

## PREVALENCE AND CORRELATES OF URINARY AND ANAL INCONTINENCE IN MORBIDLY OBESE WOMEN UNDER EVALUATION FOR LAPAROSCOPIC ROUX EN Y

### Hypothesis / aims of study

To determine prevalence and correlates of urinary and anal incontinence in morbidly obese women undergoing evaluation for laparoscopic weight loss surgery.

### Study design, materials and methods

From October 2003 to February 2005, 182 women with BMI  $\geq 40$  underwent evaluation for laparoscopic weight loss surgery. Using an established website, baseline questionnaires were administered to assess symptoms of urinary incontinence (UI) (Medical, Epidemiologic and Social Aspects of Aging (MESA), Incontinence Impact and Urogenital Distress Inventory Questionnaires (IIQ/UDI)). Anal incontinence (AI) was assessed by asking, "Do you have any uncontrolled anal leakage?" and "If yes, specify gas, liquid, solid or a combination." A number of clinical variables were examined as potential risk factors for the presence of UI and AI. For categorical variables, Chi square analyses were used to test for associations between demographic/clinical variables and urinary and anal incontinence. Logistic regression models were developed to examine the relationship between continuous demographic/clinical variables and urinary and anal incontinence. All analyses were performed using SAS.

### Results

Mean age was 39.8 years ( $\pm 8.8$ ; Median=40, Range=16-55); mean BMI was 49.5 ( $\pm 8.0$ ; Median=47, Range=40-81). Prevalence of UI was 63.6% and AI was 31.8%, of which 45.6% reported loss of gas only, 21.1% liquid stool only, and 8.8% solid stool. Univariate analyses showed a correlation of the presence of UI with age (OR 1.06, 95% CI: 1.02, 1.101,  $p=.002$ ), parity (OR 1.68, CI: 1.25, 2.26,  $p=.001$ ), AI (OR 5.11, CI: 2.23, 11.8,  $p<.001$ ), hypertension (OR 2.59, CI: 1.37, 4.88,  $p=.003$ ), use of diuretic (OR 2.24, CI: 1.09, 4.62,  $p=.030$ ), arthritis (OR 6.94, CI: 2.02, 23.90,  $p=.002$ ), and sleep apnea (OR 2.59, CI: 1.37, 4.88,  $p=.003$ ). Presence of AI was associated with the presence of UI only (OR 5.11, CI: 2.22, 11.75,  $p<.001$ ). Multi-variable logistic regression, using stepwise selection, indicated five predictors of urinary incontinence that were significant in the presence of each other. These predictors are hypertension (OR = 2.417, 95% CI (1.151, 5.073),  $p$ -value = .0197), total number of children (OR = 1.684, 95% CI (1.202, 2.359),  $p$ -value = .0025), arthritis (OR = 5.922, 95% CI (1.559, 22.501),  $p$ -value = .009), and sleep apnea (OR = 2.204, 95% CI (1.103, 4.405),  $p$ -value = .045) and anal leakage (OR 5.836, 95% CI (2.291, 14.868),  $p=.0002$ ). Multivariable logistic regression, using stepwise selection, indicated two significant predictors of anal incontinence, weight (OR = .993, 95% CI (.986, .999),  $p$ -value = .0289) and urinary incontinence (OR 5.268, 95% CI (2.27, 12.21),  $p=.0001$ ).

### Interpretation of results

A number of demographic and clinical factors correlated with the presence of urinary incontinence in this morbidly obese population of women. The presence of anal incontinence strongly correlated with the presence of urinary incontinence. Many of the correlates for urinary incontinence are medical comorbidities associated with obesity such as hypertension, arthritis and sleep apnea.

### Concluding message

Prevalence of urinary and anal incontinence is high in this population of morbidly obese women. Studies are needed to determine the effect of surgically induced weight loss via the increasingly commonly performed laparoscopic Roux-en-Y gastroplasty on urinary and anal incontinence symptoms in the morbidly obese woman.