Clinical Digest

Women's Health

Measuring the Burden of Undiagnosed Urinary Incontinence in Women

Urinary incontinence (UI) affects approximately 15% to 50% of women in the community. Despite being a largely treatable condition, less than half of these women ever receive treatment. Misconceptions about the cause and severity of UI, embarrassment surrounding its symptoms, and lack of knowledge about treatment options can make women hesitant to initiate a conversation with their health care provider. As a result, a significant number of UI cases go undiagnosed and untreated. In order to determine the prevalence and severity of undiagnosed UI in women, researchers from University of Michigan, Ann Arbor; University of California at San Francisco; Kaiser Permanente Northwest (KPNW) Division, Portland, OR; and University of Illinois at Chicago conducted a study involving KPNW's managed care population—a cohort of 436,000 mostly white enrollees in the Portland area.

A total of 115,117 women aged 25 to 80 years who were members of KPNW for at least two months and did not have a diagnosis of genitourinary cancer, urologic disease, radiation cystitis, urethra diverticula, or UI recorded in their medical chart were eligible for inclusion in the study. The researchers mailed questionnaires ascertaining UI information to a random sample of 2,118 of these women. The questionnaire asked about UI symptoms in the past 12 months and in the past seven days.

UI in the past seven days was further categorized as: (1) stress UI (accidental urine leakage with physical activity, such as coughing, sneezing, or exercising), (2) urge UI (accidental urine leakage associated with an urge to empty the bladder), or (3) mixed UI (a combination of stress and urge). The Sandvik Severity Index (SSI)—an index score calculated by multiplying the frequency of UI by the amount of urine leaked, yielding the categories of slight, moderate, severe, and very severe—was used to determine severity of UI in the past seven days. Quality of life also was assessed by asking participants, "If you had to spend the rest of your life with your urinary symptoms just the way you have been during the past month, how would you feel about that?"

Among the 875 women who completed the questionnaire, 461 (53%) reported having UI in the past 12 months and 340 (39%) reported having UI in the past seven days. The rates of stress, urge, and mixed UI were 19%, 7%, and 12%, respectively. For 234 women, SSI scores indicated moderate or severe UI. Among this group, the median age was 54 years, and 23% of the group were aged 65 or older.

A chart review revealed that, during the 12 months prior to the questionnaire completion date, women reporting moderate or severe UI had a median of four visits to a health care provider (range, zero to 19) and a median of two telephone contacts with a health care provider (range, zero to 21). Only 11 (4.7%) of these women had UI symptoms recorded in her chart. The researchers say these findings indicate there is poor physician-patient communication about UI.

The impact on quality of life was substantial. None of the women who reported very severe urge or mixed UI also said she was satisfied with her quality of life. Women of all three types of UI reported lower quality of life as the severity of symptoms increased. Based on these findings, researchers say that "efforts need to be made to encourage women as well as their physicians to identify and discuss their symptoms in order to decrease the unnecessary burden of this disease."

Source: *Am J Med.* 2009;122(11):1037–1042. doi:10.1016/j.amjmed.2009.05.016.

Diabetes Management

Diabetes and Skeletal Muscle Mass

Few studies have examined the changes in body composition after the onset of type 2 diabetes, particularly, the disease's effect on skeletal muscle mass, say investigators from the Health, Aging, and Body Composition (Health ABC) Study. They conducted a study of 2,675 well functioning, community dwelling adults aged 70 to 79 years to determine if type 2 diabetes is associated with excessive loss of skeletal muscle mass in this population.

At baseline, the participants were assessed as having: (1) diagnosed type 2 diabetes (defined by a physician-diagnosed report or the current use of oral hypoglycemic agents or insulin with onset after age 25), (2) undiagnosed diabetes (defined by a fasting plasma glucose concentration of 7 mmol/L or more or a two-hour postchallenge plasma glucose concentration of 11.1 mmol/L or more), or (3) no diabetes. At baseline and annually for six years, the researchers used fan-beam dual energy x-ray absorp-

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tiometry to measure total body mass and body composition. Bone mineral content was subtracted from fat free mass to define nonbone lean mass in both the trunk and appendicular components (the arms and legs). Axial computed tomography (CT) scans at the abdomen and mid-thigh level were also obtained at baseline and at year six.

After adjusting for age, sex, race, clinic site, baseline body mass index, and weight loss intention, the researchers found the rate of total body mass loss to be greatest in the participants with undiagnosed diabetes, followed by those with diagnosed diabetes and those without diabetes (–435 g/year, –293 g/year, and –193 g/year, respectively; $P < .01$). Most of the declines were from lean skeletal mass, particularly in the extremities.

Even after further adjustment for changes in body weight over time, participants with undiagnosed diabetes had a higher rate of lean mass decline than those without diabetes (–186 g/year versus –125 g/year, respectively; $P < .05$). These results are especially important, say researchers, because they indicate that the effect of type 2 diabetes on skeletal muscle mass manifests in the early stages of the disease.

