



Treatment of asymptomatic UTI in older delirious medical in-patients: A prospective cohort study

Monidipa Dasgupta^{a,b,*}, Chris Brymer^a, Sameer Elsayed^{c,d}

^a Division of Geriatric Medicine, Department of Medicine, Shulich School of Medicine, Western University, University Hospital (London Health Sciences Centre), 339 Windermere Road, London, Ontario, N6A 5A5, Canada

^b Lawson Health Research Institute, Canada

^c Division of Infectious Diseases, Department of Medicine, Shulich School of Medicine, Western University, Victoria Hospital (London Health Sciences Centre), 800 Commissioner's Road, London, Ontario, N6A 5W9, Canada

^d Department of Pathology and Laboratory Medicine, Division of Microbiology, Western University, Canada



ARTICLE INFO

Keywords:

Delirium
Urinary tract infections
Aged
Prognosis

ABSTRACT

Background: Despite clinical practice guidelines, asymptomatic bacteriuria (ASB) in older people is frequently treated. A common reason for treating ASB is a change in mental status.

Objective: To determine how often asymptomatic UTI is treated in older medically ill delirious individuals and its association with functional recovery.

Methods: Consecutive older medical in-patients were screened for delirium, and followed in hospital. Treatment for asymptomatic UTI was defined as documented treatment for a possible urinary tract infection with antibiotics, without concurrent infectious or urinary symptoms. The primary outcome was functional recovery at discharge or 3 months post-discharge. Poor functional recovery was defined by any one of death, new permanent long-term institutionalization or decreased ability to perform activities of daily living.

Results: The study sample comprised 343 delirious in-patients, of which 237 (69%) had poor functional recovery. Ninety two (27%) delirious in-patients were treated for asymptomatic UTI. Treatment for asymptomatic UTI was associated with poor functional recovery compared to other delirious in-patients (RR 1.30, 95% CI: 1.14–1.48 overall). Similar results were seen when the analysis was restricted to only bacteriuric delirious individuals. Seven (7.5%) individuals treated for asymptomatic UTI developed *Clostridium difficile* infection compared to eight (3.2%) in the remainder of the delirious cohort (OR 2.45, 95% CI: 0.86–6.96).

Conclusions: These results suggest that treatment of asymptomatic UTI in older medical in-patients with delirium is common, and of questionable benefit. Further research is needed to establish guidelines to minimize over-treatment of UTI in older delirious in-patients.

1. Introduction

Asymptomatic bacteriuria (ASB) is common in older persons (Drekonja et al., 2010; Nicolle et al., 1983, 2005; Woodford & George, 2009). Screening for a urinary tract infection (UTI) in older non-catheterized individuals is not recommended unless urinary symptoms are present (Nicolle et al., 2005). Randomized control trials have shown little benefit to treating ASB in the elderly, even in institutionalized individuals with confusion or dementia (Abrutyn et al., 1994; Boscia et al., 1987; Nicolle et al., 1983; Nicolle, Mayhew, & Bryan, 1987; Ouslander et al., 1995). ASB appears to have a benign natural course, may persist despite treatment, or resolve on its own (Boscia et al., 1986,

1987; Eberle, Winsemius, & Garibaldi, 1993; Monane et al., 1995; Mims, Norman, Yamamura, & Yoshikawa, 1990; Nicolle, Henderson et al., 1987). Despite this, ASB is often treated in long-term care, emergency room and hospital settings. The non-judicious use of antibiotics for ASB is associated with a significant burden of antibiotic resistance, *Clostridium difficile* disease, and other sequelae, with one study showing a number needed to harm of 3.3 (Drekonja et al., 2010; Nicolle, Mayhew et al., 1987; Woodford & George, 2009).

The most commonly cited indication for treating bacteriuria, in the absence of urinary or infectious symptoms, is mental status change (Juthani-Metha et al., 2007). The inability to communicate symptoms in cognitively impaired individuals and the non-specific nature of

Abbreviations: UTI, urinary tract infection; ASB, asymptomatic bacteriuria

* Corresponding author at: Division of Geriatric Medicine, Department of Medicine, Shulich School of Medicine, Western University, University Hospital (London Health Sciences Centre), 339 Windermere Road, London, Ontario, N6A 5A5, Canada.

E-mail address: monidipa.dasgupta@sjhc.london.on.ca (M. Dasgupta).

<http://dx.doi.org/10.1016/j.archger.2017.05.010>

Received 9 August 2015; Received in revised form 10 December 2016; Accepted 24 May 2017

Available online 31 May 2017

0167-4943/ © 2017 Elsevier B.V. All rights reserved.

symptoms in older persons have been suggested as reasons for treating ASB (Walker et al., 2000). Although sepsis or bacteremia from a urinary source is associated with high mortality (Tal et al., 2005), the same cannot be said for uncomplicated UTI. There are no randomized controlled placebo trials of treating ASB in confused individuals in the hospital setting.

We recently conducted a prospective cohort study on delirious, older medical in-patients in a tertiary care academic center. Consecutive admissions were screened for delirium. Delirious individuals were followed in hospital. Information on how often presumed UTI was diagnosed and treated, and whether or not there were urinary or infectious symptoms present at the time of treatment, was collected. In the present study, we sought to determine how often asymptomatic UTI is treated in delirious medical in-patients. We also sought to determine whether such treatment was associated with differences in functional recovery compared to other delirious individuals, and whether treatment was accompanied by symptomatic improvement in delirium symptoms.

