Clinically-indicated replacement versus routine replacement of peripheral venous catheters (Review)

Webster J, Osborne S, Rickard CM, New K

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Clinically-indicated replacement versus routine replacement of peripheral venous catheters.

Webster J, Osborne S, Rickard CM, New K.

Author information

Abstract

BACKGROUND: US Centers for Disease Control guidelines recommend replacement of peripheral intravenous (IV) catheters no more frequently than every 72 to 96 hours. Routine replacement is thought to reduce the risk of phlebitis and bloodstream infection. Catheter insertion is an unpleasant experience for patients and replacement may be unnecessary if the catheter remains functional and there are no signs of inflammation. Costs associated with routine replacement may be considerable. This is an update of a review first published in 2010.

OBJECTIVES: To assess the effects of removing peripheral IV catheters when clinically indicated compared with removing and re-siting the catheter routinely.

SEARCH METHODS: For this update the Cochrane Vascular Trials Search Co-ordinator searched the Cochrane Vascular Specialised Register (March 2015) and CENTRAL (2015, Issue 3). We also searched clinical trials registries (April 2015).

SELECTION CRITERIA: Randomised controlled trials that compared routine removal of peripheral IV catheters with removal only when clinically indicated in hospitalised or community dwelling patients receiving continuous or intermittent infusions.

DATA COLLECTION AND ANALYSIS: Two review authors independently assessed trial quality and extracted data.

MAIN RESULTS: Seven trials with a total of 4895 patients were included in the review. The quality of the evidence was high for most outcomes but was downgraded to moderate for the outcome catheter-related bloodstream infection (CRBSI). The downgrade was due to wide confidence intervals, which created a high level of uncertainty around the effect estimate. CRBSI was assessed in five trials (4806 patients). There was no significant between group difference in the CRBSI rate (clinically-indicated 1/2365; routine change 2/2441). The risk ratio (RR) was 0.61 (95% CI 0.08 to 4.68; P = 0.64). No difference in phlebitis rates was found whether catheters were changed according to clinical indications or routinely (clinically-indicated 186/2365; 3-day change 166/2441; RR 1.14, 95% CI 0.93 to 1.39). This result was unaffected by whether infusion through the catheter was continuous or intermittent. We also analysed the data by number of device days and again no differences between groups were observed (RR 1.03, 95% CI 0.84 to 1.27; P = 0.75). One trial assessed all-cause bloodstream infection. There was no difference in this outcome between the two
groups (clinically-indicated 4/1593 (0.02%); routine change 9/1690 (0.05%); \( P = 0.21 \)). Cannulation costs were lower by approximately AUD 7.00 in the clinically-indicated group (mean difference (MD) -6.96, 95% CI -9.05 to -4.86; \( P \leq 0.00001 \)).

**AUTHORS’ CONCLUSIONS:** The review found no evidence to support changing catheters every 72 to 96 hours. Consequently, healthcare organisations may consider changing to a policy whereby catheters are changed only if clinically indicated. This would provide significant cost savings and would spare patients the unnecessary pain of routine re-sites in the absence of clinical indications. To minimise peripheral catheter-related complications, the insertion site should be inspected at each shift change and the catheter removed if signs of inflammation, infiltration, or blockage are present.

**Update of**
Clinically-indicated replacement versus routine replacement of peripheral venous catheters. [Cochrane Database Syst Rev. 2013]

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[Indexed for MEDLINE]
Review Article

Disinfection of Needleless Connector Hubs: Clinical Evidence

Systematic Review

Nancy L. Moureau\textsuperscript{1,2,3} and Julie Flynn\textsuperscript{3,4}

\textsuperscript{1}PICC Excellence, Inc., Online Education, Hartwell, GA 30643, USA
\textsuperscript{2}Greenville Hospital System, Greenville, SC 29605, USA
\textsuperscript{3}Alliance for Vascular Access Teaching and Research (AVATAR group) Griffith University, Nathan, Brisbane, QLD 4111, Australia
\textsuperscript{4}Royal Brisbane & Women's Hospital, Brisbane, QLD 4029, Australia

