Original Article

Understanding Beliefs and Knowledge Gaps Regarding Delirium among Trainee Physicians in Thailand

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Objective: Understanding the beliefs and knowledge gaps regarding delirium among physicians is critical in order to improve care for the condition. The objectives of this study were to determine attitudes and level of knowledge regarding delirium among trainee physicians, and associated factors.

Materials and Methods: This is a cross-sectional study. Trainee physicians at the Khon Kaen University Faculty of Medicine were recruited and provided with questionnaires from October 1 and December 31, 2016. The questionnaires were developed to evaluate the trainees' knowledge and attitudes. They were distributed to all participants and those that were completed were returned to the researchers.

Results: Of the 368 surveys distributed, 260(71%) were completed. The confusion assessment method(CAM) was used by the trainee physicians for detecting delirium in about one third(32.3%). About 40% of participants believed delirium was a normal process in hospitalized patients and 40% felt that they were skilled in delirium diagnosis. However, less than a third were confident in managing the condition. The median score on questions evaluating the participants' knowledge of delirium was 60%. For the most part, they were knowledgeable regarding prevalence and risk factors of the condition(median score = 78.6%) They displayed poor knowledge regarding diagnosis (median score = 0%). Specialty training in internal medicine and psychiatry were the only factors associated with better scores with an adjusted odds ratio (AOR) of 17.1 and 13.04, respectively.

Conclusion: Trainee physicians had limited knowledge and less awareness regarding delirium. Specialties in internal medicine and psychiatry were the significant factors associated with better scores on the knowledge evaluation.

Keywords: Acute confusion state, Education, Older people, Questionnaire, Survey

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Delirium in older adults is a serious and frequently-occurring condition that is defined as a disturbance in consciousness and attention, followed by an acute change in cognition and perception that develop over a short time and fluctuate over time[1,2]. Several studies have reported that the prevalence of the condition at hospital admission varies from 11 to 42% and 60 to 80% in mechanically ventilated patients[2-5]. The overall prevalence and incidence rates, however, vary greatly (from 7 to 50% and 19 to 82%) according to diagnostic criteria and studied populations[6]. Delirium is associated with numerous complications in older hospitalized patients including greater mortality, longer length of hospital stay,

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higher rate of subsequent institutionalization, poorer cognition and functional ability, and higher healthcare costs[1,2,7-12].

Under- detection of delirium among healthcare professionals is prevalent, ranging from 23 to 75%[13-17]. A nonspecific lay term, such as "confusion", is usually used, though this term could refer either to the symptoms or the diagnosis. It implies diagnostic uncertainty[13]. One report among ICU physicians showed that days with this disorder was poorly identified by the physicians them with a sensitivity of 28.0% and specificity of 100%[13]. Additionally, a study among junior doctors in the United Kingdom showed that a lack of knowledge regarding diagnosis and treatment was an issue[18]. The two main problems that are frequently encountered are (1) limited knowledge regarding diagnostic criteria and techniques to identify delirium, and (2) ineffective communication among healthcare professionals regarding the onset of delirium[19]. Prior evidence has shown that healthcare professionals tend to have less knowledge and awareness regarding delirium (including the use of standardized screening tools for the condition) than other common medical problems such as pneumonia or acute coronary syndrome[18,20-22]. Therefore, more attention should be paid to improving knowledge and attitudes regarding delirium care among healthcare professionals.

Early recognition of delirium could alleviate the subsequent morbidity and mortality resulting from this condition[23]. Currently, there are limited studies available regarding trainee physicians' knowledge and attitudes, even though they are the first-order doctors seeing the patients and spend more time with them than staff specialists. Understanding the barriers to delirium recognition and perception among trainee physicians would be helpful in implementing interventions, as the success and practicality of treatment strategies require positive attitudes and adequate knowledge. Thus, this survey was conducted primarily to evaluate the knowledge and attitudes regarding delirium among trainee physicians, as well as to identify any factors that are associated with possessing greater knowledge of the condition.

Materials and Methods

The questionnaires were designed to evaluate knowledge and attitudes regarding delirium according to the clinical practice guidelines of Thailand's Institute of Geriatric Medicine[24]. It was constructed using a deliberate stepwise process that included item generation and clarification by delirium specialists including geriatricians, neurologists, and gerontological nurses. It consisted of questions that evaluated attitude regarding delirium and knowledge about areas in which it is prevalent, risk factors, adverse outcomes, diagnosis using Diagnostic and Statistical Manual of Mental Disorders [DSM-5] criteria, treatment, and prevention. The questionnaire was piloted using physicians, and some questions were subsequently altered for clarity without substantially changing the content of the questionnaires. They contained 29 items related to general knowledge (prevalence and risk factors = 14 items, importance and outcomes = eight items, diagnosis = two items, treatment and prevention = three items), which required "yes" or "no" answers.

