

Mobilizing Patients with Adequate Care Services Critical for the Rehabilitation Process and Health Outcomes

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ABSTRACT

Immobilized patients are too frequently left in an immobilized state for too long, leading to secondary complications that are often more severe than the primary disorder that led to immobilization. Data now show the significant benefits of mobilizing patients as quickly as possible to avoid or reverse these types of complications. While there has been a paradigm shift in the view of the value of bedrest, mobilizing patients early is still limited by a lack of relevant resources to help support the rehabilitation process. More aid and attendant care are thus needed to help mobilize patients safely, particularly in the home environment, where professional care is beneficial for both the rehabilitation process and the prevention of complications that affect immobilized patients.

Keywords: Immobilization; Early mobilization; Rehabilitation; Aid and attendant care; Home care

INTRODUCTION

Immobility increases the risk of secondary complications and shortens lifespans of debilitated patients

Though once considered an important mechanism for recovery from surgery, trauma, or disease, bedrest has unintended harms that have been recognized for over a century [1-3]. While immobilization can heal injured parts of the body, the health-risks it poses far outweigh its potential benefits in most cases.

The deconditioning that occurs with prolonged immobilization is a common cause of functional decline [4]. Unfortunately, immobilization is still widely recommended in healthcare, and the consequent complications are frequently more serious than the primary disorder the immobilization is intended to treat [5].

Nearly 1 in 10 premature deaths worldwide is attributed to inactivity [6,7]. Like people who live a sedentary lifestyle, which is associated with shortened lifespan and an increased risk of a variety of diseases, including diabetes, certain cancers, asthma, chronic liver disease, chronic kidney disease, ischemic heart disease, thyroid disorder, depression, migraine, rheumatoid

arthritis, gout, and diverticular disease, patients on bedrest suffer from the physiological damage that accompanies immobilization [7,8].

When immobilization is prolonged, almost every organ system is implicated. For instance, immobilization can influence metabolism as well as the respiratory, genitourinary, musculoskeletal, cardiovascular, and nervous systems, with a wide array of health-related consequences [5,9]. These consequences include but are not limited to muscle weakness, restricted joint mobility, psychological disturbances, and cognitive impairments, and they may lead to a variety of complications including but not limited to pressure sores, Deep Vein Thrombosis (DVT), pneumonia, Urinary Tract Infections (UTI), mechanical ventilation, myelitis, and sepsis [2,10,11].

Troublingly, the adverse effects of immobilization are revealing themselves to be long-lasting and potentially irreversible, especially in older patients [12]. Despite these dangers, immobilization continues to be pursued as a therapeutic path far too frequently, and the early mobilization that can be used to prevent complications is often not practiced [2].

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LITERATURE REVIEW

The incidence and results of secondary complications are too dire to justify immobilization

The complications arising because of immobility lead to increased morbidity and mortality, longer hospital stays, and higher healthcare costs because immobilization inevitably causes functional changes that put patients at risk for health deterioration [11]. For instance, during immobilization, basal metabolic rate is decreased, which leads to biochemical and hormonal changes with health-related implications.

Even healthy people who are put on bedrest lose 5% of their muscle mass in just one week [13,14]. The reduced muscle strength observed during immobilization includes weakening in muscles responsible for respiration, which leads immobilized people to suffer from decreased tidal volume as well as decreased minute ventilator volume [5]. The results of these changes can be dire.

While there is an exhaustive list of secondary complications that occur with bedrest, some of the most common are below. These complications present a significant burden to immobilized patients as well as the healthcare system at large.

Pneumonia: In 2018, 1.5 million people in the U.S. were diagnosed with pneumonia, and more than 40,000 of them died from the disease [15]. Hypostatic pneumonia and atelectasis often occur in people who are immobilized because of the resulting impairment in ability to clear secretions [5]. The evidence for the link between immobilization and pneumonia is so strong that the U.S. Centers of Disease Control and Prevention (CDC) recommend early mobilization as a strategy to prevent pneumonia in ventilated patients [16].

Deep vein thrombosis: Approximately 900,000 people suffer DVT in the U.S. each year, and the slowed blood flow that results from immobility has been identified by the CDC as a major risk factor for this complication [17,18]. Recent research into the relationship between immobility and DVT has revealed that more than 3 days of immobility significantly increases the risk for DVT in acutely ill patients [19].

Pressure sores: More than 70% of patients over the age of 70 suffer from pressure sores within 2 weeks of being admitted to the hospital, and the associated complications can be life-threatening. Infection of these sores can, for instance, lead to septicemia [5].

Urinary tract infections: UTIs are the most common bacterial infection, accounting for 1 in 4 of all infections, and the risk of UTIs is known to increase with inactivity [20,21]. As with pressure sores, the UTIs that arise in response to immobilization can lead to life-threatening infections and septicemia [22].