2. Methods

2.1. Settings and participants

The methods have been described previously (Dasgupta & Brymer, 2014). Briefly, patients at least 70 years old consecutively admitted to the general medical units at London Health Sciences Centre (LHSC) were actively screened for delirium, every 2 days, for a total of 3 times or until discharge, unless they met exclusion criteria. Recruitment occurred at 2 sites of LHSC, University Hospital between Oct 6, 2009–July 29, 2011 and Victoria hospital from April 18, 2011–May 25, 2011. Screening for delirium was done by a trained research assistant (RA), using a chart audit tool, structured interview, complemented by observations and family or staff input as described previously. Delirium was diagnosed if individuals met confusion assessment method (CAM) criteria (Inouye et al., 1990).

Exclusion criteria were: (i)lack of a willing substitute-decision maker; (ii)transfer to another non-medical service (e.g. ICU or surgical service) within seven days of admission; (iii)admission for palliative or long-term institutionalization purposes only; (iv)inability to speak English; (v)presence of a known pre-terminal medical condition (expected life expectancy < 6 months); (vi)severe hearing impairment or communication difficulties; (vii)pre-hospitalization permanent residence in a nursing home, or complete dependence for activities of daily living (ADLs); (viii)direct transfers from other in-patient units, and (ix)enrolment in other interventional studies. To be included, informed consent of both the patient (if capable) and his/her substitute decision was required.

2.2. Study design

The delirious cohort was followed prospectively by the RA in hospital after the screening period, bi-weekly for 2 weeks, weekly thereafter for 2 months and monthly thereafter until hospital discharge. Information on demographics, co-morbidity, baseline function and cognition, severity of illness and laboratory indices (including culture results and tests for *Clostridium difficile* toxin, when done) were collected. In addition, delirious patients had the Memorial Delirium Assessment Scale, MDAS, administered by the RA initially (Breitbart et al., 1997). At one site (University hospital), the MDAS was administered by the RA at every visit. The MDAS measures delirium symptom severity and has been used to indicate whether delirium symptoms have responded to interventions (Han & Kim, 2004).

Information was also collected from the hospital chart on other diagnoses that were made including UTI's. Information on when a presumed UTI was diagnosed and treated and whether or not there were any associated documented urinary (dysuria, urgency, increased

frequency, new suprapubic, costovertebral angle or flank tenderness), infectious or septic (documented fever, hypothermia, chills, rigors, new hypotension or tachycardia) symptoms or signs was collected.

2.3. Primary outcome

The primary outcome was poor functional recovery following an episode of delirium. This was a composite categorical outcome defined by the presence of any one of the following at discharge or at follow-up: (i)death; (ii)new permanent residence in a long-term residential nursing home; or (iii)functional decline. Follow-up telephone interviews were done on individuals discharged to the community or a temporary institution (such as a rehabilitation or respite facility) three months after the date of discharge to elicit information on mortality, residence and functional status using the OARS (Older Americans Resources and Services) questionnaire (Fillenbaum, 1978). Functional decline was defined as a decreased ability to perform activities of daily living (ADLs, comprised of eating, dressing, grooming, walking, transferring, bathing, toileting and continence). Ability to perform ADLs was rated on a scale of 0–2 (0 being most dependent), and was compared to pre-hospital ability to perform ADLs (collected on enrollment). Functional decline was defined as an individual experiencing either a full decline in the ability to perform an ADL (score decreasing from 2 to 0) or a partial decline in at least two ADLs (score decreasing by 1 point in at least 2 ADLs).

This study was approved by the Health Sciences Research Ethics Board of the University of Western Ontario.

2.4. Statistical analysis and variable definition

Poor functional recovery (death, new permanent institutionalization or functional decline) was the dependent variable of interest.

Two analyses were done. In the first analysis, the independent variable was treatment for asymptomatic UTI. Treatment for asymptomatic UTI was defined as the documented treatment for a suspected UTI with antibiotics, regardless of urine culture results, without documented concurrent urinary, infectious or septic symptoms or signs (as defined above). The entire delirious cohort was included (those treated for asymptomatic UTI were compared to the remainder of the delirious cohort).

In the second analysis, only delirious individuals with bacteriuria, defined by the growth of $\geq 10^5$ colonies of at least one organism/ml urine (hereafter referred to as positive urine cultures) were included. The independent variable was treatment for ASB, defined as treatment of bacteriuria without documented concurrent infectious or septic symptoms or signs. The comparator group comprised bacteriuric delirious individuals who were either not treated as they lacked symptoms of UTI, or had UTI symptoms or another indication of an infection.

In both analyses, differences in the primary outcome (relative risk) were assessed. Multivariable logistic regression was also used to derive adjusted odds ratios, controlled for baseline variables. Baseline variables were pre-specified and were those found to be associated with poor functional recovery in the original study: advanced age, ADL dependence, higher initial MDAS scores, and admission diagnoses of hypoxia or acute renal failure (Dasgupta & Brymer, 2014). Although other variables were collected in the original study including gender, presence of a neurodegenerative disorder, baseline cognitive score, co-morbidity, and severity of illness, these were not associated with functional recovery status, and were therefore not included in the adjusted analyses.

A further sub-group analysis assessed the association between functional recovery in asymptomatic bacteriuric individuals who were treated with antibiotics compared to those who were not. As this was suspected to be a much smaller sample, only an unadjusted relative risk was calculated.

Download English Version:

<https://daneshyari.com/en/article/5500906>

Download Persian Version:

<https://daneshyari.com/article/5500906>

[Daneshyari.com](https://daneshyari.com)