

INTRAVESICAL NITRIC OXIDE PRODUCTION DISCRIMINATES BETWEEN CLASSIC AND NONULCER INTERSTITIAL CYSTITIS

Aims of Study

Interstitial cystitis (IC) is one of the most bothersome conditions in urological practise. There are two subtypes, classic and nonulcer IC with similar symptoms but different outcome with respect to clinical course and response to treatment (1,2). Histologically there are fundamental differences between the two subtypes, classic IC presenting characteristic inflammatory features while inflammation is scant in nonulcer IC (3). Regulation of nitric oxide synthase activity in the urothelium has been proposed to be of importance for the inflammatory response in classic IC (4).

The aim of the present study was to evaluate the evaporation of nitric oxide from the urinary bladder in patients with classic and nonulcer IC, to determine the degree of nitric oxide production in patients with rigorously documented IC according to established criteria for diagnosis and subtyping.

Methods

Seventeen patients with both subtypes and with active disease as well as patients in remission were included in the study, all diagnosed according to the NIDDK criteria (5). Subtyping was previously performed according to established endoscopic and histopathologic criteria (6). Luminal nitric oxide was measured in the bladder of the patients using a chemiluminescence nitric oxide analyzer and compared with the surrounding atmosphere (7). None of the patients or the six controls had any condition known to increase the level of NO, such as ongoing infection or bladder malignancy.

Results

The NO levels in patients with classic IC revealed high level of NO whereas none of the nonulcer IC patients or the controls had any increase in NO levels in their bladder, compared to the surrounding atmosphere. The NO level in classic IC patients was not in relation to the symptoms. The highest levels of NO was found in patients in the earlier or active (initial) phase of classic IC, compared with the later "outburnt" phases. See Table 1.

Conclusions

The difference in NO evaporation between classic and nonulcer IC allows for easy subtyping of patients meeting the NIDDK criteria without performing extensive invasive investigations. The findings in the present series, together with previous findings, clearly demonstrate that the two subtypes of IC represent separate entities and this further emphasizes the need to subtype all patients included in all scientific materials, hence ensuring that the two subtypes are evaluated separately in clinical studies.

References

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Table 1. – Listing all study patients and controls, with age, sex, diagnosis and two measurements of NO (ppb) at about 4 to 6 months apart, as well as whether or not the individual had symptoms at time of measurement.

Age	Sex	Diagnosis	First measurement NO (ppb) / symptoms		Second measurement NO (ppb) / Symptoms	
77	F	classic-IC	275	Yes		
73	M	classic-IC	255	Yes	1000	yes
65	F	classic-IC	1313	Yes		
65	F	classic-IC	1604	Yes		
62	F	classic-IC	1679	no	1058	yes
61	F	classic-IC	3253	no		
60	F	classic-IC	967	Yes		
54	F	classic-IC	2596	no	2175	no
41	M	classic-IC	307	Yes	316	yes
35	F	classic-IC	297	Yes		
60	F	nonulcerous-IC	1	Yes		
56	M	nonulcerous-IC	1	Yes	1	yes
53	F	nonulcerous-IC	1	Yes		
46	F	nonulcerous-IC	1	Yes	3	no
44	F	nonulcerous-IC	1	Yes	1	yes
38	F	nonulcerous-IC	1	Yes		
20	F	nonulcerous-IC	1	Yes		
66	F	control	5			
56	F	control	1			
54	F	control	1			
36	F	control	1			
35	M	control	1			
30	F	control	2		1	