Correspondence should be addressed to Nancy L. Moureau; nancy@piccexcellence.com

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Background. Needleless connectors (NC) are used on virtually all intravascular devices, providing an easy access point for infusion connection. Colonization of NC is considered the cause of 50% of postinsertion catheter-related infections. Breaks in aseptic technique, from failure to disinfect, result in contamination and subsequent biofilm formation within NC and catheters increasing the potential for infection of central and peripheral catheters. Methods. This systematic review evaluated 140 studies and 34 abstracts on NC disinfection practices, the impact of hub contamination on infection, and measures of education and compliance. Results. The greatest risk for contamination of the catheter after insertion is the NC with 35–45% contaminated, and compliance with disinfection as low as 10%. The optimal technique for disinfection time has not been identified, although scrubbing with 70% alcohol for 5–60 seconds is recommended. Studies have reported statistically significant results in infection reduction when passive alcohol disinfection caps are used (48–86% reduction). Clinical Implications. It is critical for healthcare facilities and clinicians to take responsibility for compliance with basic principles of asepsis compliance, to involve frontline staff in strategies, to facilitate education that promotes understanding of the consequences of failure, and to comply with the standard of care for hub disinfection.

1. Background

Intravenous catheters and those related devices used to gain access to the veins for the purpose of infusing medications or solutions have evolved significantly over the past three decades. One of the more noticeable changes involves the way intravenous devices are accessed. Early concerns over needle safety for healthcare workers led to the creation of products that provide needle-free access. While these products did eliminate the risk of accidental needle injury for the clinician, some needleless products raised new issues for the patient; namely, a noted increase in the occurrence of catheter associated bloodstream infections (CABSI) and central line associated bloodstream infections (CLABSI) \cite{1-3}. Risk factors for infection include poor adherence to aseptic technique, needleless connector (NC) design variations, and inconsistent health care staff education and training \cite{1-3}. NC are used on virtually all intravascular devices in the USA; they provide an easy access point for syringe or tubing attachment and have now become the central access point for all connections. Yet, despite providing some level of safety, concerns over infection related to NC contamination exist. Surface design, gaps around valve closure surface, segmented fluid pathway with dead space, differing internal mechanisms, clear or obscured visibility, variable blood reflux, clamping sequences, and different flushing instructions, depending on the type of NC, all play a part in the level of risk associated with the device. Before the advent of NC, clinicians had an intuitive understanding that prior to penetrating the septum with the needle the septum required disinfection. Current surface disinfection of NC is not necessarily intuitive. Initially, needleless split septum access points used a blunt "needle-looking" type cannula. As a result, the disinfection process remained intuitive. Split
**Guideline Brief**

VA/DoD clinical practice guideline for opioid therapy for chronic pain.

**Overview**

Guideline Topic

Chronic pain

Patient Population

Adults 18 years or older including Veterans as well as deployed and non-deployed Active Duty Service Members, their beneficiaries, and retirees and their beneficiaries, with chronic pain who are receiving care from the VA or DoD healthcare delivery systems.

**Recommendations**

**Recommendation Statements**

Initiation and Continuation of Opioids

**Recommendation 1**

a. The Work Group recommends against initiation of long-term opioid therapy (LOT) for chronic pain. *(Strong Against; Reviewed, New-replaced)*

b. The Work Group recommends alternatives to opioid therapy such as self-management strategies and other non-pharmacological treatments. *(Strong For; Reviewed, New-replaced)*

c. When pharmacologic therapies are used, the Work Group recommends non-opioids over opioids. *(Strong For; Reviewed, New-replaced)*

**Recommendation 2**

If prescribing opioid therapy for patients with chronic pain, the Work Group recommends a short duration. *(Strong For; Reviewed, New-added)*

*Note: Consideration of opioid therapy beyond 90 days requires re-evaluation and discussion with patient, family, and caregivers.*

**Recommendation 3**

(continued)
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### Foundations for Recommendations

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| ![5 stars] Clear Articulation of Recommendations |

Disclosure and Management of Financial COIs

External Review

Updating

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Diabetes Mellitus, Type 2: Cardiovascular Risk

What We Know

- Diabetes mellitus, type 2 (DM2) significantly increases risk for cardiovascular disease (CVD) and damage to various tissues and organs due to micro- and macrovascular changes that occur in blood vessels. Mortality rates due to CVD are 2-4 times higher among patients with DM2 compared to nondiabetic patients, and patients with DM2 have a poorer long-term prognosis following myocardial infarction [MI], including increased risk for congestive heart failure and death. (1,2,4,8,11)

- Although the question of when DM2 becomes a cardiovascular risk equivalent has not yet been settled, current thinking indicates the risk is established with DM2 > 5-10 years in duration (3).

