



KNOWLEDGE AND PERCEPTION OF CARDIOLOGISTS TOWARDS EARLY MOBILIZATION IN INTENSIVE CARE UNIT IN TERTIARY CARE HOSPITALS OF PESHAWAR: A CROSS-SECTIONAL STUDY

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ABSTRACT

Introduction: Early mobilization in the ICU has become increasingly acknowledged because of the advantages it offers, such as better cardiac function, fewer complications, and shorter durations of mechanical ventilation. Cardiologists, with their knowledge of cardiovascular responses, are important to consult regarding mobilization decisions. Institutional and patient factors, however, act as impediments to its practice. This study was conducted to evaluate cardiologists' knowledge, attitudes, and practices about ICU-acquired weakness (AW) and early mobilization in critically ill patients.

Materials and methods: A cross-sectional survey was done in two months from 106 cardiologists of Peshawar through universal sampling. A 19-item questionnaire was used to evaluate their ICU-AW and mobilization awareness and practice. SPSS v22 was used to analyze data. Frequencies and percentages were used to describe demographics, and chi-square tests were used to

find associations.

Results: The response rate was 89%, with 73.6% males and 26.4% females; 56.6% were aged 23–30. About 31.1% estimated the incidence of ICU-AW as 11–20%, while 45.3% deemed early mobilization very important. Only 25.5% supported mobilization immediately post-extubation. Nearly half (48.1%) identified physicians as the primary initiators of mobilization, while 40.6% cited registered nurses. Moreover, 41.5% believed patients with AW should be referred to physiotherapists.

Conclusion: Cardiologists had limited knowledge of ICU-acquired weakness, although most valued early mobilization. Physicians were viewed as ultimate decision makers, with physiotherapists recommended to handle AW cases.

INTRODUCTION

An intensive care unit's definition of early mobilization is defined as physical activity of the body at a level that produces physiological benefits, such as better ventilation and circulation, as well as a patient who is more conscious of their surroundings.[1] Early Mobilization (EM) of patients in intensive care units has received a lot of attention recently in the clinical and academic literature.[2] It has been found to be a key factor in expediting the healing process after major surgeries and dramatically raises the standard of living for patients admitted to the ICU. [3]

Extended immobility among critically ill patients tends to result in a chain of complications, such as muscle wasting, contractures of joints, reduced lung function, orthostatic intolerance, pressure injury, delirium, and augmented dependence on activities of daily living.[4] Early mobilization is designed to reduce these risks by initiating graded exercise even in the early course of critical illness, usually in the first 48–72 hours of ICU stay, provided the medical condition of the patient allows.[5] This can range from passive range of motion, turning and repositioning in bed, to sitting on the bedside, transferring to a chair, standing,

and even walking with support.[6] These interventions are tailored to every patient's condition and performed under the guidance of a multidisciplinary team consisting of physicians, nurses, respiratory therapists, and physiotherapists.[7]

Many studies have proved that EM not only helps decrease ICU-acquired weakness but also enhances oxygen delivery, improves cardiac output, and maintains hemodynamic stability.[8] In addition, it speeds up the process of weaning from mechanical ventilation, shortens the length of ICU and hospital stays, and decreases long-term physical and cognitive impairment following critical illness.[9] Notably, early mobilization also has psychological advantages, lowering the incidence of ICU-related anxiety, depression, and post-traumatic stress disorder.[10] It promotes feelings of autonomy and hope in patients, which can further increase their participation and cooperation with rehabilitation.[11]

From an institutional point of view, the adoption of EM protocols results in enhanced patient throughput, reduced healthcare expenditures, and enhanced utilization of ICU resources.[12] With the apparent advantages, however, impediments to the adoption of EM persist in most health systems, including

insufficient staffing, apprehension of adverse events, absence of standardized protocols, and inadequate training.[13] The removal of these barriers demands intense interdisciplinary cooperation, appropriate screening of patients for mobilization readiness, and education of ICU professionals about the safety and efficacy of EM.[14] As more evidence is mounting, EM is increasingly seen not as an elective component but as an essential part of high-quality ICU care.[15]

Survey that is cross-sectional Study results from a Tertiary Healthcare Academic Institute in Central India showed that 78% of participants agreed that EM shortens the duration of mechanical ventilation, and 54% of participants agreed that it maintains muscle strength. However, 44% of respondents thought EM was crucial and thought it should be started as soon as the patient's cardio respiratory condition was stabilized[16]

