

## POSITIVE ASSOCIATION OF FEMALE LOWER URINARY TRACT SYMPTOMS AND ESTROGEN DEPRIVATION: A NATIONWIDE POPULATION-BASED COHORT STUDY

### Hypothesis / aims of study

Estrogen is considered to be a unique hormone in females that has an impact on voiding function. Animal models and clinical epidemiologic studies showed high correlation between estrogen deficiency and female lower urinary tract symptoms (LUTS).[1] We designed a population-based cohort study from a national health database to assess the association of estrogen deprivation therapy and female LUTS.

### Study design, materials and methods

This study examined the records of 16128 patients ranging in age from 18 to 40 in the National Health Insurance Research Database (NHIRD) in the years between 2001 and 2010. Of these, 1008 had breast cancer with hormone therapy only and the other 15120 controls did not have breast cancer or hormone therapy. All patients with neurologic diseases and those with pre-existing LUTS identified by information in the NHIRD database were excluded. LUTS was defined by medications prescribed for at least one month. Risk of new onset LUTS in the breast cancer and non-breast cancer groups was estimated.[Fig. 1]

### Results

14 Patients (1.4%) experienced LUTS in the breast cancer group. Overall, breast cancer with estrogen deprivation therapy increased the risk of LUTS by 14.37-fold (adjusted hazard ratio, 95% CI 7.06 to 29.27). Subgroup analysis showed that in the older age breast cancer group (36-40), a lower Charlson Comorbidity Index (CCI) score and antidepressant medication use for at least 30 days had an impact on the increase of LUTS risk. After adjustment of variables, the higher CCI and the use of antipsychotic drugs increased risk of LUS 3.45-fold and 7.45-fold, respectively. The Kaplan-Meier analysis of LUTS-free survival in the breast cancer group showed a significant time dependent increase in incidence of LUTS.

### Interpretation of results

Estrogen deprivation in young breast cancer patients increased the risk of LUTS. The LUTS development rate was steady and fast in the beginning three years after estrogen deprivation.

### Concluding message

This result indicates a role of estrogen in the modulation of female voiding function.

Fig. 1 Flow diagram showing the process of lower urinary tract symptoms (LUTS) patient sampling and participation