- Diabetic macroangiopathy involves acceleration of atherosclerotic changes in large blood vessels that is induced by insulin resistance, atherogenic dyslipidemia (also called diabetic dyslipidemia in individuals with DM2), endothelial dysfunction, and chronic inflammation associated with obesity.

  - Atherosclerosis is a pathologic process characterized by the buildup of lipids, inflammatory cells, fibrin, and calcium on the intima (i.e., the inner layer of arterial walls) that results in the development of atheroma plaques. Subsequent rupture of activated plaques results in thrombosis, ischemia, and emboli formation that can occlude distant vessels. In addition, ischemia results from narrowing and spasm of the arterial walls. Atherosclerosis primarily involves the coronary, cerebral, and peripheral (e.g., lower extremity) arteries, and can result in coronary artery disease (CAD), myocardial ischemia, peripheral artery disease (PAD), and stroke.

  - Atherosclerosis involving the coronary, cerebral, and peripheral arteries is associated with up to 70% of deaths in individuals with DM2.

- Microangiopathic changes associated with DM2 involve changes in small arteries of the kidney, nervous system, and retina that occur as a result of endothelial dysfunction caused by dyslipidemia, oxidative stress, and chronic inflammation.

- DM2 greatly increases risk for CVD, catastrophic CVD-related events, and death (1,2,4,8,14).

  - Patients with DM2 have the same risk of MI as nondiabetic persons with a history of MI.

  - Having DM2 is associated with a 2-fold increased risk for heart disease in men and a 3- to 4-fold increased risk for heart disease in women.

  - More than 65% of patients with DM2 die from heart disease or stroke, in most cases without previous signs and symptoms of CVD. Although nondiabetic men have a 50% greater risk for death from CVD than nondiabetic women, risk for death due to CVD is nearly equal for men and women with DM2.

  - Although the mortality rate due to CAD among nondiabetic men has decreased during the last two decades, the mortality rate due to CAD in men with DM2 has not changed.

  - Patients with DM2 have an increased risk for stroke independent of age and race.

  - Individuals with DM2 are at increased risk for PAD of the lower extremities, which in some cases can require lower extremity amputation.

- DM2-related factors that contribute to the development of CVD include the following: (14)

  - Hyperglycemia, deficient insulin secretion, and insulin resistance; studies show increased CVD risk begins prior to the development of frank hyperglycemia and is believed to be related to the effects of insulin resistance.
• Hypertension (found in 50% of patients with DM2), which can be measured by the distensibility of arteries (a decreased distensibility, the capability of being extended or dilated, is associated with the risk of arterial wall damage), a symptom of atherosclerosis. The American Diabetes Association (ADA) recommends that blood pressure (BP) levels be maintained at <130/80 mmHg or <125/75 mmHg for patients with >1 g proteinuria and renal insufficiency. (For more information, see Evidence-Based Care Sheet: Diabetes Mellitus, Type 2: Hypertension Risk)

• Thrombophilia, which is a condition that is characterized by a propensity to form blood clots, is often reported in patients with DM2 due to
  - accentuated platelet aggregation and adhesion
  - an induced procoagulant state characterized by increased clotting factors and fibrinogen; decreased levels of antithrombin III, protein C, and protein S; and decreased fibrinolytic activity
  - Dyslipidemia develops in up to 50% of patients with DM2. The characteristic lipid profile in patients with DM2 is elevated triglycerides and low high-density lipoproteins (HDL) cholesterol. Although low-density lipoproteins (LDL) levels in patients with DM2 are not generally higher than in patients without DM2, a greater proportion of smaller, denser, and more atherogenic LDL is often present

  Other factors that increase the risk for CVD in patients with DM2 include
  - a family history of heart disease, which increases the risk for early DM2-related macrovascular complications
  - smoking, which increases the risk for hypertension and dyslipidemia
  - a sedentary lifestyle, which increases the risk for obesity, hypertension, and dyslipidemia. (For more information, see Evidence-Based Care Sheet: Diabetes Mellitus, Type 2: Effect of Exercise)
  - chronic inflammatory states (e.g., obesity, especially abdominal obesity; long-term emotional stress). (For more information, see Evidence-Based Care Sheet: Diabetes Mellitus, Type 2: Risk of Development Due to Inflammation)
  - low socioeconomic status and limited access to healthcare

  Individuals with prediabetes are at increased risk for DM2 and for obesity, dyslipidemia, and hypertension, all of which are known risk factors for CVD. Prediabetes is defined as abnormal fasting glucose levels of 100–125 mg/dL, abnormal results of glucose tolerance testing (140mg/dL–199 mg/dL), or having an HbA1c of 5.7–6.4%.

