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PREVALENCE OF VITAMIN D DEFICIENCY IN WOMEN WITH URINARY AND FECAL INCONTINENCE: RESULTS FROM THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

Hypothesis / aims of study

To estimate the prevalence of vitamin D deficiency in women with urinary and fecal incontinence, and to evaluate possible associations between them.

Study design, materials and methods

Using 2005-2006 NHANES survey data, we performed a cross-sectional analysis of non-pregnant women over 20 years of age with data on urinary/fecal incontinence and vitamin D measurements (n=1881). Vitamin D levels < 30 ng/mL were considered insufficient/deficient. The prevalence of demographic factors, urinary or fecal incontinence, and vitamin D levels were determined accounting for the multi-stage sampling design; odds ratios (OR) and 95% confidence intervals (CI) were calculated to evaluate associations between vitamin D levels and urinary or fecal incontinence with control for known risk factors.

Results

Urinary and/or fecal incontinence were reported by 22% of women. Mean vitamin D levels were significantly lower for women reporting urinary and/or fecal incontinence irrespective of age. In adjusted logistic regression models, we observed significantly decreased risks of urinary or fecal incontinence with increasing vitamin D levels in all women > 20 (OR = 0.92; 95% CI = 0.86-0.99) and in the subset of women 50 years and older (OR = 0.89; 95% CI = 0.81-0.98). Additionally, the likelihood of urinary incontinence was significantly reduced in women 50 and above with vitamin D levels > 30 ng/ml (OR = 0.55; 95% CI =0.34-0.91), p = 0.022, indicating a 45% reduction in risk of urinary incontinence with vitamin D levels in the normal range.

Interpretation of results

Higher vitamin D levels are associated with a decreased risk of urinary and/or fecal incontinence in women. The vitamin D association was strongest among older women reporting urinary incontinence in the NHANES survey.

Concluding message

Our findings suggest that treatment of vitamin D insufficiency and deficiency in both pre- and post-menopausal women could improve pelvic muscle strength, with a possible reduction in the prevalence of urinary incontinence.

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What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**