

NGF AS BIOMARKER OF GAG-LAYER'S DAMAGE

Hypothesis / aims of study

The damage of GAG-layer of urothelium is one of most important causes of IC and recurrence bacterial cystitis. GAG – replacement therapy is promising method of treatment and prevention of these conditions. Unfortunately, indications for this therapy are no completely clear. Recently studies showed possible role of NGF, as biomarker of urothelium impairment. We've decided to evaluate NGF level in patients with recurrence bacterial cystitis and change of this level during GAG-replacement therapy.

Study design, materials and methods

Two groups of female patients participated in study. 40 patients were in each group. Patients of 1st group have had recurrence UTIs (at least 3 cases during year), it has been clinically proved. Patients of 2nd group were healthy women, without any signs of UTIs.

Mean age of patients was $35,3 \pm 7,4$ years in 1st group and $31,1 \pm 6,2$ years in 2nd group.

NGF level was evaluated three times in the urine of each patient before study and mean value was used in study. Urine sample was 150 ml, it was spinning and supernatant was taken for study. After that, patients of 1st group were divided into two subgroups, A and B, 20 patients in each subgroup. Thereupon, patients of A subgroup have been taken six intravesical instillations of sodium hyaluronate (160 mg in 50 ml saline) – one instillation weekly. Patients of B subgroup didn't receive any procedures.

Two month later, NGF was evaluated repeatedly.

Results

	1 st group (UTIs)		2 nd group (healthy)
	A (sodium hyaluronate)	B (control)	
NGF level , pg/ ml (before)	$11,4 \pm 4,6^*$		$43,7 \pm 12,2^*$
NGF level, pg/ml (after)	$16,6 \pm 5,5^{**}$	$48,4 \pm 11,3^{**}$	$41, 5 \pm 10,7$

* $p < 0,05$

** $p < 0,05$

Interpretation of results

There was significant difference between 1st and 2nd group of patients. It can be associated with increased production NGF due impairment of urothelium. Also, there was significant difference between A and B subgroups. Intravesical administration of sodium hyaluronate is recovering the protective barrier of urothelium. Perhaps, it leads to decrease of NGF level.

Concluding message

NGF is promising biomarker for diagnosis of urothelium impairment and decision making of GAG-replacement therapy. Certainly, we need further investigations.

References

1. Kuo et al. Reviews Urol. 12: e67, 2010
2. Liu et al. (2009) BJU Int 103: 1668-1672

Specify source of funding or grant	MKC Laboratories, Moscow, Russia, Nagatinskaya str.3
Is this a clinical trial?	Yes
Is this study registered in a public clinical trials registry?	No
Is this a Randomised Controlled Trial (RCT)?	Yes
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Local Ethics Committee of State Kuban Medical University
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes