

THE RISK FACTORS FOR FEMALE URINARY INCONTINENCE AMONG MIDDLE-AGED KOREAN WOMEN

Hypothesis / aims of study

The aim of this study is to investigate risk factors for stress and mixed urinary incontinence (UI) in middle-aged (range 35 to 64 years) Korean women.

Study design, materials and methods

This was a cross-sectional, independent case-control study using a structured self-administered questionnaire including two UI related dependent variables (experience of incontinence and type of incontinence) and nine potential risk factors (age, obesity, delivery, vaginal delivery, menopause, hormone replacement therapy, hysterectomy, smoking, diabetes mellitus, hypertension). The sample size for this independent case-control study was calculated as 239 in each group in condition with 0.05 of alpha rate and 0.8 of statistical power. Data for most incontinent women were gathered at two urologic clinics in general hospitals and all of continent women were recruited from community church or social groups.

Multivariate binary logistic regression analysis was used to determine adjusted odds ratios and 95% confidence intervals and to rank the relative importance of various significant risk factors of UI.

Results

Of a total of 608 women included in analysis, 247 met the definition of urinary incontinence for this study (once a month or more during the past 12 months). Of these 247 women, 150 (60.7%) were identified as having mixed incontinence. After adjustment of potential risk factor differences by multivariate logistic regression analysis, higher BMI, more vaginal births, menopause, hysterectomy, and current use of hormone were identified as significant risk factors for UI in Korean middle-aged women. The strongest factors were vaginal birth and obesity defined by the Asian–Pacific perspective of obesity. Women who undergone vaginal deliveries twice and more than twice had a 4.87 (95% CI, 2.09–11.32) and 9.60 (95% CI, 2.42–38.02) odds ratio of having leakage, respectively, compared with nulliparous women. Obese women ($BMI \geq 25 \text{ kg/m}^2$) had four times the odds of incontinence ($OR = 4.01$, 95% CI 2.55–6.31), and women who were overweight ($23 \text{ kg/m}^2 \leq BMI < 25 \text{ kg/m}^2$) had odds of 2.5 (95% CI 1.59–3.96) compared to women with normal BMI ($18.5 \text{ kg/m}^2 \leq BMI < 23 \text{ kg/m}^2$). In addition, menopause, current use of hormone, and hysterectomy were associated with a significant increase in incontinence with odds of 1.9 (95% CI 1.21–3.11), 2.3 (95% CI 1.00–5.23), and 2.8 (95% CI 1.46–5.44), respectively.

Interpretation of results

The results of multiple logistic regression analysis showed that the strongest factors significantly associated with incontinence were obesity and vaginal delivery. It may provide evidence that Asian-Pacific perspective of obesity is a more appropriate criterion for Korean women that generally used for western studies. And the number of vaginal deliveries seemed to be a more potent predisposing factor than parity. In the context of hormonal effects, it makes sense that that hysterectomy and postmenopause with their attendant estrogen loss increase UI risk. However, the finding that hormone replacement increased UI risk contrasts with previous results. Thus future studies need to analyze hormonal effect on UI.

Concluding message

More than one vaginal birth provides most risk of having stress or mixed UI. The second strongest factor is obesity, defined using Asian-Pacific Criteria, for women in this study. Hormone related risk factors, such as hysterectomy, menopause, and hormone replacement are also significant predisposing factors. Aging, smoking, and chronic conditions, such as diabetes mellitus and hypertension, were not associated with middle-aged Korean women's urinary incontinence.

Specify source of funding or grant	No
Is this a clinical trial?	Yes
Is this study registered in a public clinical trials registry?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Konkuk University Hospital Ethics Committee
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes