

WAIST-HIP RATIO ASSOCIATED WITH URINARY INCONTINENCE IN WOMEN

Hypothesis / aims of study

Several cross sectional studies have found a significant association between body mass index and incontinence, and weight loss in obese women has been shown to improve incontinence symptoms (1.,2). Little is known about whether the fat distribution is of importance. The aim of the present study was to investigate whether central obesity as expressed by a high waist-hip ratio, was independently associated with urinary incontinence.

Study design, materials and methods

The EPINCONT study is part of a large survey performed in a county in Norway. 27936 women completed the incontinence part of the questionnaire. For the 6876 incontinent women (24,6%), a severity index was calculated based on the answers regarding frequency and amount of leakage, and the incontinence was categorised into slight, moderate and severe (43%, 31% and 26% of the incontinent women, respectively). The incontinence was also classified into three different subtypes; stress, urge and mixed incontinence (50%, 11% and 36% of the incontinent women, respectively). The survey included questions about socioeconomic factors, lifestyle factors and several medical conditions.

When the participants attended the screening station, weight, height, waist circumference and hip circumference was measured. Body mass index and waist-hip-ratio was calculated. Waist-hip-ratio was normally distributed and was in some analyses treated as a continuous variable. The variable was in other analyses categorized to better express how the risk of incontinence changed according to different levels of waist-hip ratio. A waist-hip ratio of > 0.80-0.85 in women is taken to indicate a so-called android fat distribution and central obesity.

Proportions were used to describe the frequency of urinary incontinence symptoms according to different levels of waist-hip-ratio. Logistic regression analyses were used to adjust for confounding and evaluate the effect of the variable under study. In all logistic regression analyses, women with no incontinence served as the reference group.

Results

The frequency of incontinence increased with increasing waist-hip ratio (Table 1). This increase was present for all types and severity of incontinence in the bivariate unadjusted analyses.

Table 1

	Any UI (%)	Severe UI (%)	Stress UI (%)	Urge UI (%)	Mixed UI (%)
Waist – hip ratio					
< 0.70	20.1	3.5	12	3.6	5.8
0.70 - 0.79	22.6	4.2	13.3	2.8	8.6
0.80 - 0.89	25.7	6.5	14.3	3.8	11.2
0.90 - 0.99	26.8	6.5	15.0	3.7	11.7
>=1.00	30.9	8.8	17.0	5.8	14.7

The results of the multivariable analyses with adjustment for age and parity are displayed in table 2. The association between waist-hip ratio (continuous variable) and incontinence was present and statistically significant for any incontinence, severe symptoms and mixed

symptoms. The association weakened but remained significant for any incontinence and mixed incontinence (both OR 1.1) after additional adjustment for body mass index. The analyses with waist-hip ratio as a categorical variable showed that there was a strong and significant association between any incontinence and mixed incontinence for a waist-hip ratio over 0.90 and 0.80, respectively.

Table 2. Results of multivariable logistic regression analyses, adjusted for age and parity. Results are given in odds ratios (OR) with 95% confidence intervals (95% CI).

	Any UI	Severe UI	Stress UI	Urge UI	Mixed UI
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Waist – hip ratio					
Continuous	1.1(1.1-1.2)	1.3 (1.2-1.4)	1.1 (1.0-1.1)	1.0 (1.0-1.1)	1.3 (1.2-1.4)
Categorical					
< 0.70	1	1	1	1	1
0.70 - 0.79	1.0 (0.9-1.3)	0.9 (0.6-1.4)	1.1 (0.9-1.5)	0.7 (0.4-1.3)	1.2 (0.8-1.8)
0.80 - 0.89	1.2 (1.0-1.5)	1.2 (0.8-1.9)	1.2 (0.9-1.5)	0.9 (0.6-1.5)	1.5 (1.0-2.2)
0.90 - 0.99	1.3 (1.1-1.7)	1.5 (0.9-2.3)	1.3 (0.9-1.7)	1.1 (0.6-1.8)	1.7 (1.2-2.5)
>=1.00	1.6 (1.1-2.3)	1.8 (0.9-3.5)	1.5 (0.9-2.3)	1.4 (0.6-3.7)	2.3 (1.3-4.0)

Interpretation of results

Our study indicates that there is an association between central obesity and the presence of urinary incontinence. The results confirm the findings from one previous study (3).

Concluding message

There seems to be an association between a high waist-hip ratio and urinary incontinence. If this is the case, women with urinary incontinence and a high waist-hip-ratio may benefit more from weight-reduction than the women with a “pear” body shape.

References:

1. Are smoking and other lifestyle factors associated with female urinary incontinence? BJOG. 2003 Mar;110(3):247-54.
2. Does weight loss improve incontinence in moderately obese women? Int Urogynecol J Pelvic Floor Dysfunct. 2002;13(1):40-3.
3. Prevalence of urinary incontinence and associated risk factors in postmenopausal women. Heart & Estrogen/Progestin Replacement Study (HERS) Research Group. Obstet Gynecol. 1999 Jul;94(1):66-70.