WHY DAY ZERO MATTERS IN EARLY AMBULATION FOR POSTOPERATIVE PATIENTS: An Evidence-Based Project

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Abstract

The purpose of this evidence-based practice project is to review the literature to determine if ambulation on postoperative day zero improved patient outcomes when compared to ambulation on postoperative day one. The PICOT question used in this research project was: In adult patients in a postoperative setting, how does ambulation within twelve hours of surgery compare to non-early ambulation after twelve hours of surgery improve patient outcomes during the first thirty days following surgery? This topic addressed both quality improvement and evidence based practice in nursing. The evidence revealed how the timing of ambulation after surgery has the ability to improve patient outcomes. Early ambulation had a positive impact on physical, psychological, and social outcomes and decreased complications. A search of the Cochrane, PubMed, and Cinahl plus Full Text databases was conducted and three articles assumed the criteria. Two literature reviews and one randomized controlled trial were analyzed. Future recommendations for nursing include: further research in timing of ambulation, staff education, compliance, and administrative awareness and support. A change in policy is needed when ambulation within twelve hours after surgery is not the standard of care for postoperative patients.
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Introduction

The timeframe in which a postoperative patient starts to ambulate has a direct impact on the patient’s postoperative outcome (Kalisch, Lee & Dabney, 2013). Research has shown that in postoperative patients, ambulation is the most frequently missed nursing intervention. On average 83 percent of a patient’s hospital stay is spent laying in bed (Kalisch et al., 2013). The initial change to ambulation occurring during postoperative day one, within the first 24 hours, was a vast improvement from previous guidelines that did not incorporate ambulation until days ten to fourteen (Morris, Benetti, Marro & Rosenthal, 2010). Intervention studies have now put a focus on clinicians beginning ambulation within twelve hours, postoperative day zero, rather than the usual 24 hours postoperative, also considered day one, in the hospitalized patient (Teodoro et al., 2016). According to the Society of American Gastrointestinal and Endoscopic Surgeons, immediate postoperative ambulation may be the most significant prophylaxis against pulmonary and thromboembolic complications (Gorecki, Martone & D’Ayala, 2008). Improved nursing staff education may be necessary to encourage adherence to ambulation protocols and policy change. Early ambulation has the potential to positively impact the patient’s physical, psychological, and social outcomes (Kalisch et al., 2013).

Prior to searching the available literature, the following PICOT question was developed: in adult patients in a postoperative setting, how does ambulation within twelve hours of surgery compare to non-early ambulation after twelve hours of surgery improve patient outcomes during the first thirty days following surgery? The purpose of this evidence-based practice project was to review the literature to determine if ambulation on postoperative day zero, the day of surgery or within 12 hours of surgery, improved patient outcomes when compared to ambulation on postoperative day one, the day after surgery or after the first 24 hours postoperative. The
primary objective was to examine if there was a difference in the physical, psychological and social outcomes related to ambulation on postoperative day zero when compared to day one. The focus was on the patient outcomes after ambulation and in the first thirty days following surgery.

**Research Methodology**

Database searches using Boolean phrases were completed on three online databases. The databases used were CINAHL Plus with Full Text, Cochrane Database of Systematic Reviews, and PubMed. Database search terms were selected for each area of the PICOT question, and the same search terms were used for each database. Inclusion and exclusion criteria were applied. The number of results for each database and term searched were calculated (see Appendix A). From the final search results, articles were eliminated that did not pertain to the researcher’s specific PICOT question.

**Synthesis of Evidence**

After searching three databases (Cochrane, PubMed, and Cinahl plus Full Text), three articles were selected. The first article analyzed was a literature review on the outcomes of mobilizing hospital adults (Kalisch et al., 2013). The second article analyzed was also a literature review examining the impact of standardized protocols in hospitalized medical-surgical inpatients on nurse sensitive outcomes, such as mobility (Pashikanti & Von Ah, 2012). The third article analyzed was a randomized control trial, which evaluated the effectiveness of a formalized ambulation program (Teodoro et al., 2016).