A quantitative cross-sectional survey conducted in Lebanon in 2019 reveals that over 24.5% of the participants knew enough about cardiac rehabilitation. Initiating cardiac rehab is difficult for more than 60% of the participants.[17] The results of a 2014 RCT on 38 myocardial infarction patients treated in the cardiac care unit of the Babul Shahid Beheshti hospital revealed that the mean level of depression following early mobilization was 3.2 in the test group and 8.2 in the control group. Early mobilization, when applied to patients who have undergone coronary artery bypass grafting, showed clinical benefit, according to a prospective cohort study conducted in April 2022.[18] A systematic review indicated that early mobilization has beneficial impacts on a variety of outcomes in patients with or without mechanical ventilation.[19] In a second systematic review, there were 15 research total, and of those, four studies dealt with muscle strength, two with quality of life, and 13 with functional mobility. According to the reviews' findings, physical therapy and early mobilization are safe,

effective interventions that have a significant impact on patients' functional results.

METHODOLOGY

This cross-sectional study aimed to investigate the knowledge and perception of cardiologists towards early mobilization in the intensive care unit (ICU) in Peshawar, Pakistan. The study followed a quantitative research design and employed a structured questionnaire to gather data. The study included cardiologists practicing in various hospitals in Peshawar. A convenience sampling technique was used to select the participants. The sample size was determined based on feasibility, using an App called Open appi and thus included 106 cardiologists with the confidence interval of 95% to obtain representative data. A structured questionnaire was developed to assess the knowledge and perception, practice of cardiologists regarding early mobilization in the ICU. The questionnaire consisted of multiple-choice and Likert-scale items. The items were designed based on a review of relevant literature and consultation with experts in the field. The self-administered. the questionnaire comprised of 2 components one being the demographics (age, gender, designation, experience, working hours) and second being a set of 15 questions based on sub topics such as knowledge; perception; practice; and staffing of ICUs The questionnaire was pilot-tested with a small group of cardiologists to ensure clarity and reliability. Data collection was carried out through self-administered questionnaires. The researchers contacted potential participants through hospitals and professional networks. The purpose and significance of the study were explained to the participants, and informed consent was obtained. Participants were provided with the questionnaires, along with instructions on how to complete them. They were given an appropriate time frame to complete and return the questionnaires. The

collected data were entered into a statistical software program (SPSS) for analysis. Descriptive statistics were used to summarize participants' demographic characteristics, including age, gender, years of experience, designation and working hours. The knowledge and perception items were analyzed to determine the level of knowledge and the overall perception of cardiologists towards early mobilization in the ICU. Inferential statistics, such as chi-square, was

Variables		%	Frequency
Age	23-30	56.6%	60
	31-40	24.5%	26
	40 and above	18.9%	20
Gender	Male	73.6%	78
	Female	23.6%	25
Designation	Consultants	21.7%	23
	Medical officers	24.5%	26
	Trainee medical officers	47.2%	50
Experience	>1year	15.1%	16
	>2years	40.6%	43
	>5years	40.6%	43
Working hours	8 hours	48.1%	51
	>8 hours	37.7%	40

used to identify any significant associations or differences between demographic variables and knowledge or perception scores. The study obtained ethical approval from the relevant institutional review board to ensure participant confidentiality, privacy, and protection of rights. Participants were assured of anonymity and the voluntary nature of their participation. Data were securely stored and used only for research purposes.

RESULTS

Table.1 Demographic Characteristics of Doctors (N = 106)

Most doctors were aged 23–30 years (56.6%) and predominantly male (73.6%). Nearly half were trainee medical officers (47.2%),

followed by medical officers (24.5%) and consultants (21.7%). In terms of experience, 15.1% had more than 1 year, 40.6% had more than 2 years, and another 40.6% had over 5 years of clinical experience. About 48.1% worked 8-hour shifts, while 37.7% worked longer hours.

The knowledge of the cardiologists regarding the ICU-acquired weakness and relevant literature was examined through the followed two questions.

In the first question 31.1% cardiologists stated that the approximate incidence of ICU Acquired Weakness is 11-20% in the population of general medical-surgical ICU patients while 17% reported it as less than 5% whereas 14.2% said it is 5-10%, meanwhile 14.2% stated that they do not know the answer.

Second question asked the familiarity with any clinical trials or literature evaluating early mobilization of critically ill patients in which 65.1% stated the answer as yes while the rest stated no.

