feeding in EOL care, psycho-social aspects of EOL care and spirituality and cultural aspects in EOL). There were significant proportion of colleagues in group 2 (above 60% without "tick" in the box) did not indicate that they needed further educations on these aspects, while about half of those in group 1 expressed their needs on these topics (48.3% to 58.3% with "tick" in the box).

Main Results

Significant proportions from both groups recognized palliative and EOL care was an important competence for them, but was uncertain about its role and priority in AED. Lack of time and access to palliative and EOL care specialists/ teams were the major barriers. Group 1 staff was more comfortable to provide the care and discuss it with patients and relatives. Further education needs, apart from the management of physical complaints like pain management, topics including communication skills and EOL care ethics were also emphasized.

Discussions

Key Results

This study was the first study in our Emergency Medicine specialty focusing on the attitude of emergency physicians towards palliative and EOL care in Hong Kong.

From table 1, the baseline characteristics were quite similar between two groups, except the training in palliative and EOL care (question 4). Although the study design did not include matching, based on the abovementioned similarities, we could be more confident to suggest the presence of the associations between the attitudes and/or education needs, and the availability of palliative and EOL care in AED.

As one of the international cities with dense population, our public hospitals were always crowded with patients. Being the entry of hospitals, AED inevitably bore a lot of workloads. Therefore, it was not surprising that the time limit in each shift would be the major barrier to providing palliative and EOL care in AED, and it was showed in our study (table 2). However, the correlation to overall impression was relatively weak ($r=0.213$, $p=0.010$). On the other hand, the mean scores of Part B statement 7 ("Palliative and EOL care should have a lower priority in the busy emergency department.") were close to neutral with greatest value of SD. Group 1 had a lower mean score, i.e. tended to oppose against the lower priority. It was reasonable that the busy working environment would discourage our colleagues to practice palliative and EOL care in AED, which were also suggested in other overseas studies (22-23). However, there was still a significant proportion of staffs would like to practice palliative and EOL care in AED. Combining the results of these two statements, we could predict that if resources for palliative and EOL care were available, our colleagues would be more willing to provide the care.

Part B statement 8 also had very high mean scores among the questions about specific obstacles, in which it was the highest for group 2, and at the same time, its SD was the smallest (mean= 3.91, SD= 0.718). It showed that the access to palliative and EOL care specialists or teams would greatly affect the desire of our colleague to provide the care in AED, and this desire was seemed to be stronger in group 2 AED. Lamba et al. (24) found that the lack of 24/7 availability of the palliative team would be the one of the major barriers for palliative care in AED. Stone et al. (25) showed that the emergency physicians would be more comfortable to provide palliative care if designated palliative care teams were available. Although the round-the-clock service would not be probable with the limited resources, with the successful experience in the psychiatric clinical liaison service in AED, it was possible that we could establish a similar service model to deal with this desire.

Medicolegal issue always caused fear for every medical personnel. In the era of defensive medicine, we tended to either do more e.g. offered unnecessary investigations, or avoid to do something ourselves with referrals or admissions to other departments. It was predictable that palliative and EOL care, as a new aspect in AED service, would induce stress to the emergency physicians. Fortunately, despite that the statement 14 had the greatest value of correlation coefficients with the overall impression, the correlation was not strong. Besides, its mean scores were close to neutral for both groups, with smaller value for

group 1. The statistically significant difference could be related to the availability of established protocols and clinical experience for palliative and EOL care.

As emergency physicians, we were used to manage various types of pain-related complaints. Even so, significant proportions in both groups (group 1 66.7%, group 2 70.6%, overall 69.0%) still would like to seek for further education about pain assessment and management. Similarly, one of the distinct themes related to palliative care stated by Smith et al (26) was inadequate training in pain management.

Discussion with patients and their relatives about the palliative and EOL care was not an easy task for healthcare staffs, let alone during the first medical contact. Within a short period of time, Emergency physicians were expected to formulate a plan of care and inform patients and relatives about the prognosis, targets of care and dying process in an organized manner within a short period of time. Marck et al. (14) demonstrated several difficulties for the Emergency staffs when they were dealing with the patients and relatives during providing palliative and EOL care in AED for cancer patients. The difficulties included difference in expectations (prognosis, usefulness of further investigations and treatments), challenges for staffs (fear of liability or legal issues or criticism) and challenges related to systemic issues (limited information about the patients, limited time for assessment, lack of family presence and/or private room, perception of AED's role as providers of active treatments). Therefore, further education about communication skills and EOL care ethics gained much attentions in our study (refer to table 4).

