

Making the Hospital Safer for Older Adult Patients: A Focus on the Indwelling Urinary Catheter

Eric A Lee, MD
Camille Malatt

Abstract

The needs of hospitalized geriatric patients differ from the needs of hospitalized younger adults. In an attempt to improve systems of care for the older adult, the Centers for Medicare and Medicaid Services classified urinary tract infections related to the use of indwelling urinary catheters (IUC) as one of eight “never events.” The insertion of an IUC is a commonly performed procedure that can cause an array of iatrogenic complications. In addition, the placement of an IUC without medical indication is a risk factor for prolonged hospitalization and inpatient mortality. Foley catheterization has been documented as a culprit in urosepsis and as being associated with geriatric syndromes such as delirium and functional impairment. This article will discuss the indications for the IUC, the complications that can occur because of the IUC, and comment on the Kaiser Permanente Southern California Region’s efforts to minimize the unnecessary use of the IUC. Thoughtful and judicious use of the IUC, such as minimizing the use of urinary catheterization, either by not inserting an IUC or by removing it as soon as it is no longer needed, will most likely reduce inpatient morbidity and improve the health of the hospitalized older adult.

The Geriatric Imperative

The first cohort of baby boomers will be eligible for Medicare in 2011. In anticipation of this upcoming age wave and the dearth of geriatric-focused clinicians that is expected to continue, various regulatory agencies have increased their scrutiny of the proper care of older adults. In 2008, in an attempt to improve systems of care for the older adult, the Centers for Medicare and Med-

icaid Services (CMS) classified urinary tract infections (UTIs) related to the use of indwelling urinary catheters (IUC) (commonly called Foley catheters) as one of eight “never events.” This classification indicates that they are now considered hospital-acquired complications and are no longer eligible for additional reimbursement.¹ The scrutiny of this preventable iatrogenic infection is well deserved, but other geriatric-specific issues associated with the misuse of the IUC are equally noteworthy. This article highlights IUC-related safety concerns in hospitalized older adults.

Appropriate Uses of the Indwelling Urinary Catheter

The IUC is a frequently ordered medical device that often is inappropriately used. Its insertion, which might be assumed medically necessary by patients and hospital staff, can complicate any admission. Because of the well-defined risks associated with the use of IUC, the placement of these catheters should be considered a minor procedure. However, unlike other minor procedures, the insertion of an IUC has not required informed consent. As a consequence, the indications² for use of the IUC are rarely imprinted in the memory of seasoned clinicians. These indications³ are broadly as follows:

- Acute urinary retention or obstruction
- Incontinence in a patient at the end of life or with a perineal wound
- Critical monitoring of urinary output in the care of an incontinent patient
- Perioperative settings.

The placement of an IUC without medical indication is a risk factor for prolonged hospitalization and inpatient mortality.⁴ Although the design of the study on this matter precludes attributing the development

Eric A Lee, MD, is an Internist at the West Los Angeles Medical Center and Chair of the Southern California Permanente Medical Group Geriatric Hospital Safety Order Set Committee. E-mail: eric.a.lee@kp.org.

Camille Malatt is a pre-med student at the University of California Berkeley, majoring in Molecular and Cell Biology. She is a former administrative intern for Southern California Permanente Medical Group Research and Evaluation. E-mail: cmalatt@gmail.com.

of these negative outcomes solely to the catheter, it is certainly reasonable to consider it a causal link. Use of IUCs has been documented as a culprit in urosepsis and as being associated with geriatric syndromes such as delirium and functional impairment. Minimizing the use of urinary catheterization, either by not inserting an IUC or by removing it as soon as it is no longer needed, will most likely reduce inpatient morbidity and improve the health of the hospitalized older adult.

Urethral Trauma as a Result of Indwelling Urinary Catheters Use

The most immediate complication of insertion of an IUC is urethral injury. When an IUC is placed in either calm or agitated patients of any age, urethral trauma (often presenting as pain, bleeding, hematuria, or urinary obstruction) can occur. There were 14 iatrogenic urethral injuries due to catheterization in 4310 men admitted to a hospital consecutively in one study (for a baseline incidence urethral injury rate of 0.3% in all hospitalized men with or without catheterization).⁵ A recently published abstract reported that traumatic urethral complications occurred in 1.4% of IUC insertions placed in adults in Emergency Departments (EDs), in operating rooms, or on hospital wards.⁶ Urethral injury often requires surgical repair, leading to increased morbidity and costs.

Delirium as a Result of Indwelling Urinary Catheters Use

Delirium, or an acute confusional state, is one of the classic geriatric syndromes known to complicate hospitalizations in the older adult. It is estimated to cost the American health care system \$35 billion to \$150 billion annually⁷ and is being considered for future classification by CMS as a “never event.”⁸ In 1996, the insertion of an IUC was demonstrated to be one of five hospital insults that could help precipitate new-onset delirium (ie, incident delirium).⁹ Later, a multicomponent intervention that included minimizing the use of the IUC was demonstrated to reduce the risk of developing an incident delirium in the hospitalized older adult patient.¹⁰ Although there was no clear explanation of how an IUC increased the risk of an incident delirium, at least two mechanisms can be surmised, using basic geriatric principles: deconditioning-related disability and IUC-related UTIs.