Attitudes and beliefs with respect to confidence in delirium diagnosis and clinical significance of the condition were assessed using a five-point Likert scale.

Eligible participants were physicians who were in residency training programs in any specialty at the Khon Kaen University Faculty of Medicine's Srinagarind Medical School (Thailand) who cared for older patients. Physicians were excluded if the questionnaires were not returned. The questionnaires were distributed to all trainee physicians from October 1 to December 31, 2016. The physicians that agreed to proceed after researchers explained to them the rationale for the survey were asked to complete the questionnaire in one sitting without discussion or access to books, computers, or other materials. Anonymity was assured and no incentives were offered. The completed questionnaires were then handed back to the researchers.

Statistical analysis

Demographic data were analyzed using descriptive statistics and presented as percentage, mean, and standard deviation. If the distribution of these data did not conform to normal distribution, medians and inter-quartile ranges were used instead. The factors associated with basic delirium knowledge scores were evaluated using regression analysis with logistic transformation. A p-value <0.05 was considered to indicate statistically significant differences. Adjusted odds ratios [OR] and their 95% confidence intervals [CI] were reported to denote the strength of association. All data analysis was carried out using STATA version10.0 (StataCorp, College Station, Texas).

The Khon Kaen University Ethics Committee determined that the project could be exempted since it

involved the use of non-sensitive, completely anonymous educational tests and surveys and that the participants could not be defined as "vulnerable". The requirement for informed consent was, thus, waived.

Results

Demographics

A total of 260 out of 368 (71%) surveys were completed by trainee physicians. The survey participants' demographic details are shown in Table 1. The majority of the participants were women and their median tenure as qualified physicians was three years.

Experience using CAM criteria and attitudes about delirium

The CAM criteria were used as a screening tool to detect delirium in around a third of all participants (84 out of 260 participants; 32.3%). Nearly 40% of participants agreed and strongly agreed that delirium was a normal process in hospitalized older patients. About 40% of them agreed and strongly agreed that they had adequate knowledge regarding delirium diagnosis and less than a third were confident in managing the condition. Most of them strongly disagreed and disagreed and about one-fourth of them responded as being neutral that psychiatrists should be the main physicians to treat delirium (Table 2).

Table 1. Baseline characteristics of the study population

Variables	n = 260
Age (years); median (IQR1, IQR3)	27 (25, 28)
Women; n (%)	140 (53.9)
Years of practice(years); median (IQR1, IQR3)	3 (1, 4)
Department; n (%)	
Minor department (excluding psychiatry, emergency med and orthopedics)*	89 (34.2)
Obstetrics and gynecology	19 (7.3)
Surgery	35 (13.4)
Internal medicine	72 (27.7)
Psychiatry	10 (3.9)
Emergency medicine	22 (8.5)
Orthopedics	13 (5.0)

IQR = inter-quartile ranges; n = total numbers of participants
* Minor department included Ophthalmology, Otorhinolaryngology, Community medicine, Anesthesiology and Physical Medicine and Rehabilitation Department

General knowledge regarding delirium

Median scores on delirium knowledge was about 60%. The majority of participants scored well on questions regarding the prevalence and risk factors of delirium. But only 50% knew of its importance and outcomes. They displayed poor knowledge regarding the detection of delirium, and less than a half knew the appropriate techniques to manage the condition, as shown in Table 3. The only significant factor associated with these scores was training specialty (Table 3).

Discussion

The results of this survey suggest that the trainee physicians who worked with older patients with acute illness had some misconceptions regarding delirium. In particular, the majority of them believed that it was a normal condition in hospitalized older patients. They also displayed a lack of knowledge regarding diagnosis and management, though they did well in respect to understanding the prevalence and risk factors. This corresponded to the low rates of bedside validated tool use; CAM criteria. This finding supports existing studies, in which it was found that physicians recognized that delirium was a common condition but had limited knowledge regarding diagnosis, treatment and prevention[18,21]. A repeat study among junior physicians that was conducted seven years after an initial survey found that the substantial knowledge deficits shown in the first study (particularly regarding diagnostic criteria) remained, despite the development of specific guidelines for delirium care. The study did show, however, that there was an improvement to overall scores[25]. This result implies that existing interventions, such as the development of practical guidelines, might be insufficient to address the gaps in trainee physicians' knowledge. This issue is important, as an international survey of delirium specialists in Europe regarding assessment and treatment showed that there was no consensus regarding delirium care[26]. The most frequent barriers for detection were lack of delirium awareness (34%), knowledge (33%), and education (13%)[26]. For that reason, it is important that there be greater agreement regarding evidence of delirium among specialist, and that this information be distributed to all healthcare professionals.