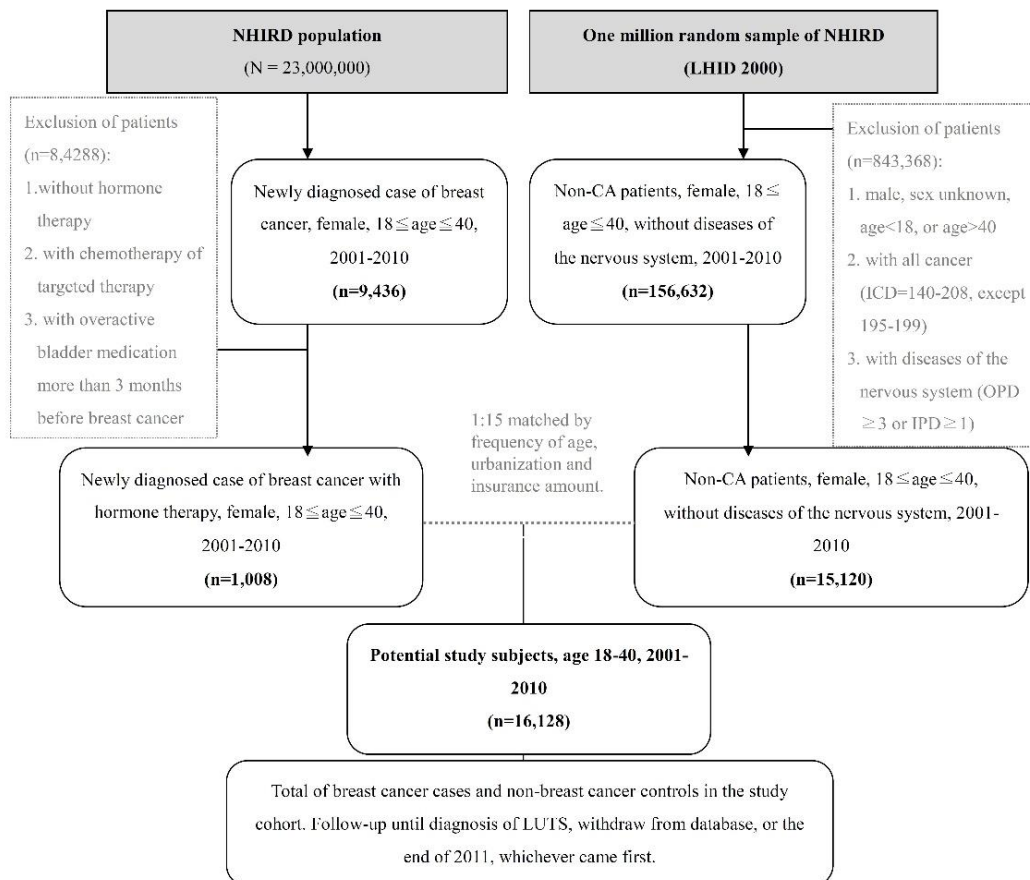
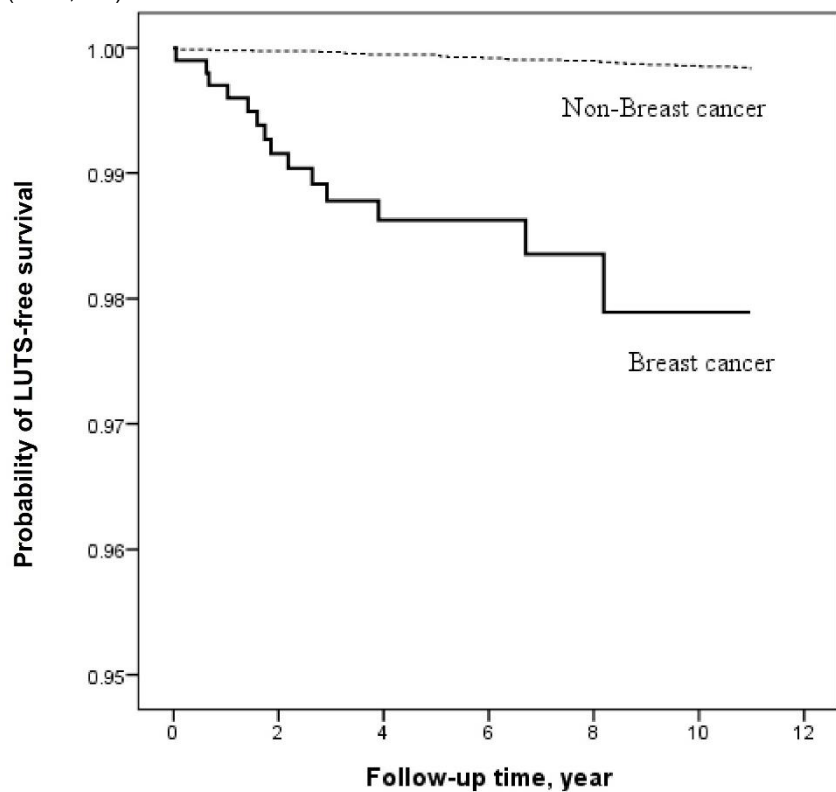


Fig. 2 Kaplan-Meier survival analysis of probability of developing LUTS with and without breast cancer ( $P < 0.001$ , log-rank test) ( $n = 16,128$ )



#### References

1. Cheng CL, de Groat WC. Effects of agonists for estrogen receptor alpha and beta on ovariectomy-induced lower urinary tract dysfunction in the rat. *American journal of physiology Renal physiology*. 2014 Jan;306(2):F181-7.

#### Disclosures

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