Between-group differences in the loss of thigh muscle were statistically significant only in female participants. In women with type 2 diabetes (either diagnosed or undiagnosed), thigh muscle mass decreased about twice as rapidly as in their nondiabetic counterparts. This decline was comparable to that of men without diabetes, which the researchers say suggests that diabetes may negate the preserving effect female sex generally has on lean muscle mass.

Various treatments used by participants with diagnosed diabetes may affect body composition, the researchers acknowledge. They note that treatment with sulfonylurea or insulin is often accompanied by improved protein metabolism. Other treatments, such as thiazolidinediones, may cause weight gain or edema. In their study, they were unable to evaluate the effects of medications because of the small numbers of participants using any one treatment and the changes to treatment during follow up.

Additionally, the researchers caution that, while their study has "shown the temporal relationship between baseline diabetes status and longitudinal changes in muscle mass, it does not confirm causality." The effect of type 2 diabetes on protein metabolism is not as clear as it is in type 1 diabetes. The researchers postulate that metabolic abnormalities and insulin resistance in type 2 diabetes may negatively affect muscle mass and cause reduced synthesis of whole-body proteins. Future research is necessary, they say, to "find the factors responsible for excessive loss of lean mass in older adults with type 2 diabetes and develop strategies to prevent the adverse outcomes of sarcopenia in this high-risk population."

Source: *Diabetes Care.* 2009;32(11):1993–1997. doi:10.2337/dc09-0264.

NEUROLOGY

Cognitive Plateaus in Alzheimer Disease

The course of Alzheimer disease (AD) runs differently for every patient. Some patients experience a rapid, steady decline in cognition until their death. Others reach a "cognitive plateau" in which they remain relatively stable for months, even years. This phenomenon can make treatment even more complicated—is the AD progressing or not? Researchers from Michigan State University, Lansing; University of Michigan, Ann Arbor; Korea University, Seoul, Korea; and Brookhaven National Laboratories, Upton, NY set out to find a valid, quantifiable, and reliable tool for identifying cognitive plateaus and to determine if such plateaus are clinically relevant.

The researchers used the Consortium to Establish a Registry of Alzheimer's Disease (CERAD) data set to test their hypothesis that stable periods of cognition lasting three years or longer can exist during the course of AD. The participants in CERAD were recruited between 1987 and 1995, before the introduction of donepezil hydrochloride. After excluding participants with fewer than three sets of observations (neuropsychological test results) or an observation period of less than three years, the researchers' sample contained 243 participants with AD and 258 control participants.

Of the CERAD variables available, the researchers chose those reflecting the widest variety of cognitive tasks: (1) total correct on the 15-item Boston Naming Test, (2) score on the Folstein Mini-Mental State Examination, (3) total correct on the category-naming test, and (4) total correct on the delayed verbal recognition test. They then used principal components analysis to consolidate the four variables into a single aggregate variable for all participants (with and without AD) at all time points in order to compare the two groups directly. After performing linear regression analyses and plotting the data on a scatter diagram, they looked for plateaus, which were defined as stable periods of three years or longer.

In the control group, 253 (98%) of the 258 participants exhibited cognitive plateaus. Of the 243 participants with AD, 54 (22%) exhibited plateaus. The most common pattern was a single plateau lasting a mean of 3.6 years. In about half of the AD

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plateau group, the plateau started at the beginning of the measurement period and lasted for most or all of the measurement period. Since all patients were enrolled after an initial decline in cognitive normalcy, this finding "suggests an initial clinically evident manifestation of disease followed by a secondary (typically temporary) halt in clinical disease progression." The researchers also found that decline for nonplateau participants was five times more rapid than for plateau participants.

Those in the plateau group tended to be slightly older than the nonplateau group (74 versus 71 years, respectively). There was also a small but significant difference in the average years of education between the groups; the plateau group attained an average of 11.5 education years, while the nonplateau group had an average of 12.8 education years. The researchers (as well as the authors of a previous study) attributed this finding to the comparatively greater disease burden reached before diagnosis. Gender did not seem to have an effect on the existence of plateaus.

The researchers also looked at the effects of disease severity as determined by the Clinical Dementia Rating (CDR). Plateaus occurred at every stage of the disease—except the severe stage, which wasn't represented among the participants at enrollment. The percentage of cases with plateaus appeared to be highest in the mild stage (CDR = 1) but the relatively small numbers of patients in all but the mild stage made it difficult to draw strong conclusions, the researchers say.

The researchers acknowledge that their data did not cover any patient's entire clinical course and the CERAD database had a high dropout rate. Both factors could have skewed their results more heavily toward AD participants who experienced plateaus, they say. Their study also was limited by their decision to select cognitive variables based primarily on available data, rather than systematically including all cognitive variables.

Nevertheless, the researchers advocate taking the significant prognostic variability into account when counseling patients and their families. While their study did not identify any "obvious predictors" of who would experience a plateau and who would not, they maintain that the 22% of participants who did experience plateaus was "not a negligible number." They add, "In a disease that is widely considered uniformly relentless and unstoppable, this message of hope might be appreciated."

Source: *Alzheimers Dement.* 2009;5(6):470–478. doi:10.1016/j.jalz.2009.05.669.