The only factor associated with greater scores on questions regarding delirium knowledge was training specialty. Experience in internal medicine and psychiatry led to significant increases in participants' scores. These physicians tended to have greater contact with

delirium patients due to the condition's high prevalence in medical wards and commonly associated psychiatric presentations such as abnormal behavior and hallucinations[1,5,23]. Physicians whose specialties were in surgery and emergency medicine displayed poorer knowledge regarding delirium, even if the condition was prevalent among their patients, as well. The results reflect a problem present in both undergraduate and postgraduate medical education. Age and years of practice were not significantly correlated in this study,

Table 2. Attitudes on selected issues regarding delirium

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	No response
Delirium is a normal condition for hospitalized older patients	17 (6.5%)	77 (29.6%)	65 (25%)	78 (30%)	23 (8.9%)	0 (0)
I am confident in the detection older adults with delirium	7 (2.7%)	36 (13.8%)	119 (45.8%)	80 (30.8%)	17 (6.5%)	1 (0.4%)
I am confident in treating older adults with delirium	6 (2.3%)	39 (15%)	124 (47.7%)	77 (29.6%)	13 (5%)	1 (0.4%)
The main physician who treats delirious patients should be a psychiatrist	52 (20%)	95 (36.5%)	63 (24.2%)	42 (16.2%)	8 (3.1%)	0 (0%)

Table 3. Numbers of correct answers regarding knowledge about delirium

Topics	No. of correct answers median (IQR1, 3)	No. of items	(%) median (IQR1, 3)
Prevalence and risk factors	11 (9,12)	14	78.6 (64.3,85.7)
Importance and outcomes	4 (3,6)	8	50 (37.5,75)
Diagnosis	0 (0,1)	2	0 (0,50)
Treatment and prevention	2 (1,3)	5	40 (20,60)
Total	17 (14.5,20)	29	58.6 (50,69)

No response- counted as incorrect
No. = Number; IQR = inter-quartile ranges

Table 4. Factors associated with accurate knowledge regarding delirium in older adults, as determined using multiple regression analysis with logistic transformation

Factors	Adjusted OR, 95% CI	*p*-value
Age	0.9 (0.7, 1.2)	0.48
Being male	2.4 (1.0, 5.6)	0.05
Years of practice	1.3 (0.9,1.8)	0.16
Department		
Minor department exclude Psychiatry, Emergency Med and Orthopedics	1	-
Obstetrics and Gynecology	2.4 (0.5,12.6)	0.29
Surgery	0.17 (0.05,0.6)	0.01*
Internal Medicine	17.1 (6.0,49.3)	0.00*
Psychiatry	13.04 (1.5,112.4)	0.02*
Emergency Medicine	0.01 (0.001,0.03)	0.00*
Orthopedics	0.48 (0.07,3.4)	0.46

OR = odds ratio; CI = confidence interval

as the studied sample had a low distribution of those factors. Some reports in more diverse populations, however, have found these factors to be significant[27].

According to a survey conducted among junior physicians in the United Kingdom, experience working in geriatric medicine was the only factor related to increased knowledge scores[20]. Thus, it may be beneficial to alter medical curricula to improve physicians' knowledge regarding geriatric medicine. Further strategies aimed at improving delirium recognition and appropriate management should be implemented, as there are increasing numbers of hospitalized older patients, and delirium can lead to a number of adverse consequences[1,7,23]. The authors, thus, recommend applying various innovative education methods at the individual, organizational, and societal levels in order to improve knowledge and attitudes regarding delirium. These can include techniques such as e-learning, role play/simulation, development of national clinical practice guidelines, and interactive intervention (including engaging leadership and using clinical pathways and assessment tools), rather than formal teaching alone, which has been shown to yield unsatisfactory results in improving knowledge and attitudes[28,29].

There were two major limitations to this survey. First, there was a response bias due to self-reporting that might result from misinterpretation of questions or poor recognition of clinical experiences. In addition, in some cases, there were some incomplete answers.

Conclusion

The level of knowledge and attitudes regarding delirium care among trainee physicians were inadequate. A specialty in either internal medicine or psychiatry was a significant factor associated with better scores on the delirium knowledge evaluation. These results reinforce the need to improve undergraduate and postgraduate medical education by emphasizing delirium care in medical curricula.

What is already known on the topic?

Delirium is frequent among hospitalized older patients and associated with unfavorable health consequences. Under-detection of this condition among healthcare professionals is prevalent. They tend to have less knowledge and awareness regarding delirium than other common medical problems. There are limited studies available regarding trainee physicians' knowledge and attitudes, even though they are the first-order doctors seeing the patients and spend more time with them than staff specialists.

What this study adds?

Trainee physicians had limited knowledge and less awareness about delirium. Factors associated with better scores on the knowledge evaluation were specialties in internal medicine and psychiatry.

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Potential conflicts of interest

The authors declare no conflict of interest.

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