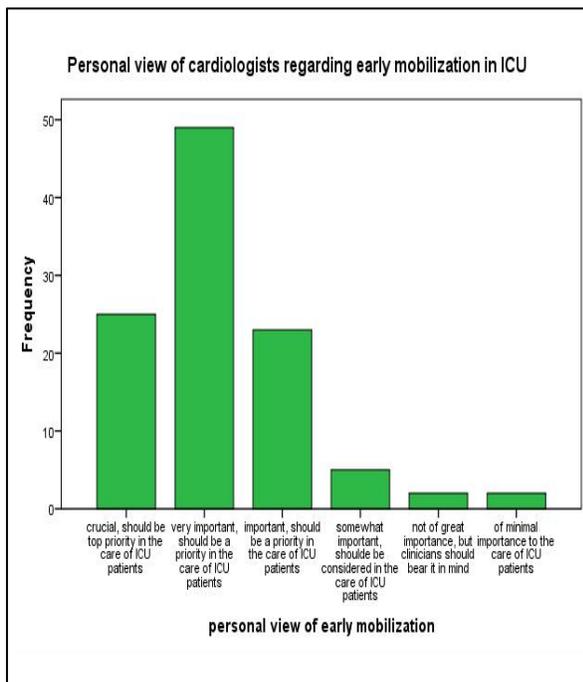
Third question inquired whether they are up-to-date with the clinical studies about early mobilization of critically ill patients (i.e, general, medical, surgical ICU patient's population) to which 49.1% stated that early mobilization improves functional independence upon discharge while 4.7 reported less delirium, 2.8% stated less chances of DVT and 20.8% reported less mortality upon discharge

Fourth question inquires that how well trained and informed do they feel to mobilize mechanically ventilated patients to this 24.5% stated that they feel well trained while majority being 39.6% reported to somewhat trained and 33% declared that they do not feel sufficiently trained to do so

Perception of cardiologists regarding Early Mobilization:

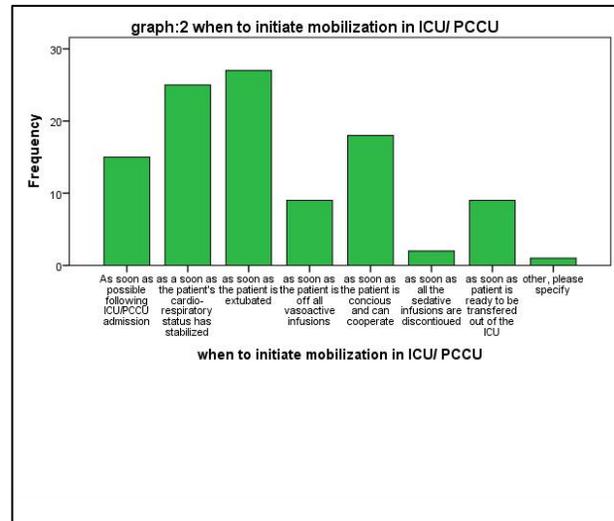
Graph:1

Of the 106 cardiologists, 49 found early mobilization "very important", and 25 "crucial, a top priority". Further, 24 found it "important and should be a priority". Fewer thought it less important: 7 wrote down "somewhat important", while only 1 each found it of "not great" or "minimal importance". Overall, 98 of 106 cardiologists advocate for prioritizing early mobilization in ICU care.



Graph.2

Of 106 cardiologists, most preferred to start after extubation 29 (27.4%) or after stabilization of cardiorespiratory status 26 (24.5%). 18 (17.0%) favored initiating when the patient is conscious and cooperative, and 14 (13.2%) wanted to do it at ICU/PCCU admission itself. Few favored waiting for the removal of vasoactive infusion 8 (7.5%), sedation withdrawal 5 (4.7%), or readiness for ICU transfer 13 (12.3%), and 1 (0.9%) chose "Other."



Practice of the cardiologists in the early mobilization of the ICU admitted patients was assessed through the nine questions responded:

Question 1 stated whether all the patients are automatically assessed for appropriateness to begin mobilization by the physiotherapist in your ICU/PCCU without promoting or requesting other clinician groups, to which majority 57.5% of respondents said yes while 23.6% reported the answer as no and 18.9% were unsure.

Question 2 stated that who is generally the first health care provider to identify if a patient is ready for mobilization, to which the cardiologists responded as physician with 49.1%, physiotherapists with 21.7%, 18.9% as registered nurse while 5.7% as occupational therapists, 1.9% reported respiratory therapists as the first one's to mobilize.

Question 3 stated that whether the initial physiotherapist assessment on each patient require a written medical order by a physician to which 66% reported as technically yes, meanwhile 26.4% stated no and 7.5% were unsure regarding the issue.

