

Mobilization of patients in neurological Intensive Care Units of India: A survey

Anup Bhat, Kalyana Chakravarthy, Bhamini K. Rao

Abstract

Context: The rehabilitation needs of the patients in neurological Intensive Care Units (ICUs) vary from that of a medical ICU patient. Early mobilization is known to improve the various neurological outcomes in patients admitted to neurological ICUs, although little is known about the practice pattern among physiotherapists. The mobilization practice pattern may vary significantly than that of developed countries due to the reasons of differences in training of professionals, availability of equipment, and financial assistance by health insurance. **Aim of the Study:** To study the current mobilization practices by the physiotherapists in neurological ICUs of India. **Subjects and Methods:** A cross-sectional survey was conducted with a content validated questionnaire about the mobilization practices. Online questionnaire was distributed to physiotherapists working in neurological ICUs of India. Descriptive statistics were used. **Results:** Out of 185 e-mails sent, 82 physiotherapists completed the survey (survey response rate = 44%). Eighty participants (97.6%) mentioned that the patients received some form of mobilization during the day. The majority of the physiotherapists (58.5%), "always" provided bed mobility exercises to their patients when it was found appropriate for the patients. Many physiotherapists (41.5%) used tilt table "sometimes" to introduce orthostatism for their patients. **Conclusion:** Mobilization in various forms is being practiced in the neurological ICUs of India. However, fewer mobilization sessions are conducted on weekends and night hours in Indian Neurological ICUs.

Keywords: Exercise, head injury, neurointensive care units, physiotherapy, tilt table

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Introduction

Immobility for an extended period causes impairments in cardiovascular, neuromuscular, skeletal, endocrinal, and metabolic systems.^[1] These impairments not only afflict the individual but also increases the utility of healthcare resources and the cost.^[2] Early mobilization of patients with critical illness is shown to reduce the consequences of extended periods of bed rest.^[1] The term mobilization in Intensive Care Unit (ICU) describes any possible movements given in a progressive fashion ranging from mere passive movements to ambulation.^[3]

These interventions have not only been proven to be safe^[4] but also shown to be beneficial in alleviating the decline in muscle strength, functional capacity, lengthening rehabilitation and quality of life among patients admitted to respiratory, and medical ICUs.^[2,5-9] However, the mobilization in neurological ICU differs from that of mobilization in medical ICUs.^[10,11] The rehabilitation needs of the patients in neurological ICUs vary from that of a medical ICU patient regarding weakness, the risk

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of seizures, responsiveness, the presence of intracranial hypertension, the presence of intracranial pressure monitoring device or extraventricular drainage, and presence of spasticity to name a few.^[11-13] Early mobilization and upright sitting are found to be favorable for the patients admitted to neurological ICUs.^[14,15] It is revealed that mobilization in neurological ICU can reduce ICU stay, hospital-acquired infections, and ventilator-associated pneumonia.^[16] Sottile *et al.*, in their retrospective study of neurological ICU in an University hospital found that physiotherapy was less instituted to the patients receiving invasive monitoring and therapies.^[12] Although the study provides insight about the physiotherapy practices in neurological ICU, this may be affected by the policies and the protocols of the individual hospital where the research was conducted. The practice of mobilization in India may greatly vary because of many differences in the health-care system including the availability of trained professionals, equipment, and financial assistance from insurance when compared to the developed countries. Thus, there is a need to look at the mobilization practice pattern among physiotherapists in Indian neurological ICUs. Knowing the mobilization practice pattern among physiotherapists may help the researchers and clinicians to lay a foundation for the development of protocols and guidelines for practice. This study is a part of a larger survey assessing the physiotherapy practice in neurological ICUs in India.^[17]

Objective

To study the current mobilization practices by the physiotherapists in neurological ICUs of India.

Subjects and Methods

Institutional ethical clearance was obtained before the study. A questionnaire was drafted after extensive literature review in the area of mobilization and neurological ICUs. The questionnaire thus developed was qualitatively content validated by ten subject experts in the field of critical care physiotherapy and neurological physiotherapy. The questionnaire included both open- and closed-ended questions. The questionnaire developed was made available online. List of hospitals was generated as described elsewhere.^[17] A list of hospitals was prepared by selecting the hospital only once if they were present in both the websites. A total of 152 hospitals were listed from both Medical Council of India (MCI) website (<http://www.mciindia.org>) and National Accreditation Board for Hospitals and Healthcare Providers (NABH) website (<http://www.nabh.co/>). Respective hospital administrative officials were communicated and were requested to provide the e-mail addresses of

the physiotherapists in their neurological ICUs who fulfilled any of the following criteria: (1) Physiotherapy staff working in neurological ICU, (2) physiotherapy postgraduate students who have worked for at least 2 months in a year in neurological ICUs, if it is a teaching hospital. Physiotherapy interns and undergraduate students were excluded from taking part in the study. Hospitals which denied to provide the above data were excluded from the survey. After procuring the e-mail addresses of the physiotherapists from these hospitals, an e-mail requesting the physiotherapists to participate in the study was sent. A concise introduction to the study and a link to the online survey questionnaire was provided in the body of the e-mail [Appendix 1]. Submission of the online survey was considered as the consent to take part in the study. The first reminder was sent after a month and the second reminder after a month from the date of the first reminder. The data were entered in SPSS version 15 (SPSS Inc., Released 2006. SPSS for Windows, version 15.0. SPSS Inc., Chicago, IL, USA), and descriptive statistics were used in the study.

Results

E-mail addresses of the physiotherapists working in neurological ICUs were requested from 152 hospitals; however, only 27 hospitals (17.76%) responded to the request. Of 185 e-mail addresses provided by the hospital administrative officials, only 82 (44.3%) physiotherapists responded to the questionnaire. Most of these respondents were from a hospital affiliated to teaching hospital (79.3%). The bulk of the respondents comprised male physiotherapists (54.9%). Median work experience of respondents was 3 years (interquartile range [IQR] 1½ years, 5 years) and 6 months (IQR 3 months, 2 years) in neurological ICU. Physiotherapists from Karnataka, Andhra Pradesh (undivided), Maharashtra, New Delhi, Tamil Nadu, Kerala, Gujarat, Madhya Pradesh and Uttar Pradesh responded to the study. The majority of the respondents were physiotherapy graduates pursuing masters (51.2%). About 34% of the subjects had master's level qualification, and 12% had bachelor level qualification. The respondents belonged to cardiopulmonary (31.7%), neurology specialty (30.5%), and other specialties (25.6%) of physiotherapy. Sixty-five respondents (79.3%) were associated with a teaching hospital, and 81.7% of the respondents were working in a nongovernment private hospital.

Eighty (97.6%) participants mentioned that the patients received some form of mobilization during the working hours of a day. The mobilization was provided every 4–6 h by many physiotherapists (37.8%) during the working hours of a day. Thirty-three (40.2%) respondents worked

during night hours, and eight respondents indicated that they provide some form of mobilization even during the night hours. The mobilization was repeated every 4–8 h during the night hours. Sixty-two (75.6%) participants reported that they worked on holidays and weekends. Thirty-six (43.9%) respondents reported that the patients were mobilized on holidays and weekends. However, this was repeated once in every 8–12 h by most of the physiotherapists. Fifty-five (67.1%) participants mobilized their patients “almost always” when they attended their patients and when it was applicable. The majority of the physiotherapists (58.5%), “always” provided bed mobility exercises to their patients when it was found appropriate for the patients. Ambulation was attempted “most of the times” when it was appropriate for their patients by many respondents (47.6%). Many physiotherapists (41.5%) used tilt table “sometimes” to introduce orthostatism for their patients.

Discussion

This project evaluated the current mobilization practices by the physiotherapists in neurological ICUs in India. Early mobilization is a practice which facilitates functional mobility of the patient which ranges from bed mobility to walking.^[18] Based on the results of this survey, it is encouraging that most of the patients in neurological ICUs received some form of mobilization (97.6% of the respondents). This is consistent with the mobilization practices of Indian ICUs, Italian ICUs, and in Australian ICUs as reported by Skinner and the team.^[19–23] However, our results are not in agreement with the study conducted by Berney *et al.* in Australian and New Zealand’s ICUs where relatively lesser patients were mobilized during the ICU stay.^[13] It is noteworthy to mention that the term “mobilization” is used in different contexts by various authors. Some authors consider mobilization as orienting the patient to upright position^[2,19,24] and ambulation whereas some consider it as any movement that is plausible.^[3,6,25] It is found that patients receiving active assisted mobilization have better outcomes than patients receiving passive mobilization,^[22] and some authors consider only active movements as mobilization.^[8] However, many of the patients in the neurological ICUs may not follow the commands; the plausible physiotherapy interventions are passive therapies.^[10] Hence, the definition of the term “mobilization” may have to be adapted accordingly in each subspecialty of critical care. In this study, the mobilization was provided every 4–6 h by many physiotherapists. However, the recommendations for frequency of mobilization are either once or twice daily.^[26] During night hours, 33 respondents reported to be working in neurological ICUs, but it is found that very few physiotherapists ($n = 8$) provided