Importantly, even in cases where these complications are effectively treated, the data show that these complications of immobilization reduce quality of life for patients [11]. A recent study showed that of 20,515 bedridden patients, more than 2,600 had one or more major complications arising from immobility, pointing to the urgency of overcoming this dangerous problem [11]. Fortunately, the negative results of immobilization are predictable and avoidable if immobilization is minimized and early mobilization is pursued.

Immobilized patients need to be mobilized as early as possible to prevent secondary effects

Early mobilization that is initiated within the first few days of being admitted to the Intensive Care Unit (ICU) is associated with reduced mortality, length of stay, and readmissions rates, as well as improvements in functionality, strength, independence, self-care at discharge, and overall outcomes and costs [23-30]. Delaying mobilization, on the other hand, is associated with enhanced risks of death and short-term hospital readmissions [31].

Some of the initial data on the benefits of mobilization have demonstrated how early mobilization improves outcomes in specific contexts such as following surgeries, following childbirth, and in cases of mechanical ventilation, as well as in patients who have already suffered immobilization-related complications like DVT and pneumonia [2,32,33]. Review into the impact of timing of mobilization on postoperative outcomes has also revealed that early mobilization is often associated with better postoperative fitness and fewer complications [34].

According to a team at the University of California Los Angeles (UCLA), early mobilization promotes independence; speeds recover, and improve overall outcomes [35]. Specifically, the benefits of early mobilization include:

- Stimulating motivation to recover
- Helping to make breathing easier
- Reducing pressure that leads to skin deterioration
- Preventing joint stiffness, aches, and contractures
- Improving mental state and clarity of thinking
- Maintaining heart function
- Helping bowel function and movement
- Increasing muscle tone and blood circulation through the body
- Preventing blood clots (DVT)

Medical recommendations are beginning to catch up to the evidence on the importance of early mobilization. For example, the CDC recommends moving around as much as possible to prevent DVT [18]. Early mobilization is also now recommended in several guidelines in the U.S., U.K., and other European countries to prevent or minimize complications during acute stroke care [36]. While the shift toward recommending early mobilization over extended bedrest signals significant progress in our understanding of the harms of immobilization, achieving early mobilization is hindered by a lack of adequate resources.

Aid and attendant care are necessary to facilitate successful early mobilization

While early mobilization is critical to improving outcomes in immobilized patients, mobilizing requires both direct and indirect support from healthcare professionals. Not only are healthcare professionals needed to guide mobilization activities, but they are also essential for managing the risks that come with mobilization [37].

Determining the best way to provide such support can be a challenge, and a collaborative and dynamic team of healthcare professionals that includes nurses, physicians, and physical therapists may provide the best outcomes [4,38]. Research also shows that implementing protocols based on clearly defined and patient-oriented goals and prioritizing communication between all relevant healthcare professionals can improve early mobilization.

Nurses appear to be particularly valuable in the context of accelerating successful mobilization. Research into how to reduce the negative impact of immobility has demonstrated that access to nurses- and specifically to nurses with higher professional titles-may reduce the incidence of major complications associated with immobility [39].

Similarly, there is evidence showing that early mobilization has its greatest impact when standardized mobility programs or protocols are implemented. According to researchers in this area, clinical nurse specialists are experts in both leading these types of programs or protocols as well as sustaining them toward specific clinical goals like mobility [33].

Recent data show that patients and their families are eager to expedite mobilization [40]. However, they often feel unequipped to facilitate mobilization activities-which may include range of motion exercises, gait training, sitting, or standing-highlighting the importance of attendant care for patient mobilization [23,40].

Lack of consensus guidelines should not prevent clinicians from expediting mobilization

Researchers has established that mobilizing patients who have been admitted to the ICU is not only beneficial but that it is also feasible and safe [41]. The benefits of early mobilization and rehabilitation have also been shown to extend beyond the ICU to general medicine adult patients [4]. While the need for early mobilization and the resources to achieve it are clear, there has yet to exist an established consensus for therapeutic protocols or guidelines for early mobilization [4].

The slow pace may be partially explained by research in the late 1980s, which suggested that immobility was not appreciated as a major problem, as it was often not documented and the reasons for it could often not be ascertained [42]. Perhaps for this reason, changes in muscle strength have often not been assessed in immobilized patients [25,43]. There is thus a scarcity of actionable data related to mobilizing patients [44].

CONCLUSION

Fortunately, the growing urgency for the information and resources to support mobilization has led to the development of randomized controlled trials to determine the feasibility. Delivering specific mobilization programs and such trials are currently underway. As the details of how to optimize mobilization programs are being elucidated, we in the meantime should, as clinicians, use our own observations and expertise to accelerate mobilization in immobilized patients and ensure a true paradigm shift away from the value of bedrest toward the value of mobility.

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