Question 4 stated that whether your ICU/PCCU have written protocols or policies that provide guidelines on when a patient should begin mobilization, to which the

majority of doctors 51.9% said yes while 36.8% said no and 10.4% were unsure about it. Question 5 stated whether your ICU/PCCU have at least one clinician who serves as a champion for early mobilization, to which 52.8% reported as yes and 36.8% as no and the rest as unsure

Question 6 stated that whether if the ICU/PCCU you work in has at least one champion who promotes early mobilization, what discipline he/she from, to which the cardiologists confirmed physiotherapists as 46.2%, physician as 27.4%, registered nurse as 8.5%, respiratory therapists as 5.7% while 12.3% being unsure regarding it.

Question 7 stated that Who participated in the mobilization of patients in your ICU/PCCU, to which the respondents reported registered nurse as the one with 40.6%, 28.3% as the physiotherapists, 18.9% as physician, 4.7% ,2.8% as the health care aid, while 1.9% as the occupational therapists.

Question 8 stated that whether patients with suspected ICU acquired weakness routinely referred to an outpatient clinic after ICU/PCCU discharge for long term rehabilitation, to which the physicians responded as majority with 59.4% with a yes, while 29.2% said no and the rest were unsure.

Question 9 stated that to whom are the patients with suspected ICU acquired weakness referred to which the cardiologists responded that they are referred to physiotherapists with 41.5%, neurologists as 21.7%, family physician as 14.2%, general internist/pediatrician as 7.5%, rehabilitation specialist as 7.5%, occupational therapists as 1.9%, while 1.9% stated that they are routinely not referred to outpatient clinic and 0.9% stated that they are referred to intensivists, while 1.9% were unsure regarding the matter.

DISCUSSION

Early mobilization in the ICU has drawn a lot of attention recently as a crucial component of

care for seriously ill patients. It is well known that early mobilization has advantages such as fewer problems, shorter hospital stays, and better functional outcomes. The decision-making process for early mobilization in the ICU is extremely important, and cardiologists, with their specialized knowledge of cardiovascular diseases, play a key part in it. The purpose of our study was to determine the level of knowledge, perception of cardiologists towards early mobilization in ICU in tertiary care hospitals of Peshawar. Results of our study showed that most of the respondents had intermediate knowledge towards ICU acquired weakness among patients as 11-20%. A study was conducted in Nigeria in 2020 A Multicenter Survey of Clinicians' Knowledge, Attitude and Practices in Resource-Limited Hospital Settings. The results of which showed that 89%) clinician indicated knowledge about benefits of EM, but only 30% showed adequate knowledge about what constitute EM. 5% of the participants had knowledge about EM guidelines.[1] Another survey of critical care clinicians in an Australian tertiary hospital was conducted in year 2019 the results illustrated that most of the participants had average knowledge on early mobilization as a therapy for critically ill patients.[3] Another study on knowledge of cardiovascular healthcare providers on early mobilization was conducted in year 2021 the results showed that physician had higher knowledge regarding early mobilization.[16] Another aim of our study was to find out the perception of cardiologist towards early mobilization in ICU. Around 45.3% physicians consider early mobilization as very important and 25.5% suggested that patients should be mobilized as soon as extubated. Among all, 48.1% considered that physician as the first primary health care provider for early mobilization identification simultaneously 40.6% said that registered nurses are mainly involved in patient's mobilization I ICU/PCCU. Patients

with acquired weakness should be referred to physiotherapist was the statement made by 41.5% cardiologists. A similar cross sectional study Perceived barriers to early mobilization of intensive care unit patients by nurses in hospitals was conducted in Iran in year 2019 which suggested about (58.9%) participants had high, (24.3%) participants had medium and (16.8%) of the participants had low levels of knowledge, respectively. While attitude barriers showed that (72%) and about (24.3%) of the participants had a highly positive and moderately positive attitude, respectively. A relatively low number of participants (3.7%) had a slightly positive attitude.[17]

Limitations:

- The study had several limitations, including a small sample size and the use of convenience sampling, which may limit the generalizability of the findings.
- the study relied solely on self-reported data, which may be subject to response bias.
- The findings can guide the development of targeted interventions and educational programs to enhance knowledge and improve the implementation of early mobilization practices in the cardiac ICU setting.

CONCLUSION:

The cardiologists considered ICU related acquired weakness as limited and half of the physicians consider early mobilization as the tool of management for Acquired weakness. They considered physician (Medical Doctor) as the first primary health care provider for early mobilization identification and suggested Physiotherapist as the body to be referred with suspected Acquired Weakness

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Future predictions:

The study had several limitations, including a small sample size and the use of convenience sampling, which may limit the generalizability of the findings.

The study relied solely on self-reported data, which may be subject to response bias.

The findings can guide the development of targeted interventions and educational programs to enhance knowledge and improve the implementation of early mobilization practices in the cardiac ICU setting.

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