The Role of Manual Patient Turning in Preventing Hospital Acquired Conditions

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Abstract

Manual turning of patients has many benefits beyond pressure injury prevention. It is the first step in early mobilization of bedbound patients to prevent cardiovascular and musculoskeletal effects of immobility, such as a change in muscle and/or bone mass and a reduction in plasma volume. Manual turning also helps prevent gravitational equilibrium, which eventually makes it more difficult for the patient to tolerate position changes. Turning is a key component in prevention of pneumonia and post-operative fever and has been shown to lead to fewer ICU days and better patient outcomes.

Background

The effects of prolonged immobility have been extensively studied.[1] Bedbound patients experience changes in muscle and bone mass, lung volumes, oxygen consumption, and are at increased risk for thromboembolism and pressure related skin problems. In addition, immobile patients can experience psychological stress associated with their condition.

Immobility and physical inactivity are risk factors in the development of pressure injuries (Gillespie, Cochrane Review, 2014). While bed rest is a common and often necessary prescription for ICU patients,[2] prolonged immobility may result in increased insulin resistance,[3] reduction in plasma volume, increased cardiovascular workload, elevated resting heart rate and decreased stroke volume with a reduction in cardiac output.[4,5] Numerous benefits reported as a result of progressively increasing mobility through turning and repositioning include reduction in both hospital and ICU length of stays. (Brindle, 2013)

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The primary purpose of patient turning is to relieve pressure, improve patient comfort and aid pulmonary secretions. Every two hour turning is considered standard of care for mobility impaired patients, however, there is inconsistency with much variation in the performance of manual turns according to established protocol.[6,7,8,9]

Prevent Hospital Acquired Pressure Injuries

Making sure that patients move regularly improves healing, while repositioning in bed and chair them helps relieve pressure on bony prominences and prevent pressure injuries.[10,11,12,13]

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Patient turning is the mainstay in national and international pressure injury prevention guidelines.[14] The use of Continuous Lateral Rotation Therapy (CLRT) and alternating pressure beds do not effectively turn and reposition patients, since they do not remove the pressure from the skin. Use of lateral rotation therapy has not been found to be effective in pressure injury prevention and should, therefore, not be used as a proxy to manual patient turning.[15]

Improve Respiratory Function and Prevent Respiratory Infections

Immobility exacerbates the accumulation of mucus in dependent lung zones. Consequently, pooled secretions act as a nidus for bacterial proliferation culminating in respiratory infection.[16] Regular turning helps reduce atelectasis and mobilizes lung secretions thereby reducing risk of respiratory tract infections.[17]

Appropriate turning and repositioning of the critically ill patient can also dramatically improve their gas exchange, resulting in a shorter stay in the critical care unit and an improved outcome.[18]

Appropriate turning and repositioning of the critically ill patient can also dramatically improve their gas exchange, resulting in a shorter stay in the critical care unit and an improved outcome.[18] A large observational study published in American Journal of Critical Care[19] showed that the more frequently a patient is turned, the less likely pneumonia is to develop. The authors concluded that even the most critically ill patients can tolerate and profit from a regular turning schedule.

In a separate study on stroke patients, manual repositioning started within 48 hours of onset of ischemic stroke helped to reduce the incidence of nosocomial pneumonia.[20]

Improve Outcomes in Cardiac Patients

Manual turning in the first 24 hours after coronary arterial bypass (CAB) surgery helps shorten ICU stays and provides savings in rental bed costs[21], resulting in significant financial savings to the hospital.

Manual turning in the first 24 hours after coronary arterial bypass (CAB) surgery helps shorten ICU stays and provides savings in rental bed costs[21], resulting in significant financial savings to the hospital. Also, CAB patients who are turned systematically in the first 24 hours postoperatively have significantly fewer hours of postoperative fever than those who are immobilized after surgery.[10]

Prevent Orthostatic Intolerance in ICU Patients

Therapeutic activity in the ICU begins with manually turning the patient from supine to lateral positions and initiating a range of motion (ROM) exercises that may progress to dangling, chair sitting and ambulation.[2]

Turning ICU patients helps prevent orthostatic intolerance, which results from patients remaining in stationary position for extended periods of time.[22] Patients who are left in a stationary position for prolonged periods of time will experience greater hemodynamic instability when turning is eventually initiated. To prevent orthostatic intolerance, a turning schedule should be started within hours of ICU admission.[22] In burn units, using therapeutic positioning aids in reducing edema and preserving function by proper body alignment and use of anti-contracture positioning.[23]

Summary

Manual turning of patients has many benefits beyond pressure injury prevention. It is the first step in early mobilization of bedbound patients to prevent cardiovascular and musculoskeletal effects of immobility, such as loss of muscle mass, bone mass and plasma volume. Manual turning also helps prevent gravitational equilibrium, which eventually makes it more difficult for the patient to tolerate position changes. Turning is a key component in prevention of pneumonia and post-operative fever and has been shown to lead to fewer ICU days and better patient outcomes.

Susan Kennerly is with the University of North Carolina Charlotte, School of Nursing. Her scholarship has identified how nursing can facilitate practices, such as repositioning, to prevent pressure injuries.

Tracey Yap of the Duke University School of Nursing has developed and tested approaches to improve care for institutionalized older adults at high risk for developing pressure injuries.

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