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Perceived barriers to early mobilization of patients admitted to the intensive care unit (ICU)

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Abstract:

Background:

Early mobilization (EM) is effective and safe in patients admitted to the intensive care units (ICUs). EM can prevent bedridden-related complications such as infections, and thromboembolic complications and can improve hospital outcomes. However, implementing an effective protocol can face many challenges. Addressing barriers to early mobilization can guarantee better compliance with the applied protocols.

Material and methods:

A cross-sectional study in the form of a survey was applied to a sample of ICU nurses working in 3 ICUs at Beni-Suef University Hospital, Egypt. The participants were from surgical ICU [35 (38%)], medial ICU [31(33.7%], mixed ICU [26(28.3%)]. Of the participating nurses, 92 were the majority from the registered nurses [70(76.1%)],12(13.1) nurses were under training nurses, and 10(10.9%) were from other working category nurses. The survey addressed patient-related barriers, structural related barriers, cultural related barriers, and process-related barriers. Responses were graded by a 5-point Likert scale (5-strongly agree,4-agree,3-neutral,2-disagree,1-strongly disagree). positive responses were counted as (strongly agree and agree).

Results:

The majority of nurses reported that high severity of illness (72.8%), Limited staff, time constraints (70.8%), Lack of mobility culture (54.3%), Lack of planning and coordination (60.9%), Inadequate staff training (51.1%) represented major barriers for EM.

Conclusion:

Early mobilization protocols can be implemented in ICUs after adequate addressing of potential barriers that can face healthcare workers, prepare the ICU environment with equipment and trained personnel.

Keywords: Early mobilization, Barriers, ICU

Introduction:

Routine procedures, such as deep sedation and order of complete bed rest, are carried out to manage critically ill patients in many intensive care units (ICUs) [1]. As a result, those patients, especially mechanically ventilated ones suffer long periods of immobilization and weak performance[2][3]. This immobilization can carry a lot of drawbacks such as reducing muscle strength, increased duration of mechanical ventilation, consequently prolonged hospital stay [4], and as a result can reduce the quality of life post ICU[2].

Published reviews indicate that early mobilization in ICU can be performed safely and effectively and can improve patient outcomes [6]. However, there is a gap in understanding and implementing strategies for early mobilization, so it is important to study quality indicators for better performance of the process [7].

Many researchers addressed barriers to early mobilization including patient-related, cultural-related, and structurally related ones [8] [9], many of them primarily explored physician-reported barriers or patient-specific physiological barriers[10] [8];.There is little research regarding barriers perceived by nurses towards early ICU mobility[11].

Nurses in critical care units play an important role in improving the quality of patient care and their understanding of patients' conditions and needs. so, nurses perceived concerns for early mobilization and lack of training are significant barriers to early mobilization in ICU more than other healthcare professionals[12].

Several ICUs in the United States have identified barriers to early mobilization, and the strategies to use this practice in routine care but there are limited data in other countries[13]. Canadian data revealed that early mobilization was not a

priority for 49% of ICU clinicians, indicating unwariness of the benefits of mobility[14][15]

Materials and methods:

The sample was 92 nurses, from 3 intensive care units in Beni-Suef University Hospital. The sampling was done from the period of April 2022 till completing the required response rate. The inclusion criteria were every ICU nurse. Exclusion criteria were unwilling to participate and incomplete surveys.

The data collection tool was a two-part questionnaire; the first part represented the demographic data of the participating nurses including their position in the working place and type of the ICU. The second part included barriers for early mobilization developed after reviewing literature [9]; including patient related barriers like physical barriers, neuropsychological barriers, ICU devices and equipment, and hemodynamic monitoring equipment. Structural barriers such as limited staff and time constraints, lack of early mobility program or protocol (e.g., no routine delivery of Physiotherapy), limited guidelines, no eligibility criteria, Inadequate staff training, limited equipment, and early discharge (before mobilization).Cultural barriers such as Lack of mobility culture (e.g., inadequate staff buy-in, lack of multidisciplinary culture), Lack of staff knowledge and expertise about risks or benefits of mobility, early mobility not a priority, lack of support or staff buy-in, lack of patient or family knowledge. Process-related barriers such as lack of planning and coordination, unclear expectations, roles, and responsibility, missing or delayed daily screening for eligibility, and standing bedrest order. process-related risks for providers (stress, injuries). Items were scored from “1- strongly disagree” to “5- strongly agree". Positive responses are considered "5-Strongly agree or 4-Agree"

