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Hannestad Y[1], Lie R T[2], Rortveit G[1], Hunskaar S[1]
1. Section for General Practice, Dept of Public Health and Primary Health Care,University of Bergen, 2. Section for Medical Statistics, Dept of Public Health and Primary Health Care,University of Bergen

FEMALE URINARY INCONTINENCE – RUNNING IN THE FAMILY?

Aims of Study

Preliminary evidence suggests that genetic factors may play a role in the development of urinary incontinence.

The aim of this study was to estimate the recurrence risk of incontinence among daughters, granddaughters and sisters of incontinent women compared with the risk for relatives of continent women.

Methods

27936 women with data on incontinence comprise the basic study population of the Norwegian EPINCONT Study. By means of the kinship registry from Statistics Norway we could map the familial relations within the study population.

Three different cohorts were established to follow recurrence from mother to daughter and from a sister to subsequent sisters. The first cohort consisted of 6021 mothers and their 7629 subsequent daughters. A mother could contribute with information on recurrence in several daughters and could also appear as the daughter of her own mother in our data. The second cohort consisted of 332 mothers who could be followed with respect to recurrence both in a daughter and in a granddaughter. The third cohort consisted of 2104 older sisters followed to eventual recurrence in a younger sister. 322 sisters could be followed to two younger sisters.

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.The incontinence was also classified into the types stress, urge and mixed incontinence.

We compared the risk of incontinence in the daughters of the incontinent mothers with the risk in the daughters of the continent mothers. We also compared the risk of incontinence in the subsequent sisters of the incontinent older sisters with the risk in the subsequent sisters of the continent older sisters. In the cohort of three generations we investigated the recurrence of incontinence in granddaughters with respect to the combined incontinence status of the two older generations.

The effects were estimated by the odds ratio with corresponding 95% confidence intervals from logistic regression analyses. Continent women served as the reference group. Subanalyses were performed for the different types and degrees of severity of incontinence.

In the following text we give the adjusted results from the logistic regression analyses. Age, body mass index and parity weakly confounded the effect estimates and were included in the final models for all cohorts. No interaction was found.

Results

Daughters of mothers with any incontinence had an odds ratio of 1.4 (95 % CI 1.3 to 1.6) of being incontinent. If the mother had severe incontinence, the odds ratio for recurrence of severe symptoms in the daughter was 2.2 (95 % CI 1.4 to 3.3). The risk for severe incontinence was also raised among the daughters when the mothers had any incontinence (Odds ratio 1.8, 95 % CI 1.3 to 2.5). The odds ratio for daughters of stress- incontinent mothers of having similar type of incontinence was 1.7 (95 % CI 1.4 to 2.1). If the mother had *severe* stress incontinence the odds ratio was raised to 3.6 (95 % CI 1.4 to 9.5). The odds ratio for specific recurrence of mixed incontinence was 1.7 (95 % CI 1.3 to 2.3), and 2.6 (95 % CI 1.2 to 5.6) for *severe* mixed type. Due to small numbers the odds ratio of 1.8 (95 % CI 0.8 to 4.1) for urge incontinence was not statistically significant.

The incontinence of the grandmothers had only some effect when added to the effect of the mothers' incontinence in a combination variable. Having two incontinent foremothers led to an odds ratio of 2.9 (95 % CI 1.1 to 7.6) for being incontinent.

When we followed older sisters to look for recurrence in younger sisters we found an odds ratio of 1.9 (95 % CI 1.5 to 2.5) for any incontinence in sister 2 and 1.8 (95 % CI 1.0 to 3.4) in sister 3. The recurrence risk of severe symptoms was 1.9, but not statistically significant. Younger sisters of older stress-incontinent sisters had an odds ratio for recurrence of the

same incontinence type of 2.2 (95 % CI 1.5 to 3.2) (sister 2) and 2.1 (95 % CI 0.8 to 5.6) (sister 3). The odds ratio for recurrence of mixed incontinence was 2.2 (95 % CI 1.2 to 4.1) and 1.8 (95 % CI 0.4 to 9.1) for sister 2 and sister 3, respectively. No younger sisters of older urge-incontinent sisters had urge incontinence.

Conclusions

Our results indicate the presence of hereditary factors in the development of urinary incontinence in women. We found an increased risk for any incontinence, stress and mixed type and severe symptoms for women whose mothers or older sisters were incontinent. For daughters of incontinent mothers an incontinent grandmother raised the risk further.