mobilization during night hours. It was found that number of physiotherapists working at night is relatively lower in European ICUs compared to that of day. The percentage of physiotherapists working during night hours is negligible in this study in comparison with the European setting.^[27] It was found that 43.9% of the physiotherapists mobilized their patients on weekends and festival holidays. It is remarkable to mention that relatively lesser physiotherapists worked on weekends in Indian neurological ICUs (43.9%) when compared with European ICUs where 83% of the physiotherapists discharged their duties even on weekends.^[27]

Tilt tables facilitate early weight bearing in patients with delayed standing or weight bearing due to various reasons.^[10] Forty-one percent of the physiotherapists reported that the tilt table was used “sometimes” when it was suitable for the patient. The utilization of the tilt table is lower than that reported by Chang *et al.*, and Skinner *et al.*, in Australian ICUs. The use of the tilt table may be affected by various reasons: (a) Workload of the physiotherapists, (b) space constraints, (c) training level of the physiotherapists, (d) availability of the equipment, (e) safety concerns, (f) preference, (g) physician’s decision, (h) type of ICU, and (i) unavailability of guidelines directing the use of tilt table in ICU.^[23,28]

When e-mail addresses of physiotherapists in their neurological ICUs were requested from 152 hospitals, only 27 hospitals responded. This poor response rate (17.76%) could be because of many reasons: (a) E-mail being delivered to spam folder is an inevitable problem (b) the hospital officials might have overlooked or ignored the e-mail because of their busy schedule, (c) the hospital might not have a database of e-mail addresses of the physiotherapists. In addition to the above reasons, denial to participate in the study might be another reason for the poor response rate among physiotherapists (44.3%). It is also found that web-based surveys yield roughly on average 11% of lesser response rates when compared with other survey methods.^[29] As a general guideline, about 60% of response rate is minimally required for the surveys. The results of this study must be cautiously considered before generalizing it as the response rate was less than the acceptable margin.^[30] Physiotherapy graduates pursuing masters formed the major fragment of the respondents. This could be either because a majority of the participants in this study were from hospitals affiliated to teaching college or students accessed the internet more frequently than practicing physiotherapists. It is noteworthy to point out that not all the respondents were from neurosciences or

cardiopulmonary specialty as expected. Perhaps, this is due to rotational postings or job requirement of the organization.

This study was the first of its kind to assess the mobilization practice in neurological ICUs of India. However, the study has many limitations. First, the study was conducted among physiotherapists working in NABH accredited hospital or MCI recognized colleges for DM neurology or MCh neurosurgery. There are many institutions with neurological ICUs which do not fulfill this criterion. Hence, the results of this may be generalized with caution. Second, for this study, it was chosen to conduct a web-based survey despite the fact that web-based survey yields lesser response rates. This was done because it was convenient and cost-effective when the data had to be gathered from all over the country. Third, respondent bias is an inevitable issue in self-reported studies. Last, the term "mobilization" was not clearly defined in the questionnaire. The perception of the term "mobilization" among physiotherapists could have been assessed if the questionnaire had addressed it, but unfortunately it did not. It is recommended that perceptions of term "mobilization" be assessed among different professionals, and the safety of these procedures be assessed in future studies.

Conclusion

Based on this study, it is evident that mobilization in various forms is being practiced in the neurological ICUs of India. However, there is a lesser availability of physiotherapists on weekends and night hours in Indian neurological ICUs.

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Conflicts of interest

There are no conflicts of interest.

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Appendix 1

Questions were composed based on these headings

- Frequency of mobilization during weekdays
 - Is the patient mobilized on weekends and on holidays?
 - Is the patient mobilized during night?
- Frequency of mobilization during weekends and holidays
- Frequency of mobilization during night
- Frequency of limb physiotherapy
- Frequency of bed mobility exercises
- Frequency of ambulation
- Frequency of use of tilt tables.