

NOCTURIA INCREASED AFTER THE GREAT EAST JAPAN EARTHQUAKE AND TSUNAMI.

Hypothesis / aims of study

Disaster stress exhibits various symptoms, both mentally and physically. After the Great East Japan Earthquake and Tsunami on March 11, 2011, cardiovascular events increased acutely. Urinary symptoms are also presumed to be altered after natural disasters.

The objective of this study was to evaluate whether nocturia increased in a coastal town of east Japan that was devastated by the Great East Japan Earthquake and Tsunami and to identify the risk factors among patients who developed increased nocturia after the disaster.

Study design, materials and methods

We conducted a longitudinal retrospective study of nocturia in 300 patients who visited our hospital with benign prostatic hypertroplasia or overactive bladder. Data were obtained from medical records over 5 years (2 years before the disaster [2009–2010] and 3 years after the disaster [2011–2013]) over four seasons. We evaluated alterations in the yearly average number of night-time voiding.

We assessed the association between the increase in nocturia and the following factors: sex, age (≥ 80 , 70–79, ≤ 69 years), loss of house, and comorbidities (insomnia, hypertension [HT], diabetes mellitus [DM], stroke, and coronary artery disease [CAD]).

Results

Of 300 Japanese patients, 263 were men and 37 were women. Mean age was 73.4 (± 8.0) years. The number of patients for whom records of nocturia were available was 257 (85.7%) in 2009, 300 (100%) in 2010, 278 (92.7%) in 2011, 268 (89.3%) in 2012, and 262 (87.3%) in 2013.

The yearly average of nocturia was 2.066 (± 1.095) times in 2009, 2.093 (± 1.098) in 2010, 2.246 (± 1.153) in 2011, 2.260 (± 1.204) in 2012, and 2.303 (± 1.180) in 2013. Multiple comparison by the Tukey-Kramer method revealed a statistically significant increase ($P=0.0303$) between 2010 and 2011, whereas other consequent pairs (2009–2010, 2011–2012, 2012–2013) were not significant (Figure).

Average nocturia pre-disaster (2009–2010) was 2.110 (± 1.048) times and post-disaster (2011–2013) was 2.299 (± 1.111) times. The number of patients with an increase in nocturia after the disaster was 174. Univariate Chi-square and multivariate logistic regression did not show any risk factors for an increase in nocturia after the disaster.

Figure. Yearly average of nocturia

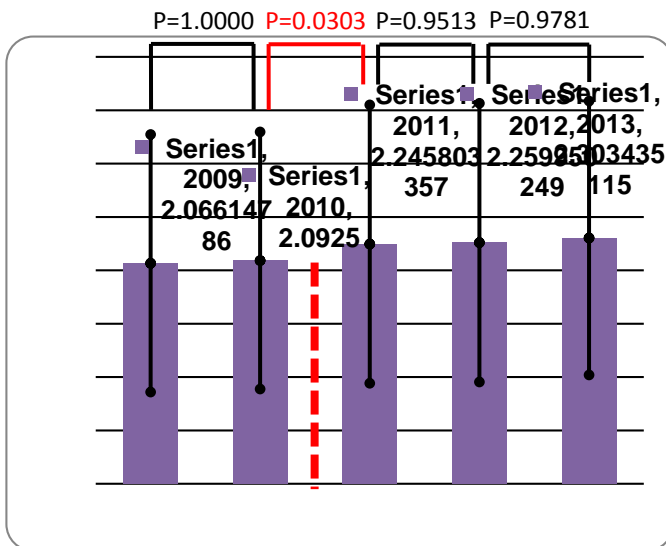


Table. Risk factors for increase in nocturia after the disaster

	Patient (%)	Increased (%)	Not Increased (%)	Univariate Chi-square	Multivariate Logistic Regression
Total	300	174	126		
Sex				P=0.8477	P=0.9182
Male	263 (87.7)	152 (87.4)	111 (88.1)		
Female	37 (12.3)	22 (12.6)	15 (11.9)		
Age				P=0.2335	P=0.1804
≥80	67 (22.3)	36 (20.7)	31 (24.6)		
70-79	153 (51.0)	97 (55.2)	57 (45.2)		
≤69	80 (26.7)	42 (24.1)	38 (30.2)		
Loss of House				P=0.7178	P=0.7137
Yes	66 (22.0)	37 (21.3)	29 (23.0)		
No	234 (78.0)	137 (78.7)	97 (77.0)		
Comorbidity					
Insomnia	82 (27.3)	52 (29.3)	31 (24.6)	P=0.3666	P=0.3716
HT	153 (51.0)	92 (52.3)	67 (53.2)	P=0.8808	P=0.8326
DM	109 (36.6)	58 (33.3)	51 (40.5)	P=0.2050	P=0.2052
Stroke	95 (31.7)	57 (32.8)	38 (30.2)	P=0.6328	P=0.6170
CAD	88 (29.3)	49 (28.2)	39 (31.0)	P=0.6002	P=0.5265

HT, hypertension; DM, diabetes mellitus; CAD, coronary artery disease.

Interpretation of results

In this study, a statistically significant increase in nocturia occurred after the Great East Japan Earthquake and Tsunami. We must consider that the increase could have been related to aging, but consequent pairs other than 2010–2011 were statistically insignificant.

A previous large-scale study revealed that risk factors for nocturia were aging, insomnia, HT, DM, stroke, and heart disease. This study did not show any association between those factors and the increase in nocturia after the disaster.

These results suggest that the life-threatening event of the disaster triggered an increase in nocturia in a nonspecific group of patients.

Concluding message

We conclude that a statistically significant increase in nocturia in a nonspecific group of patients occurred after the Great East Japan Earthquake and Tsunami. The increase in nocturia was not associated with aging, sex, loss of house, or comorbidities.

References

1. Aoki et al: Eur Heart J. 2012 Nov;33(22):2796-803.
2. Yoshimura et al: Urology. 2007 May;69(5):864-70.
3. Asplund et al: BJU Int. 2002 Oct;90(6):533-6.

Disclosures

Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** this is a retrospective study. Our hospital rule does not require ethics committee for retrospective studies. **Helsinki:** Yes **Informed Consent:** No **open discussion poster:** ePoster with fixed time presentation slot (5 mins presentation including questions to an audience)