• Early identification of asymptomatic individuals with prediabetes or DM2 reduces the risk for CVD complications that are associated with DM2

• Although screening effectively reduces the incidence of CVD in individuals who are at high risk of DM2, the most effective screening interval has not been established

• The multiple medications that are prescribed to treat DM2, and its comorbidities often have opposing side effects that increase cardiovascular and other risk factors

• Antidiabetic medications are often prescribed in combination and are adjusted frequently due to the changing metabolic needs of the patient with DM2
  - Oral antidiabetic agents cause weight gain, low cardiac output, edema, and GI, hepatic, and renal dysfunction
  - Empagliflozin and Liraglutide have a new indication approved by the Food and Drug Administration (FDA), which includes reducing risk of cardiovascular episodes in adult patients with type 2 diabetes and cardiovascular disease

  Insulin therapy is associated with poor lipid control

• Antihypertensive medications such as beta blockers and loop diuretics are associated with worsening insulin resistance, a higher risk of inhibiting the pancreatic secretion of insulin, and an increased risk for stroke

• Increased calcium intake via diet or supplementation to prevent a decline in bone mineral density is common in the United States, and the potential for developing complications of calcium supplementation (e.g., negative effect on cardiovascular health) is a public health concern. Authors of the Diabetes Heart Study, a research study published in 2014, reported that calcium supplementation was not found to increase the risk of CVD in individuals with DM2

• Treatment of DM2 and related cardiovascular complications involves collaboration among clinicians specializing in internal medicine; diabetes; cardiovascular, renal, and hepatic diseases; nutrition; and healthy lifestyle education. Education about early treatment is important because results of research show that achieving blood glucose control soon after the diagnosis of DM2 is more helpful in reducing risk for CVD-related illness than subsequently intensifying glucose control

• Although achieving glycemic control using insulin or oral antihyperglycemic medications is a cornerstone of DM2 treatment, glycemic control alone does not reduce the risk for cardiovascular complications. Treatment that reduces the risk for CVD includes
  - statins (e.g., simvastatin) to lower elevated LDL levels and fibrates (e.g., gemfibrozil) or niacin and nicotinic acid in low doses to elevate HDL levels
  - aspirin for blunting the effect of thrombophilia
an appropriate medication regimen for management of hypertension such as angiotensin-converting enzyme (ACE) inhibitors, angiotensin-II receptor blockers (ARBs), beta blockers, and/or diuretics
- medical/nutrition education about weight control and reducing intake of saturated fat and cholesterol. Education that weight loss and physical exercise are nearly twice as effective in reducing cardiovascular risk as oral antihyperglycemic medication
- A comparison of very-low-carbohydrate, high-unsaturated fat, low-saturated fat (LC) diet with a high-carbohydrate, low-fat (HC) diet among individuals with DM2 showed that while both diets resulted in weight loss and reduced HbA1c and fasting glucose, the LC diet achieved more significant improvements in lipid profile, blood glucose stability, and reduced diabetes medication requirements (12)
- lifestyle education focusing on exercise, smoking cessation, limiting alcohol consumption, and stress reduction. Cardiometabolic exercise (i.e., exercise that increases metabolism and improves cardiovascular fitness) significantly reduces risk of developing CVD by improving insulin sensitivity and HDL cholesterol levels and reducing LDL cholesterol and HbA1c level
  - The landmark Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial, which had several aims and began enrolling participants with DM2 in 2001, has produced surprising results
    - The ACCORD BP trial results disclosed that compared with standard glycemic control, which is defined as maintaining an HbA1c of 7.0–7.9%, intensive BP control (i.e., maintaining systolic BP at <120 mmHg; standard BP control is defined as maintaining systolic BP at <140 mmHg) or intensive glycemic control alone (defined as maintaining an HbA1c of <6%) improved major CVD outcomes, without additional benefit from combining the two regimens. Further, intensive BP control tripled the risk for severe medication side effects
      - Intensive BP regimen was shown to decrease the risk of stroke
    - Investigators in the ACCORD lipid trial reported no evidence of benefit of intensive lipid or intensive glycemia regimens, single or combined, when compared with standard treatment regimens. However, intensive glycemia treatment increased the risk of mortality by 1.33-fold
      - Intensive glycemia treatment was shown to significantly reduce the risk of MI