The goal of this evidence based project was to create a change in culture when early ambulation was not the standard of care with postoperative patients. The timeframe of early
ambulation can have a direct impact on the patient’s postoperative outcomes (Kalisch et al., 2013).

To review the literature on postoperative ambulation, early ambulation first needed to be defined to identify day zero versus day one. The goal for the patient related to early ambulation is to dangle within 6 hours of arrival to the floor and ambulate within 12 hours of surgery, which is considered day zero (Morris et al., 2010). Overall, the evidence found in the three articles, showed a significant relationship between early ambulation on day zero and positive postoperative patient outcomes.

The research was focused on studies that applied to hospitalized patients that have undergone surgery in the inpatient acute care setting. Hospitals may need to increase or reallocate staff to properly plan for the implementation of these early ambulation protocols. To prepare for this implementation, materials must be developed to educate patients. Also, staff will need to be updated on protocol expectations and the importance of discussing the benefits of ambulation with patients. The research has implications for the many stakeholders as well, including nurses, nurse assistants, physicians, physical therapists, occupational therapists, respiratory therapists, pharmacists, nurse educators, social workers, the patient’s support system, and the community. Each stakeholder has a specific role in promoting and implementing postoperative early ambulation. The cost of postoperative complications can be difficult to estimate, but the research shows the implications of the costs and benefits of early postoperative ambulation. Grosse, Nelson, Nyarko, Richardson and Raskobd (2015) estimated the cost of a DVT to be between 12,000 and 23,000 dollars depending on the choice of treatment and subsequent complications. Kazaure, Martin, Yoon and Wren (2014) stated that the national average of attributable healthcare costs for postoperative pneumonia is 46,400 dollars per case.
The long-term benefits of early ambulation will have cost-decreasing implications for hospitals. Decreased postoperative complications, fewer hospital days, lower inpatient rehabilitation days and fewer readmissions all contribute to improved outcomes and benefits for patients while decreasing costs for healthcare institutions.

**Analysis of Data**

During the research process, many new understandings were discovered. The importance of day zero ambulation was the primary finding, showing not only improved physical outcomes, but also improved psychological, social, and organizational outcomes. Psychological outcomes include less depression and anxiety, while at the organizational level, decreased length of stay leads to decreased costs. Social outcomes, such as improved quality of life and increased patient independence, may be just as important for the patient’s recovery (Kalisch et al., 2013).

The evidence also illustrated how an ambulation protocol or policy change could help to better utilize staff within an organization. Pashikanti and Von Ah (2012) discussed how a standardized early mobilization protocol improved staff understanding and adherence to early ambulation efforts. The protocols should outline the timeframe for initiating ambulation.

There were limitations to the research conducted. Although selection criteria was used to eliminate articles related to a specific type of surgery in order to focus on the general surgical population, the literature reviews contained a wide range of surgical patients (Kalisch et al., 2013; Pashikanti & Von Ah, 2012). On the other hand, the randomized controlled trial had a general postoperative inpatient population (Teodoro et al., 2016). Thus, the type of surgical procedure from the literature reviews could affect the different patient outcomes, and the articles could have a wide range of early ambulation definitions, which was another
limitation of the research. The level of evidence of the studies was a limitation of the research as well. Two of the articles analyzed were literature reviews, which are examples of level V evidence (Kalisch et al., 2013; Pashikanti & Von Ah, 2012). One article analyzed was a controlled trial, an example of a level II evidence. Including studies of a higher level, such as Teodoro et al., 2016, a level II randomized controlled trial, would be beneficial for future research.

