Physiotherapy in Patients in the ICU Treated With IV Tissue Plasminogen Activator for Stroke

To the Editor:

We read with interest the recent article in CHEST (September 2013) by Stiller, who provided a systematic review of the literature on physiotherapy in the ICU. The author concluded that early patient mobilization should be a priority in adult ICUs. We agree with this practice and suggest that it is beneficial for most critically ill patients, even in patients not receiving mechanical ventilation. Although not a primary focus of this review, we found little mention of patients in the neuro-ICU, with the exception of intracranial pressure monitoring in neurosurgery patients as seen in Table 3 of the article. Between June 2011 and July 2012, we performed mobilization in 30 patients in the ICU within 13 to 24 h of receiving IV recombinant tissue plasminogen activator for acute ischemic stroke at the Mayo Clinic in Florida. We tracked the safety of early physiotherapy and found that 67% of the patients had no complications related to mobilization. Moreover, 87% of mobilization activities (ie, sitting, standing, walking, transferring to chair) were tolerated, with no adverse response. Safety was measured by neurologic and hemodynamic monitoring. No patient experienced sustained neurologic deficit or bleeding from any invasive line (eg, venous line, arterial line, or Foley catheter).

The potential for earlier initiation of rehabilitative therapies in the neuro-ICU to reduce length of stay may facilitate a more rapid turnover of the patient population and, thus, may enable critical care clinicians to serve a larger number of patients. We believe this is an important consideration given the aging of the population, the mounting shortage of critical care providers, and the growing burden of neurologic diseases that ICU clinicians will face by 2025. Early mobilization of patients may have significant financial implications in light of imminent cost-cutting initiatives in US health care.

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Affiliations: From Physical Medicine & Rehabilitation (Dr Davis and Mr Arnold) and Departments of Neurology, Critical Care, and Neurosurgery (Dr Freeman), Mayo Clinic.

References

Response

To the Editor:

We thank Dr Bloos and colleagues for sharing their results with us, and we are pleased to receive further validation of our recently published results. Regarding the discrepancy between blood culture and polymerase chain reaction results, we suggest an alternative explanation relating to the order in which the tests were taken. If the blood was drawn for culture prior to the blood for polymerase chain reaction, this may have “washed out” the wire hub. Discarding the initial blood volume has been described to reduce contamination of both blood products during donation and blood cultures.

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Response

To the Editor:

I thank Dr Davis and colleagues for their interest in my systematic review. I completely agree that patient mobilization should be a priority in adult ICUs for virtually all patients, not just those who are intubated and receiving mechanical ventilation. The study Dr Davis and colleagues have undertaken, showing that early mobilization is feasible and safe for patients with ischemic stroke within 13 to 24 h of receiving IV tissue plasminogen activator, is very welcome. The AVERT (A Very Early Rehabilitation Trial) series of trials by Bernhardt and colleagues, who are investigating the feasibility, safety, and effectiveness of very early rehabilitation for patients with stroke, offer further evidence of the importance of early progressive mobilization and rehabilitation for patients with neurologic conditions. Increasing evidence is also showing that early progressive mobilization is the most important physiotherapy intervention after major surgical procedures, such as upper abdominal surgery.

My two systematic reviews deliberately focused on adult patients who are intubated and receiving mechanical ventilation in the ICU, hence, studies involving patients who were ventilating spontaneously were not considered. Although both reviews identified studies where patients with neurologic or neurosurgical conditions were specifically investigated, such studies were sparse. There clearly is a need for further research involving specific patient groups (eg, with specific neurologic conditions) regarding the feasibility and safety of early progressive mobilization and rehabilitation and to evaluate the effectiveness of early progressive mobilization and rehabilitation at improving functional outcomes, decreasing ICU and hospital lengths of stay, and reducing health-care costs.

Kathy Stiller, PhD
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REFERENCES

Pulmonary Hypertension

To the Editor:

I read with great interest the article by Hansdottir et al in CHEST (August 2013) regarding pulmonary hypertension (PH) in left-sided heart disease and, more specifically, in heart failure with preserved ejection fraction. Would the authors please comment on the right-sided heart catheterization criteria needed to finalize the diagnosis of “fixed mixed” PH in the setting of heart failure with preserved ejection fraction? Is it based mostly on response to nitroprusside or is it recommended to repeat a right-sided heart catheterization after a period of adequate medical therapy and diuresis?

Furthermore, do the authors see a role in vasodilator testing (with epoprostenol, adenosine, or nitric oxide) prior to possible initiation of any of the vasodilators traditionally used in pulmonary arterial hypertension? Would these classes of medication be withheld in the fixed mixed PH if vasodilator testing demonstrated a rise in pulmonary capillary wedge pressure?

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