GYNECOLOGY

Longitudinal associations between mental health conditions and overactive bladder in women veterans

Catherine S. Bradley, MD, MSCE; Ingrid E. Nygaard, MD, MS; Stephen L. Hillis, PhD; James C. Torner, PhD; Anne G. Sadler, PhD, RN

BACKGROUND: One in 5 recently deployed US women veterans report overactive bladder symptoms. Mental health conditions such as depression and anxiety commonly co-occur in women with overactive bladder, but temporal relationships between these outcomes have not been well studied, and the mechanism behind this association is unknown. The Women Veterans Urinary Health Study, a nationwide longitudinal study in recently deployed women veterans, was designed to better understand relationships between overactive bladder and mental health conditions.

OBJECTIVE: We sought to estimate the 1-year incidence and remission of overactive bladder and to identify the impact of depression, anxiety, posttraumatic stress disorder, and prior sexual assault on 1-year overactive bladder incidence and remission rates.

STUDY DESIGN: Participants of this 1-year prospective cohort study were female veterans separated from military service who had returned from Iraq or Afghanistan deployment within the previous 2 years. Eligible women were identified through the Defense Manpower Data Center and recruited by mail and telephone. Telephone screening confirmed participants were ambulatory, community-dwelling veterans and excluded those with urinary tract fistula, congenital abnormality, or cancer; pelvic radiation; spinal cord injury; multiple sclerosis; Parkinson disease; stroke; or current/recent pregnancy. Data collection included computer-assisted telephone interviews performed at enrollment and 1 year later. The interview assessed demographic and military service characteristics; urinary symptoms and treatment; depression, anxiety, and posttraumatic stress disorder symptoms and treatment; and a lifetime history of sexual assault. Overactive bladder was identified if at least moderately bothersome urgency urinary incontinence and/or urinary frequency symptoms were reported on Urogenital Distress Inventory items. Exposures included depression, anxiety, posttraumatic stress disorder, and lifetime sexual assault, assessed at baseline using validated questionnaires (including the Patient Health Questionnaire and Posttraumatic Stress Disorder Checklist). Associations between exposures and overactive bladder incidence and remission were estimated using propensity score adjusted logistic regression models.

RESULTS: In all, 1107 (88.0%) of 1258 eligible participants completed 1-year interviews. Median age was 29 (range 20-67) years and 53% were nulliparous. Overactive bladder was identified at baseline in 242 (22%), and 102 (9.2%), 218 (19.7%), 188 (17.0%), and 287 (25.9%) met criteria for baseline depression, anxiety, posttraumatic stress disorder, and lifetime sexual assault, respectively. At 1 year, overactive bladder incidence was 10.5% (95% confidence interval, 8.6—12.8%), and remission of overactive bladder was 36.9% (95% confidence interval, 30.8—43.4%). New overactive bladder occurred more often in women with baseline anxiety (21% vs 9%), posttraumatic stress disorder (19% vs 9%) and lifetime sexual assault (16% vs 9%) (all: $P < .01$). After adjustment, anxiety (odds ratio, 2.4; 95% confidence interval, 1.4—4.1) and lifetime sexual assault (odds ratio, 1.7; 95% confidence interval, 1.0—2.8) predicted 1-year incident overactive bladder. Overactive bladder remission occurred less often in those with baseline depression (19% vs 41%, $P < .01$) and anxiety (29% vs 42%, $P = .03$). After adjustment, depression decreased 1-year overactive bladder remission risk (odds ratio, 0.37; 95% confidence interval, 0.16—0.83). Overactive bladder treatment was uncommon and not associated with remission.

CONCLUSION: Anxiety, depression, and prior sexual assault—common postdeployment problems for women veterans—influence the natural history of overactive bladder. Providers should screen for mental health conditions and sexual assault in women with newly diagnosed or persistent overactive bladder.

Key words: anxiety, cohort study, overactive bladder, veteran health

Introduction

While more women are serving in the US military than ever before, information about health conditions in this population after deployment is scarce. Despite their young age, 1 in 5 women veterans report overactive bladder (OAB), a condition including symptoms of urinary urgency, frequency, and urgency urinary incontinence (UI), which has a significant negative impact on quality of life.[1,2] In other generally older populations, depression and anxiety commonly co-occur with OAB and further reduce quality of life.[3,4] However, temporal relationships between mental health conditions and OAB are less clear, as limited longitudinal studies are available.