What We Can Do

> Learn about CVD risk in patients with DM2 so you can accurately assess your patients' personal characteristics and health education needs; share this information with your colleagues
> Educate your patients with DM2 about increased risk of developing CVD and the steps they can take to reduce the risk, including developing a healthy lifestyle (e.g., involving regular exercise, good nutrition, and weight loss, if appropriate), glycemic control, smoking cessation, limited consumption of alcohol, and cardiovascular risk factor awareness and management (2)
> In addition to the prescribed regimen for glucose monitoring and medication, emphasize the importance of continued adherence to an individualized cardiovascular risk-reducing treatment regimen, which may include stress management, regular laboratory testing (e.g., monitoring dyslipidemia and inflammatory markers), monitoring vital signs, especially BP, and medication (e.g., use of statins and aspirin)

Coding Matrix

Grading the Evidence

References


Research Article

Comparison of the effectiveness of two different interventions to reduce preoperative anxiety: A randomized controlled study

Nurcan Erteğ, RN, PhD, Özge Ulusoylu, BSN, Aycan Bal, BSN, and Hazal Özgür, BSN
1School of Nursing, Ufik University, 2Etimed Hospital, 3LÖSANTE Children’s and Adult Hospital and 4Başkent University Hospital, Ankara, Turkey

Abstract

This study was conducted to determine and compare the effectiveness of nature sounds and relaxation exercises for reducing preoperative anxiety. A repeated measures randomized controlled trial design was used. We divided 159 preoperative patients into three groups: nature sounds (n = 53), relaxation exercises (n = 53), and control groups (n = 53). We evaluated anxiety using the visual analog scale and state anxiety inventory scores immediately before, immediately after, and 30 min after interventions in nature sounds and relaxation exercises groups, and silent rest in the control. We found no differences between the measurement values in the intervention groups, but we did observe a difference between the intervention and control groups. The two interventions were similarly effective in reducing preoperative anxiety. These simple and low-cost interventions can be used to reduce preoperative anxiety in surgical clinics.

Key words nature sounds, nursing, preoperative anxiety, randomized controlled trial, relaxation exercises.

INTRODUCTION

Anxiety affects people psychologically, psychologically, and behaviorally. Physiologically, anxiety can cause reactions such as increased heart rate, muscle tension, nausea, mouth dryness, and sweating. Anxiety may also have psychological effects, such as apprehension and uneasiness. Behavioral effects include the inability to cope with everyday struggles or to express oneself (Bourne, 2010).

Preoperative anxiety can have many causes, such as: fear of death, pain, nausea, and vomiting; an inability to recover from anesthesia; dependence on others during the postoperative period; loss of self-control during anesthesia; separation from loved ones; and uncertainty (McArthur-Rouse & Collins, 2007; Indratula et al., 2013). This form of anxiety plays a crucial role in the postoperative process (Munafo & Stevenson, 2001) and leads to the increased use of postoperative analgesics (Jamison et al., 1993; Pan et al., 2005).

Several studies have found a significant relationship between preoperative anxiety and postoperative pain (Özalp et al., 2003; Feeney, 2004; Granot & Ferber, 2005). Kain et al. (2000a) observed that patients with higher levels of preoperative anxiety had more postoperative acute pain. Another study by Kain et al. (2000b) reported that patients who took preoperative antianxiety medication experienced less postoperative acute pain. Ali et al. (2014) determined that patients with higher levels of preoperative anxiety tended to take longer to recover from anesthesia, thus indicating a negative effect on postoperative pain management.

Some evidence indicates that preoperative anxiety is related to postoperative nausea and vomiting and increased cost. Van den Bosch et al. (2006) and Roh et al. (2014) reported a positive relationship between preoperative anxiety and postoperative nausea. Total joint arthroplasty patients with higher levels of preoperative anxiety and depression have been found to exhibit higher rates of postoperative complications, leading to higher costs (Rasouli et al., 2016). All of these studies indicate that preoperative anxiety has a negative effect on the postoperative period and that reducing preoperative anxiety could reduce negative outcomes.