**Recommendations and Discussion**

Essential recommendations for future nursing include continued research and discussion on the topic of early ambulation. A specific definition of ambulation is needed to compare data and proposed protocols for education to be consistent. Recommendations for early ambulation could help meet the Healthy People 2020 goals of preventing and reducing healthcare-associated infections and improving health-related quality of life for all individuals by promoting the patient’s physical, mental, and social well being (“Healthy People 2020 topic and objectives”, 2018). Nursing practice can play a vital role in the implementation of new guidelines regarding ambulation. Ambulation is a mobility intervention, implemented by the RN, to be done in a progressive manner throughout the patient’s recovery (Pashikanti & Von Ah, 2012). New guidelines and education to staff members would be done by a clinical nurse specialist or nurse educator. The clinical nurse specialist or nurse educator is the expert and would serve as a resource to bedside nurses for proper implementation of early mobilization protocols in postoperative patients (Pashikanti & Von Ah, 2012). It is also important to properly educate the patient regarding postoperative ambulation expectations. Expectations of compliance need to be clearly stated and understood by both the RN and patient to create an environment of trust and accountability. This environment is created by nurse administrators who are aware of patient
outcomes and respond accordingly. New policies and procedures created in collaboration with other members of administration have the power to improve patient outcomes.

The goal of early ambulation on postoperative day zero addressed all of the Quality and Safety Education for Nurses competencies (Quality and safety education for nurses, 2017). Evidence from the research showed how early ambulation can positively improve patient outcomes, and the evidence can be put into practice to ensure patients are receiving the best care possible. The QSEN competencies of teamwork and collaboration are used as healthcare providers work together to encourage early ambulation in postoperative patients and collaborate between areas of healthcare to ensure the patient is ambulating safely and in the appropriate time frame. Patient data from electronic medical records can be used to monitor patient ambulation and outcomes, and ultimately be used in quality improvement to ensure patients are receiving best practice care (Quality and safety education for nurses, 2017).

**Summary and Conclusion**

There was a wide range of research on the importance of early ambulation during the postoperative period. Based on research, the implementation of an early mobilization protocol has shown how early ambulation can lead to positive patient outcomes, a reduction in length of stay, and has also proved to have cost effective measures. Furthermore, patients ambulating on day zero within the suggested twelve hours postoperatively have decreased risk of complications, not only physically, but also psychologically and socially. Analyzing the current literature has reinforced the need for early ambulation standards and protocols to be used, and has shown that evidence based practice is evident in the contribution to quality improvement. Therefore, healthcare providers at all levels need to understand the importance of early ambulation after
surgery, become educated on the protocols and procedures of practice in order to make early ambulation on day zero the new standard of care for all postoperative patients.
References


Appendix: Search Plan Diagram

In adult patients in a post-surgical setting, how does ambulation within twelve hours postoperative compare to non-early ambulation after twelve hours postoperative improve patient outcomes?

Searches completed in CINAHL Plus with Full Text (CI), PubMed (P), and Cochrane (CO) Database of Systematic Reviews.

Population (P):
- Patients (6,690,238)
  CI: 1,758,002; P: 4,923,360
  CO: 8,876
  Postoperative patients (458,823)
    CI: 35,648; P: 422,353
    CO: 822

Intervention (I):
- Early postoperative ambulation (2,307)
  CI: 136; P: 2,159; CO: 12
- Ambulation within twelve hours postop (3)
  CI: 0; P: 3; CO: 0
- Postoperative ambulation (6,637)
  CI: 389; P: 6,221; CO: 27

Comparison (C):
- Non-early postoperative ambulation (0)
  CI: 0; P: 0; CO: 0
- Ambulation after twelve hours postop (3)
  CI: 0; P: 3; CO: 0
- Late postoperative ambulation (218)
  CI: 3; P: 214; CO: 1

Outcomes (O):
- Patient outcomes (653,883)
  CI: 198,419
  P: 511,447
  CO: 4,017
- Postoperative Complications (636,288)
  CI: 57,439
  P: 578,123
  CO: 726

All combined using “OR”:
CI: 1,758,002
P: 4,923,360
CO: 9,876
6,690,850

Population, Intervention, and Outcome combined using “AND”;
Comparison using “OR” with limiters of Full Text, last five years (2011-2017) and English language CI:98; P:1,072; CO:14 (1,184)

Limiter of free full text articles applied
CI: 98; P:211; CO:14 (323)

Exclusion Criteria:
< 19 years old
does not address PICO question
published before 2011
CINAHL (2) PubMed (1) Cochrane (0)
(3 total)

Final 3 articles related to early postoperative ambulation related to patient outcomes and decreased postoperative complications
1 Randomized Control Trial with level II evidence
2 Literature Reviews with level V evidence