Limitations

There were some limitations for our study. First, we did not include all AED in Hong Kong, especially the ones in public hospitals. With reference to the contact list in Hospital Authority, there were 534 Emergency physicians working in the AED in public hospitals. Therefore, in this study we only include around 27% physicians working in public hospitals. Further larger scale e.g. territory-wide study would be necessary in order to confirm the generalizability of the results from our study. Second, the response rate for this study (74.3%) was quite satisfactory, compared with the usual response rate in surveys in medical field (27-29). However, the remaining portion of non-respondents may systematically differ in their responses, the resulting participation bias would again affect the validity and generalizability of the results. Third, similar to other questionnaire studies, inability to ensure the reliability of individual response was an inherent limitation for our study. Self-ratings of confidence, comfort and knowledge would not be definitely equal to what happened in the real-life situations.

Interpretation

To the best of our knowledge, this study was the first study in Hong Kong about the attitude of Emergency physicians towards palliative and EOL care in AED. The results showed several obstacles during the implementation of palliative and EOL care in AED. Further education, especially

communication skills and ethical issues, were necessary. Territory-wide study would be useful to further clarify the issue and contribute to the development in this previously overlooked area in our profession. With the combination of elements of routine AED practice and the basic palliative medicine skill set, it would promote the development of Emergency Medicine in the future (29).

Declarations

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Declaration of conflicting interests

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Availability of data and materials

All data were primary and could be provided by request.

Ethical approval

The study was approved by the Institutional Review Boards of Hospital Authority Kowloon West Cluster, Kowloon Central and Kowloon East Cluster and New Territories West Cluster. (REC Reference number: KW/FR -18-138(129-05); KC/KE-19-0054/ER-4; NTWC/REC/20047)

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Tables

Table a. Characteristics of participating hospitals

Hospital	Type of healthcare delivered	EoL service available in AED?	Number of respondents and staff (n _{respondent} / n _{staff})	AED attendance per year (2018-2019)	Number of EMW beds
North Lantau Hospital	Secondary	Yes	28/33	93057	60
Queen Elizabeth Hospital	Tertiary	Yes	34/44	185515	80
Princess Margaret Hospital	Tertiary	No	23/34	123698	34
Tuen Mun Hospital	Tertiary	No	30/41	173467	30
Pok Oi Hospital	Secondary	No	16/21	110093	40
Tin Shui Wai Hospital	Secondary	No	16/22	109642	32

Table 1 Baseline characteristics of respondents

Characteristics	Overall (n=145) n (%)	Group 1 (n= 60) n (%)	Group 2 (n=85) n (%)
Gender			
Male	100 (69.0)	41 (68.3)	59 (69.4)
Female	45 (31.0)	19 (31.7)	26 (30.6)
Years of experience in A&E			
< 5			
5-10	50 (34.5)	18 (30)	32 (37.6)
10-15	31 (21.4)	15 (25)	16 (18.8)
15-20	27 (18.6)	8 (13.3)	19 (22.4)
>20	15 (10.3)	7 (11.7)	8 (9.4)
	22 (15.2)	12 (20)	10 (11.8)
A&E training status			
Service doctor			
Basic trainee	16 (11.0)	5 (8.3)	11 (12.9)
Higher trainee	38 (26.2)	16 (26.7)	22 (25.9)
Specialist	29 (20)	13 (21.7)	16 (18.8)
	62 (42.8)	26 (43.3)	36 (42.4)
Training status in palliative and EOL care			
Specialist training			
Short courses or other formal training not leading to a specialist qualification	0 (0)	0 (0)	0 (0)
On job training only	4 (2.8)	3 (5)	1 (1.2)
No training			
	56 (38.6)	29 (48.3)	27 (31.8)
	85 (58.6)	28 (46.7)	57 (67.1)
Self-rating of knowledge of palliative and EOL care			
No knowledge			
General knowledge only	34 (23.4)	15 (25)	19 (22.4)
Professional/ extensive knowledge	109 (75.2)	43 (71.7)	66 (77.6)
	2 (1.4)	2 (3.3)	0 (0)
Experience of caring dying patients			
Yes	112 (77.2)	52 (86.7)	60 (70.6)
No	33 (22.8)	8 (13.3)	25 (29.4)
Confidence in caring dying patients			
All of the time			
Most of the time	1 (0.7)	0 (0)	1 (1.2)
Undecided	29 (20)	19 (31.7)	10 (11.8)
	47+16(32.4+11.0)	19 (31.7)	28+16 (32.9+18.8)
Somewhat	31 (21.4)	14 (23.3)	17 (20)
Not at all	21 (14.5)	8 (13.3)	13 (15.3)
Self-rating of support in caring dying patients			
Yes			
No	26 (17.9)	20 (33.3)	6 (7.1)
Don't know	76 (52.4)	29 (48.3)	47 (55.3)
	41+2 (28.3+1.4)	11 (18.3)	30+2 (35.3+2.4)