Researchers have shown increasing interest in the use of non-pharmacological interventions, such as preoperative visits, music, acupressure, and hand massage to reduce preoperative anxiety in surgical settings (Vallee et al., 2012; Brand et al., 2013; Thompson et al., 2014; Bagés Fortacin et al., 2015). One of the most commonly used interventions to reduce anxiety, muscle relaxation through exercise, has been shown to decrease sympathetic stimulation of the hypothalamus with the neuromuscular, cardiovascular, and respiratory systems in the most affected areas (Roykulcharoen & Good, 2004; Pelka et al., 2017). Progressive relaxation consists of voluntary and orderly relaxation and contraction of the muscles until all muscle groups are relaxed. All relaxation processes ensure rhythmic breathing, the alleviation of muscle strain, and increased patient awareness. The patient works the muscle groups starting with the hands, followed by the arms, shoulders,
FREE PARKING (No example)
CLINICAL RESEARCH CRITIQUE
The Use and Effectiveness of Bundles for Prevention of Central Line-Associated Bloodstream Infections in Neonates

A Review of the Literature

Monika Pogorzelska-Maziarcz, PhD, MPH

ABSTRACT
Central line–associated bloodstream infections (CLABSI) are an important cause of increased morbidity, mortality, and costs in neonatal intensive care unit (NICU) patients. In recent years, central line bundles have been developed and implemented as a means to reduce infection rates in intensive care units. The objective of this review was to describe central line bundles that are utilized in the neonatal population and evaluate the current evidence on the effectiveness of bundles for prevention of CLABSI in the NICU. This review shows that care bundles have been successfully used in NICUs (as part of both single-site quality improvement initiatives and large multisite collaboratives) to decrease CLABSI rates. The individual components that comprise the bundle between individual studies varied, but all studies showed a significant reduction in CLABSI rates. The pre- and postintervention design employed by these studies does not allow for conclusions to be drawn as to what specific bundle components are most effective in reducing rates. Further research is needed both to examine the effectiveness of specific components or combinations of components in the bundle and to examine factors that are associated with implementation and adherence to bundles.

Key Words: bundles, central line–associated bloodstream infections, multifaceted interventions, neonates, quality improvement

Central line–associated bloodstream infections (CLABSI) are an important cause of increased morbidity, mortality, and costs in neonatal intensive care unit (NICU) patients. Extremely low-birth-weight infants are at an especially high risk of infection due to poor skin integrity, compromised immune system, multiple invasive procedures, and prolonged use of central lines. CLABSI are defined as bloodstream infections (BSIs) that occur in a patient with a central line in place within the 48-hour period before the development of the BSI and with no other known source of infection. CLABSI represent the majority of late-onset sepsis (LOS) in NICU patients.

Despite recent declines in CLABSI rates across all US intensive care units (ICUs), the burden of CLABSI in the NICU is substantial. A recent systematic review suggests that the majority of CLABSI in adult ICUs may be reasonably preventable with current evidence-based practices. These evidence-based practices are outlined in guidelines for intravascular catheter care.

Increasingly, more attention has been placed on development and use of care bundles. According to the Institute for Healthcare Improvement, a bundle is defined as a small, straightforward set of evidence-based practices that, when performed collectively and reliably, have been proven to improve patient outcomes. The idea behind a care bundle is that by combining several evidence-based practices into a single process, the probability of implementation and adherence to each
ABM Clinical Protocol #15: Analgesia and Anesthesia for the Breastfeeding Mother, Revised 2017

Sarah Reece-Stremtan, Matilde Campos, Lauren Kokajko, and The Academy of Breastfeeding Medicine

A central goal of The Academy of Breastfeeding Medicine is the development of clinical protocols, free from commercial interest or influence, for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

Background

There is little rigorous information in the scientific literature about anesthesia or procedural sedation in breastfeeding mothers. Recommendations in this area typically focus on pharmacologic properties of anesthetic agents, limited studies of milk levels, and rare infant effects. In addition to medication concerns, additional perioperative considerations may impact a breastfeeding dyad’s continued breastfeeding success when a mother undergoes anesthesia or sedation. Despite the lack of controlled studies regarding outcomes of breastfeeding in mothers receiving anesthesia, multiple review articles conclude that most mothers may safely breastfeed immediately following anesthesia.3–5 (IV) (Quality of evidence [levels of evidence IA, IB, IIA, IIB, III, and IV] is based on levels of evidence used for the National Guidelines Clearing House and is noted in parentheses.)6 Most recommendations for breastfeeding in the perioperative setting come from expert opinion rather than from extensive studies or trials. Up-to-date information on specific medications can be found on the United States National Library of Medicine website LactMed,7 with additional resources listed in Table 1.