Using baseline data from the Women Veterans Urinary Health Study (WVUHS), a nationwide longitudinal study of recently deployed women veterans, we previously identified cross-sectional associations between OAB and depression, anxiety, and posttraumatic stress disorder (PTSD).[1] This article describes the primary longitudinal results from this same cohort, including the study of incident (new-onset) OAB and OAB remission. The temporal associations between these outcomes (if identified) are important as, unlike cross-sectional results, they may contribute evidence for potential causal associations thus providing more insight on the mechanisms underlying the relationship between urinary symptoms and mental health symptoms.

Cite this article as: Bradley CS, Nygaard IE, Hillis SL, et al. Longitudinal associations between mental health conditions and overactive bladder in women veterans. Am J Obstet Gynecol 2017;volume:x.ex-x.ex.

0002-9378/$36.00

http://dx.doi.org/10.1016/j.ajog.2017.06.016

FLA 5.4.0 DTD ■ YMOB11733_proof ■ 5 July 2017 ■ 5:28 pm ■ ce

TABLE 1
Demographic, military, and health characteristics in study participants completing 1-year interviews (n = 1107)

Subject characteristics	Result
Age, y, mean (SD)	32.0 (8.9)
Race/ethnicity	
Asian	49 (4.4)
Hispanic	119 (10.8)
Black	206 (18.6)
White	690 (62.3)
Other	43 (3.9)
Education	
High school/GED	121 (10.9)
Some college/technical training	579 (52.3)
Completed college	407 (36.8)
Married	586 (52.9)
Employed	399 (36.1)
Geographic region	
Midwest	145 (13.2)
Northeast	95 (8.6)
South	596 (54.1)
West	248 (22.5)
Other	18 (1.6)
Service component	
Regular military	966 (87.3)
National Guard/Reserve	141 (12.7)
Service	
Army	778 (70.3)
Navy	76 (6.9)
Air Force	222 (20.1)
Marines	31 (2.8)
Officer	239 (21.6)
Combat exposures	708 (64.1)
Deployment length, d	
<200	328 (29.6)
200–<330	342 (30.9)
≥330	437 (39.5)
No. deployments	
1	571 (51.6)
2	392 (35.4)
≥3	144 (13.01)

Bradley et al. Mental health conditions and overactive bladder. Am J Obstet Gynecol 2017. *(continued)*

This study's objectives were to: (1) estimate 1-year OAB incidence and remission rates in this population of women veterans; and (2) identify the impact of baseline depression, anxiety, PTSD, and prior sexual assault on OAB incidence and remission.

Materials and Methods

This 1-year, prospective cohort study was approved by the local institutional review board and the Department of Veterans Affairs Research and Development Committee. Methods and baseline results were previously published.[1]

All ambulatory, community-dwelling women veterans who completed deployment to Iraq or Afghanistan within 2 years of study enrollment and separated from military service were identified through the Defense Manpower Data Center and recruited by mail and telephone. After telephone screening, we excluded those with urologic or neurologic conditions that might cause urinary symptoms (including urinary tract fistula, congenital abnormality, or cancer; pelvic radiation; spinal cord injury; multiple sclerosis; Parkinson disease; and stroke) and those with current or recent pregnancy (in prior 3 months). Data collection occurred from 2010 through 2013.

Computer-assisted telephone interviews were performed by trained female interviewers at enrollment and 1 year later. The interview assessed sociodemographic and military service characteristics; general health; current urinary symptoms; current depression, anxiety, and PTSD symptoms; treatment of urinary and mental health conditions; and prior sexual assault.

Urinary symptoms were assessed using items from the Urogenital Distress Inventory, which assesses symptoms and associated bother (rated not at all, slightly, moderately, or greatly bothersome).[5] OAB was identified if at least moderately bothersome urgency UI or urinary frequency symptoms were reported.

Mental health outcomes were identified based on current symptoms using

FLA 5.4.0 DTD ■ YMOB11733_proof ■ 5 July 2017 ■ 5:28 pm ■ ce