The Indwelling Urinary Catheters as a “One-Point Restraint”

Loss of function often precedes hospitalization in community-dwelling older adults. The improvement of

function during hospitalization occurs in only 60% of geriatric patients discharged from the hospital for medical reasons.¹¹ Failure to return to baseline activities of daily living after a hospitalization is a risk factor for long-term disability and death in the geriatric patient.¹² The IUC should be considered a one-point restraint.¹³ Like other hospital-imposed physical restraints classically used to ensure patient safety (eg, four-point leather restraints), the IUC restricts mobility and prevents spontaneous activity. For the geriatric patient, supervised activities encouraging self-care during hospitalization are paramount in the restoration of function needed for a safe and lasting return home. The use of an IUC discourages independence. Unplanned hospital readmissions can be because of the sequelae of physical deconditioning. Minimizing the use of the IUC might reduce such readmissions from loss of function.

Groups Frequently Affected by Inappropriate Use

Two groups that have a disproportionately high frequency of inappropriate IUC insertions are patients with dementia and patients with congestive heart failure (CHF). IUCs are often inserted in these patients under the false assumption that it will provide them more comfort. However, patients with dementia and those with CHF are the least likely to recuperate from IUC-related loss of function; thus, this procedure may be detrimental to their recovery, because both groups have reduced functional levels of activity before presentation. For example, patients with dementia and infections are often subsyndromal for days to weeks, with lethargy and restricted activity as the subtle presenting signs of an acute illness. Similarly, older patients with poorly controlled cardiomyopathies often remain at home with minimal activity for days to weeks before presenting to an ED with florid CHF. EDs and hospitals are acknowledged venues where aggressive treatment of the primary disease process begins. However, they should also be considered the sites where aggressive restoration of function is initiated for the compromised older adult. The use of IUCs prevents maximal functional rehabilitation during hospitalization and should be avoided in hospitalized patients with dementia or CHF when there is no indication.

Minimizing Indwelling Urinary Catheters-Related Urinary Tract Infections

The use of IUCs increases the risk for hospital-acquired UTIs. The rate of bacteria colonization in the urinary tract is about 5% per day in hospitalized

... the best way to avoid having patients develop IUC-related UTIs is to avoid initial catheter insertion or to minimize the duration of catheter use.

patients with IUCs.² Four percent of IUC-related UTIs lead to bacteremia.² Up to 40% of physicians may be unaware of the presence of an IUC in their patients,¹⁴ leading to its continued inappropriate use. IUC-related UTIs are considered a medical error under the 2008 CMS guidelines. Because UTIs account for up to 40% of all nosocomial infections,² practice guidelines to minimize them have been published.³ However, the best way to avoid having patients develop IUC-related UTIs is to avoid initial catheter insertion or to minimize the duration of catheter use. Memorizing the indications for use of the IUC and always vigorously reviewing its continued use will improve patient care for patients of all ages, but especially for older adults. Because hospital readmission rates will soon be published, hospitalists should remember that UTIs are the tenth most likely reason for a Medicare patient to have an unplanned readmission to the hospital.¹⁵

Efforts Within Kaiser Permanente Southern California to Reduce Inappropriate Use of Indwelling Urinary Catheters

Kaiser Permanente (KP) Southern California is making an active effort to reduce the use of IUCs through four different interventions:

1. The 2010 "History and Physical" order set used to admit medical patients to the hospital has decision support codes (through its electronic medical records) to help guide the appropriate use of IUCs. When an IUC is ordered, the physician is required to specify the reason for its insertion by checking off the appropriate drop-down option. Orders for continued use of the catheter must be renewed daily.
2. Hospital nurses on the medical floors are expected to inquire about patients' toileting needs every one to two hours and to assist patients to the toilet when needed. These expectations, as part of the nursing "4 P's" (pain, positioning, personal needs, personal belongings) protocol (Linda Fahey, RN, NP, MSN, personal communication, 2010 June 27),^a establish an understanding by staff that use of IUCs should be minimized and patient ambulation should be encouraged.
3. In a pilot project using bladder ultrasonography to exclude a large urinary postvoid residual, KP Downey Medical Center recently demonstrated an 80% reduction in IUC insertions in its ED. On the basis of those findings and with the support of the Southern California Permanente Medical Group (SCPMG) Chiefs of Urology and Emergency Medicine, the Southern California Kaiser Foundation Health Plan elected to make bladder ultrasonography more widely available by purchasing the necessary equipment for some other departments, including all of its EDs.
4. All surgeons have been educated and are expected to remove IUCs as soon as possible, preferably on the first or second day after surgery, throughout all SCPMG Medical Centers unless an indication is specified.