Médication guidelines discussed in this protocol may be extended to mothers in the immediate postpartum period; however, specific considerations for this population are detailed in ABM Protocol #28, Peripartum Anesthesia and Analgesia for the Breastfeeding Mother. The focus of this protocol is on anesthesia and analgesia for breastfeeding mothers outside the postpartum period.

Recommendations

General principles

Medications. The implications of medications used in breastfeeding mothers depend on numerous factors, including the amount of medication that passes into breast milk, the oral absorption of medication, the gestational and postpartum age of the child, and the potential for adverse effects on the breastfeeding infant.8 Anesthetic agents cause little or no effects for older infants, but could potentially cause problems in neonates, particularly those who are preterm and/or suffer from preexisting apnea.

• Mothers with healthy term or older infants can generally resume breastfeeding as soon as they are awake, stable, and alert.1–4 (IV) Resumption of normal feeding is a hallmark that medications have redistributed from the plasma compartment (and thus generally the milk compartment) and entered adipose and muscle tissue where they are slowly released.
• Infants at risk for apnea, hypotension, or hypotonia may benefit from a brief interruption of breastfeeding (6–12 hours) after maternal anesthesia. In this situation, mothers can express and store her milk in small amounts to be used when the infant is older, or it can be mixed with fresh milk containing no medications to dilute the milk with medications present.
• The most concerning class of medications used for anesthesia and analgesia in breastfeeding mothers is opioids, as these medications transfer into breast milk and may cause infant sedation or apnea. Judicious use of opioids for short periods is likely to be safe for most breastfeeding mothers and infants.5,12–14 (IV) Brief procedures. Mothers who have undergone dental extractions or other short procedures requiring the use of single doses of medication for sedation and analgesia can breastfeed as soon as they are awake and stable. Although shorter-acting agents such as fentanyl and midazolam may be

1Division of Anesthesiology, Pain, and Perioperative Medicine, Children’s National Health System, Washington, District of Columbia.
2Division of Anesthesiology, Centro Hospitalar do Porto, Porto, Portugal.
CLINICAL CONSULTATION

Use of the Pressure Ulcer Scale for Healing (PUSH) in Inpatient Rehabilitation: A Case Example

Mary Zeigler, MS, RN, CRRN, GWON, Jill Smiley, MPH, Linda Ehrlich-Jones, PhD, RN & Jennifer L. Moore, PT, DHS, NCS

1 Nursing, Rehabilitation Institute of Chicago, Chicago, IL, USA
2 Internal Academy, Rehabilitation Institute of Chicago, Chicago, IL, USA
3 Center for Rehabilitation Outcomes Research, Rehabilitation Institute of Chicago, Chicago, IL, USA

Keywords
Skin integrity; outcomes; rehabilitation.

Correspondence
Jennifer Moore, 345 E Superior Street, Room 1664, Chicago, IL 60611.
E-mail: jmoore@ric.org

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Abstract

Purpose: Nurses who specialize in rehabilitation frequently assess and treat patients with pressure ulcers. The purpose of this case study is to describe the use of the Pressure Ulcer Scale for Healing (PUSH), which has demonstrated excellent psychometric properties, to assess, monitor progress, and guide clinical decision-making during inpatient rehabilitation.

Methods: The psychometric properties, clinical utility, and data that can be used to interpret the results of the PUSH instrument are presented. Application of the instrument in clinical practice is also described.

Findings and Conclusions: Systematic measurement of a pressure ulcer using the PUSH has potential to demonstrate change in pressure ulcer status that results from clinical treatment. This case provides an example of how results of a clinical assessment can effectively guide clinical decisions.

Case Description

Medical Diagnosis: Left middle cerebral artery, hemorrhagic cerebral vascular accident. Onset was approximately 4 weeks ago.

Demographics: Patient is a 74-year-old male. He is a retired teacher who lives with his wife and adult son in a one level home.

Primary problem: Dense right hemiplegia

Relevant secondary problems: Immobility, impaired sensation, bladder, and bowel incontinence, severe cognitive impairment, dysphagia, and global aphasia. Presents with a stage IV sacral pressure ulcer.