Results:

Data analysis was done using the SPSS software, version 28. The descriptive statistics used were tables of frequency and percentage.92 nurses agreed to participate in the survey,70(76.1%)were registered nurses,2(2.2%)were trainees from nurses' college,8(8.7%) were trainees from nurses' technical institute,2(2.2%)were from the high school of nurses,10(10.9%)were other working categories in ICU.The study included nurses from the 3 ICU ,31(33.7%)from medical ICU,35(38%)from surgical ICU,26(28.3%)from mixed ICU,Table(1).

Table (1): Nurses' position and type of ICU

Nurses' position	**n (%)**
Registered nurse	70(76.1%)
Training from nurses 'college	2(2.2%)
Training from nurses' technical institute	8(8.7%)
Training from high school of nurses	2(2.2%)
Others	10(10.9%)
Type of ICU	
Medical	31(33.7%)
surgical	35(38%)
Mixed	26(28.3%)

Responses regarding perceived barriers which belonged to patient-related conditions such as physical barriers, nurses reported: high severity of illness 67(72.8%), hemodynamic instability 42(45.7%), arrhythmias 46(50%), respiratory instability in the form of distress or ventilator desynchrony if the patient is ventilated 59(64.1%), the patient being in pain represented a barrier in 52(56.5%), poor nutritional status represented 44(47.8%), obesity 35(38%), baseline or new weakness 49(53.3%). Patient-related neurophysiological barriers such as deep sedation and/or paralysis represented 53(57.6%), delirium and patient being agitated 40(43.5%), patient refusal of movement, patient sense of lack of motivation, anxiety 34(37%), patient complaining fatigue, in need for rest, experience sleepiness 49(53.3%), patients admitted in ICU for palliative care represented barrier for 43(46.7%) of participants. Regarding patient-related barriers due to ICU devices and equipment: hemodynamic monitoring equipment represented a barrier for 53(57.6%) while other ICU-related devices represented a barrier for 49(53.3%) of participants.

Table (2): Patient's related barriers

Physical barriers	frequency	percentage
High severity of illness, patients “too sick”	67	72.8%
Hemodynamic instability	42	45.7%
Arrhythmias	46	50.0%
Respiratory instability/distress, ventilator asynchrony	59	64.1%
Pain	52	56.5%
Poor nutritional status	44	47.8%
Obesity (e.g., BMI >30)	35	38.0%
Baseline or new immobility/weakness	49	53.3%
Neuropsychological barriers		
Deep sedation and/or paralysis	53	57.6%
Delirium, agitation	40	43.5%
Patient refusal, lack of motivation, anxiety	34	37.0%
Fatigue, need for rest, sleepiness	49	53.3%
Palliative care	43	46.7%
ICU devices and equipment		
Hemodynamic monitoring equipment	53	57.6%
ICU related devices	49	53.3%

For our participants, structural related barriers were Limited staff, time constraints 63(70.8%), Lack of early mobility program/protocol (e.g., no routine delivery of Physiotherapy), limited guidelines, no eligibility criteria 35(38%), Inadequate staff training 47(51.1%), limited equipment 42(45.7%), early discharge 38(41.8%), Table (3).

Cultural related barriers are represented as follows: lack of mobility culture (e.g., inadequate staff buy-in, lack of multidisciplinary culture) 50(54.3%), Lack of staff knowledge and expertise about risks or benefits of mobility 47(51.1**%)**, early mobility not a priority during ICU stay 34(37%), lack of support or staff buy-in education 39(42.4**%)**, lack of patient/family knowledge about benefits of early mobilization 29(31.5**%),** Table (4).

As a process related barrier,56(60.9%) considered lack of planning and coordination as a major barrier, 48 (52.2%) considered unclear expectations, roles, and

Table (3): structural related barriers

Item	frequency	Percentage
Limited staff, time constraints	63	70.8%
Lack of early mobility program/protocol (e.g., no routine delivery of Physiotherapy), limited guidelines, no eligibility criteria	35	38.0%
Inadequate staff training	47	51.1%
Limited equipment	42	45.7%
Early discharge (before mobilization)	38	41.8%

responsibilities,46(50%) considered missing or delayed daily screening for eligibility, and standing bedrest order,37(40.2%) reported that their fear of risks of mobility such as stress or injuries are their barrier for early mobilization Table (5).