Improving Care for Hospitalized Older Adults

Clinicians and nurses can ensure that older patients receive optimal care during their hospitalization not only by focusing on the principal diagnosis but also by looking at age-specific issues with an emphasis on improving functional status. Minimizing the use of IUCs will help keep older patients safer during their hospitalization. ❖

^a Regional Manager, Quality and Patient Safety, Patient Care Services, Kaiser Permanente Southern California, Pasadena, CA.

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

Acknowledgments

Thanks to Nancy Gibbs, MD, Regional Coordinating Physician for Geriatrics and Continuing Care, SCPMG, for her encouragement, guidance, and mentoring; Michael Kanter, MD, Regional Medical Director for Quality and Clinical Analysis, SCPMG; Ronald Loo, MD, Regional Coordinating Physician for Urology, SCPMG; and Patti Harvey, RN, Vice President, Kaiser Foundation Health Plan Southern California Region, for their thoughtful critiques of and suggestions for this manuscript. A very special thanks to Jeffrey Brettler, MD, Assistant Area Medical Director, Kaiser Permanente West Los Angeles; Gloria Blackburn, RN, Executive Director, Kaiser Permanente West Los Angeles; and Howard Fullman, MD, Area Medical Director, Kaiser Permanente West Los Angeles, for their leadership in and commitment to improving the care of older adult patients.

Katharine O'Moore-Klopf, ELS, of KOK Edit provided editorial assistance.

References

1. Rosenthal MB. Nonpayment for performance? Medicare's new reimbursement rule. *N Engl J Med* 2007 Oct 18;357(16):1573-5.
2. Saint S, Lipsky BA. Preventing catheter-related bacteremia: Should we? Can we? How? *Arch Intern Med* 1999 Apr 26;159(8):800-8.
3. Lo E, Nicolle L, Classen D, et al. Strategies to prevent catheter-associated urinary tract infections in acute care hospitals. *Infect Control Hosp Epidemiol* 2008 Oct;29 Suppl 1:S41-50.
4. Holroyd-Leduc JM, Sen S, Bertenthal D, et al. The relation-

- ship of indwelling urinary catheters to death, length of hospital stay, functional decline, and nursing home admission in hospitalized older medical patients. *J Am Geriatr Soc* 2007 Feb;55(2):227–33.
5. Kashefi C, Messer K, Barden R, Sexton C, Parsons JK. Incidence and prevention of iatrogenic urethral injuries. *J Urol* 2008 Jun;179(6):2254–8.
 6. Chavez AH, Coffield KS, Kuykendall SJ, et al. Incidence of Foley catheter–related urethral injury in a tertiary referral center [abstract]. *J Am Coll Surg* 2009 Sept;209(3 Suppl 1):S129–30.
 7. Leslie DL, Marcantonio ER, Zhang Y, Leo-Summers L, Inouye SK. One-year health care costs associated with delirium in the elderly population. *Arch Intern Med* 2008 Jan 14;168(1):27–32.
 8. Saint S, Meddings JA, Calfee D, Kowalski CP, Krein SL. Catheter-associated urinary tract infection and the Medicare rule changes. *Ann Intern Med* 2009 Jun 16;150(12):877–84.
 9. Inouye SK, Charpentier PA. Precipitating factors for delirium in hospitalized elderly persons. Predictive model and inter-relationship with baseline vulnerability. *JAMA* 1996 Mar 20;275(11):852–7.
 10. Inouye SK, Bogardus ST Jr, Charpentier PA, et al. A multi-component intervention to prevent delirium in hospitalized older patients. *N Engl J Med* 1999 Mar 4;340(9):669–76.
 11. Landefeld CS, Palmer RM, Kresevic DM, Fortinsky RH, Kowal J. A randomized trial of care in a hospital medical unit especially designed to improve the functional outcomes of acutely ill older patients. *N Engl J Med* 1995 May 18;332(20):1338–44.
 12. Boyd CM, Landefeld CS, Counsell SR, et al. Recovery of activities of daily living in older adults after hospitalization for acute medical illness. *J Am Geriatr Soc* 2008 Dec;56(12):2171–9.
 13. Saint S, Lipsky BA, Goold SD. Indwelling urinary catheters: a one-point restraint? *Ann Intern Med* 2002 Jul 16;137(2):125–7.
 14. Saint S, Wiese J, Amory JK, et al. Are physicians aware of which of their patients have indwelling urinary catheters? *Am J Med* 2000 Oct 15;109(6):476–80.
 15. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. *N Engl J Med* 2009 Apr 2;360(14):1418–28.

To Make the Matter Certain

Whatever probability there may be, that the bladder is empty, and that the disease is in the kidneys, it will still be advisable in every suppression to make the matter certain by the introduction of a catheter.

— Commentaries on the history and cure of diseases,
William Heberden, 1710-1801, English physician