Level of care: Inpatient Rehabilitation Facility

Patient specific considerations: Patient requires total assist for transfers which increases risk for friction and shear. Other risk factors include: increased risk for pressure secondary to immobility, and increased risk for moisture around wound secondary to bowel and bladder incontinence. Patient is receiving enteral feedings as a result of moderate-to-severe dysphagia.

Assessment type needed: A comprehensive pressure ulcer assessment to measure size, exudate description, tissue type, and amount, edges, periwound condition, odor, and location is recommended. Additional recommendations include: Classification of pressure ulcer using staging described by National Pressure Ulcer Advisory Panel (NPUAP), pressure ulcer risk assessment, and a measure that provides an assessment of change in ulcer status over time.

Justification for Using the PUSH Instrument

The Pressure Ulcer Scale for Healing (PUSH) was selected to assess the pressure ulcer status over time to monitor improvement and guide intervention selection. The PUSH has demonstrated excellent interrater reliability in patients...
MORE AND MORE policies, procedures, and guidelines are being introduced to address the problem of patient falls, but little evidence demonstrates that current guidelines are effective. In this article, we propose a framework to help organizations and their nursing leadership design and implement their own simple strategies to reduce inpatient fall rates.

High cost of falls
Observational studies in acute care hospitals report patient fall rates ranging from 1.3 to 8.9 falls per 1,000 inpatient days, with higher rates in units focused on geriatrics, neurology, and rehabilitation. A single fall can increase hospital costs by up to $13,316. In 2010, total direct costs of injurious falls in the United States amounted to $30 billion. About 30% of patients who fall are injured, 10% of them seriously, and falls may increase length of hospital stay or require discharge to a long-term-care facility rather than home. For patients who fall and sustain serious injury, mortality as high as 20% to 30% has been reported. Patients also may experience anxiety, depression, loss of confidence in mobility, and fear following a fall.

Policies, procedures, and guidelines have been introduced, with the goal of decreasing the number of patient falls with and without injury, their cost to the health system, and the negative impact on patient outcomes and experience. The Joint Commission requires hospitals to assess patients’ risk for falls and to implement interventions to reduce falls based on their risk. Since 2008, patient falls with injury have been included on the Centers for Medicare and Medicaid Services (CMS) list of hospital-acquired conditions for which providers aren’t reimbursed. Starting on October 1, 2014, CMS will add hospital-acquired conditions, including falls, to their value-based purchasing model. This will reduce reimbursements to hospitals not meeting standards. Hospitals that rank in the lowest-performing quartile of hospital-acquired conditions will be subject to a 1% cut in Medicare reimbursement for all discharges.

The desire to improve patient outcomes and pressures from healthcare costs, Medicare reimbursement, and the Joint Commission accreditation are forcing organizations to find methods that effectively reduce patient falls. Yet little conclusive clinical data and no medical evidence demonstrate that current guidelines are effective in fall prevention. Meanwhile, the failure of strategies that result in patient falls has been shown to create considerable stress for nurses.

Implications of pressure
While organizations pursue a “silver bullet” solution for inpatient falls, the reality is that myriad strategies are being layered on top of each other at the unit and patient level. In the absence of broadly generalizable, evidence-based solutions, it’s difficult to fault this aggressive approach, but it puts a heavy burden on staff on inpatient units and hasn’t been proven effective in preventing falls and sustaining low fall rates.

We speculate that, at times, even the most basic standards of care are inevitably compromised by the sheer volume of initiatives pertaining to falls implemented at any given time. This is compounded further by the expanded roles nurses are increasingly expected to take in quality improvement beyond patient falls. Achieving staff accountability for all strategies probably isn’t feasible, given how many different strategies are likely impacting any given patient in an inpatient setting at any given time.

No easy solution
If the solution to the problem of inpatient falls were easy, most likely someone would’ve discovered it. This doesn’t mean that solutions must be complex. Indeed we suggest that organizations undertake simple strategies to reduce inpatient fall rates based on our framework. (See Building a conceptual framework for fall prevention strategies.)

• First, organizations and each patient-care unit should systematically evaluate compliance with current fall prevention strategies. For example, we’re nearing the conclusion of a fall prevention project based on a Lean Six Sigma approach to process improvement. The series of steps that characterize this approach—Define, Measure, Analyze, Improve, and Control, or DMAIC—provided a structure allowing us to understand fall prevention practices and the implementation of strategies. Although we discovered variable adherence to existing fall prevention interventions, we gathered important information from our staff.

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July | Nursing2014 | 61