

THE RELATIONSHIP BETWEEN THE URINE NOX AND THE SERUM NOX IN THE WOMEN WITH OAB IN COMMUNITY-BASED STUDY

Hypothesis / aims of study

We have revealed that the serum nitrite plus nitrate (NOx) levels in the women with OAB without urge urinary incontinence (OAB-Dry) was significantly lower than those of the women without OAB. The lower serum NOx levels in OAB-Dry group in comparison to OAB-Wet group could contribute as a biomarker that represents an earlier stage in the pathophysiology of OAB. On the other hand, it is supposed that bladder ischemia is one cause of OAB. The aims of this study are to assess whether the levels of urinary NOx and the serum NOx levels are related to OAB symptoms in community-dwelling men in Japan.

Study design, materials and methods

A total of 189 participants (80 men and 109 women, mean 66.8 years) were recruited for the purpose of a mass-screening program for general health in a community-based study. They were asked to complete questionnaire to assess OAB using OABSS. Serum NOx levels were measured using a commercial EIA kit. Urinary NOx levels were assayed by using a commercial ELISA kit.

Results

Of the 189 participants, 33 (17.5%) had OAB symptoms including 25 (13.2%) without urge incontinence (OAB-Dry), and 8 (4.2%) with urge incontinence (OAB-Wet). The serum NOx levels significantly increased with age in all subjects. The urinary NOx levels of did not change significantly among the non-OAB, OAB-Dry and OAB-Wet groups. In subgroups of the subjects without OAB statistically significant positive correlations were observed between the urinary NOx levels and the serum NOx levels ($r=0.72$, $p<0.0001$) (**Fig.1**). Besides in the subgroups of the subjects with OAB-Dry statistically significant positive correlations were also observed between the urinary NOx levels and the serum NOx levels ($r=0.56$, $p=0.004$). In contrast, in subgroup of the subjects with OAB there were significantly statistical negative correlations between the urinary NOx levels and the serum NOx levels ($r=-0.76$, $p=0.03$) (**Fig.2**).

Interpretation of results

The results of this study suggest that the lower urinary NOx levels may be accompanied with the greater serum NOx levels in the subjects with OAB-wet. In the previous study the serum NOx levels might reflect the homeostatic preservation of cardiovascular condition. There were statistically significant positive correlations between the urinary NOx levels and the serum NOx levels in the women without OAB. In contrast, statistically significant negative correlations were observed between the urinary NOx levels and the serum NOx levels in the women with OAB-Wet. It could be suggested that the homeostatic system of NO might be failed in the women with OAB-Wet due to bladder ischemia. It could also provide important information on the clinical significance of the urinary NOx as a biomarker of OAB.

Concluding message

Evaluation of the urinary NOx levels and the serum NOx levels could contribute as biomarker that represents an advanced stage in the pathophysiology of OAB due to ischemic bladder.

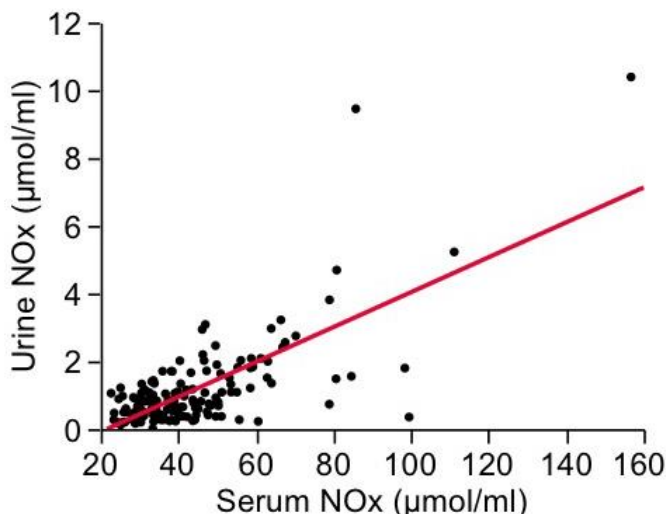


Fig. 1 Relationship between the urine NOx and the serum NOx in the women without OAB.

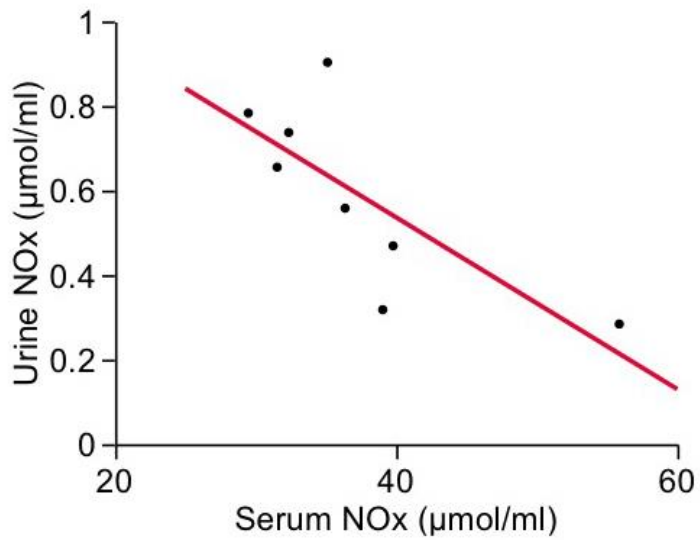


Fig. 2 Relationship between the urine NOx and the serum NOx in the women with OAB-Wet.

Disclosures

Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of Meiji University of Integrative Medicine **Helsinki:** Yes **Informed Consent:** Yes