Group 1: AEDs with palliative and EOL care

Group 2: AEDs without palliative and EOL care

A&E: Accident and Emergency

EOL: end-of-life

Table 2 Attitude in providing EOL care

	Statements	Group 1 (mean, SD)	Group 2 (mean, SD)	P-value (Mann Whitney U test)
1	Palliative and EOL care is an important competence for an emergency medicine physician.	3.62, 0.922	3.14, 0.953	0.004*
2	I have a clear idea of the role of palliative and EOL care in the emergency department.	3.08, 0.944	2.54, 0.867	0.001*
3	Emergency medicine physicians are trained to save lives and not to manage death.	2.07, 0.899	2.72, 1.042	<0.001*
4	My workplace does not have protocols or services addressing palliative and EOL issues.	1.95, 0.910	3.46, 0.946	<0.001*
5	I feel comfortable providing palliative and EOL care in the emergency department.	3.32, 0.911	2.35, 0.882	<0.001*
6	Palliative and EOL care should not be the responsibility of the emergency physician.	2.07, 0.907	2.79, 0.989	<0.001*
7	Palliative and EOL care should have a lower priority in the busy emergency department.	2.53, 1.127	3.20, 1.056	0.001*
8	There is lack of access to palliative and EOL care specialists/ teams in the emergency department.	3.42, 1.013	3.91, 0.718	0.002*
9	Having no access to communication with palliative care physician affects my ability to provide EOL care in the emergency department.	3.43, 0.767	3.60, 0.889	0.104
10	I have difficulty discussing palliative and EOL issues with patients and/or their families.	2.87, 0.929	3.22, 0.968	0.033*
11	I cannot identify patients who may need palliative and EOL care in the emergency department.	2.45, 0.891	2.78, 0.931	0.035*
12	My lack of training in palliative and EOL care affects my ability to provide this service.	3.27, 0.972	3.59, 0.791	0.046*
13	Fear of lawsuits leads me away from offering palliative and EOL care to potential candidate.	2.65, 0.880	3.05, 0.962	0.016*
14	I do not have sufficient time during my shift to provide palliative and EOL care in the emergency department.	3.62, 1.010	3.81, 0.809	0.296
15	The emergency department is not the best place for EOL discussions	2.93, 1.056	3.55, 0.906	0.001*

Group 1: AEDs with palliative and EOL care

Group 2: AEDs without palliative and EOL care

A&E: Accident and Emergency

EOL: end-of-life

SD: standard deviation

Asterisk*: p< 0.05

Table 3 Obstacles (statements 4, 8, 9, 11 to 14) correlated with overall impression (statement 15)

Statements	Correlation coefficient	P-value (Spearman rank correlation)
4	0.219	0.008*
8	0.172	0.039*
9	0.115	0.168
11	0.171	0.040*
12	0.043	0.607
13	0.334	<0.001*
14	0.213	0.010*

Asterisk*: p< 0.05

Table 4 Items indicated for further education needs

Items	Overall (n=145) n (%)	Group 1 (n= 60) n (%)	Group 2 (n=85) n (%)	P value (Chi square test)
Pain assessment and management	100 (69.0)	40 (66.7)	60 (70.6)	0.615
Management of terminal delirium	82 (56.6)	39 (65)	43 (50.6)	0.085
Management of dyspnea	95 (65.5)	40 (66.7)	55 (64.7)	0.807
Management of death rattle	63 (43.4)	32 (53.3)	31 (36.5)	0.044*
Management of feeding in EOL care	62 (42.8)	34 (56.7)	28 (32.9)	0.004*
Management of psych-social aspect of EOL	62 (42.8)	35(58.3)	27 (31.8)	0.001*
Management of spirituality and cultural aspects in EOL	45 (31.0)	29 (48.3)	16 (18.8)	<0.001*
Bereavement management	78 (53.8)	34 (56.7)	44 (51.8)	0.560
Last office and ritual arrangement	47 (32.4)	24 (40)	23 (27.1)	0.101
Communication skills	92 (63.4)	42 (70)	50 (58.8)	0.169
EOL care ethics	97 (66.9)	39 (65)	58 (68.2)	0.683

EOL: end-of-life

Asterisk*: p< 0.05