Table (4): cultural related barriers

item	**frequency**	**Percentage**
Lack of mobility culture (e.g., inadequate staff buy-in, lack of multidisciplinary culture)	50	54.3**%**
Lack of staff knowledge and expertise about risks/benefits of mobility	47	51.1**%**
Early mobility is not a priority	34	37.0**%**
Lack of support or staff buy-in Education	39	42.4**%**
Lack of patient/family knowledge	29	31.5**%**

Table(5): Process related barriers

Item	frequency	Percentage
Lack of planning and coordination	56	60.9%
Unclear expectations, roles, and responsibility	48	52.2%
Missing/delayed daily screening for eligibility, and standing bedrest order	46	50.0%
Risks for mobility providers (stress, injuries)	37	40.2%

Discussion:

Early mobilization proved to be effective and safe in many studies, despite the evidence , many surveys and studies of early mobilization practice have shown limited penetration, particularly in patients undergoing MV, and EM is not implemented in the daily practice in many ICUs[16].Knowledge of environmental barriers and personal experiences is of utmost importance for innovating and implementing a new practice [13]. Furthermore, studying attitudes of ICU workers especially nurses, variation in ICU structure, patient and family culture may be most associated with (and hence most favorable for) implementing EM practice[17]. The present study aimed to assess barriers perceived by nurses in the 3 intensive care units (ICUs) at Beni-Suef University Hospital. The participants were from surgical ICU [35 (38%)],medial ICU[31(33.7%],mixed ICU[26(28.3%)].The participating nurses were 92 with the majority from the registered nurses [70(76.1%)],12(13.1) nurses were trainees, and 10(10.9%)were from other working category nurses.

Patient safety is very important in ICU patient in any intervention. Patients with critical diseases, coma and deeply sedated are highly susceptible to complications. Therefore, special care should be provided to ensure patient safety [18]. The results showed that majority of nurses see that coma or deep degree of sedation is a major

barrier to EM implementation (Table 2).Other barriers to EM implementation in this study were obesity and hemodynamic monitoring equipment connected to the patient (Table 2). The results from other studies showed obesity, mechanical ventilation, endotracheal tube as the major patient-related barriers to EM implementation [13][9], which are similar to the findings of the current study. Therefore, concerns regarding patient weight and mobilization of mechanically ventilated patients necessitate education and guidance about patient management techniques and a better understanding of the probable benefits of mobilization equipment [13].

Different studies have shown that nurses reported a lack of training as a major barrier to EM in the patient [19]. Consistent with these findings, the participants of the current study reported the lack of trained staff in EM implementation in ICU patients (Table 3) as a barrier. This is a very important component of EM in clinical [19], [20]. Therefore, providing adequate training may be an important component for the successful implementation of EM protocols.

Ideally, EM is initiated according to certain planning, coordination, and multidisciplinary approach strategies. Many protocols have been designed [21]. Nevertheless, intensive care units in Egypt, to our knowledge do not have any protocol for EM. As a result, the lack of a certain protocol is a challenge facing nurses in EM application (Table 4) and (Table 5). The lack of checklists can diminish the effectiveness of treatment and nursing care in intensive care units [2]. In the present study, most participants reported the lack of a certain checklist for EM implementation and recording as a barrier to EM implementation. Furthermore, in a recent systematic review, a lack of interprofessional communication and coordination was found to be a barrier to mobilization in ICU [22]. A 'lack of a mobility culture' is difficult to overcome, but lasting improvements have been achieved in an eight-bed respiratory ICU, attributed to ‘interprofessional champions’ and educating ICU staff [23]

However, this study has several limitations. For example, participants represented a small category of healthcare workers, larger survey is required.

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Ethical approval:

This study was approved by the research ethical committee, Faculty of medicine,Beni-Suef University, approval NO: FMBSUREC/01022022

Conflict of interest:

The authors declare that there is no conflict of interest.

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