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Introduction & Objectives: The prostate can be considered as an immunocompetent organ due to there are T- and B-cells, macrophages and mast cells spread out in the prostatic tissue. Lymphocytes and macrophages produce big quantities of cytokines, like interleukin-6 (IL-6), interleukin-8 (IL-8), tumour necrosis factor- α (TNF α) which can start the growth of the prostate and also trigger a chronic immune response (local vicious circle). Cytokines IL-6, IL-8 and TNF α are observed as key inflammation mediators in a BPH process of growth and progression.

Objective to study immunological (pro-inflammatory) status via cytokines levels in blood serum for their diagnostic odds ratio in BPH progression.

Materials & Methods: There were a number of observed patients (n=132) with BPH having an age range between 45 and 60 years old. The control group consisted of 54 healthy men. As a marker of chronic inflammation activity we chose IL-6, IL-8, TNF α , which were determined with enzyme-linked immunosorbent assay.

Results: We outlined the results of the levels of proinflammatory cytokines in blood serum in BPH patients according to their clinical course and compared them with a control group (in spreadsheet 1). We found out a significant increase of all markers in study groups in comparison with the control group. The absence of difference in interleukin-6 compared to the healthy group was observed in patients with latent BPH, which can be explained by a slow clinical and morphological progression of the illness.

Spreadsheet 1

Value of cytokines in a blood serum from patients with different clinical forms of BPH and in a control group. Reliability in between different indicators from control group and patients with BPH: * – p=0,02; ** – p=0,00000.

	IL-6,pg/ml		IL-8,pg/ml		TNF α ,pg/ml	
Blood serum normal rate	1 – 10 pg/ml		1 – 10 pg/ml		0 – 8,21 pg/ml	
statistical indicator	X \pm Sx	Me(min – max)	X \pm Sx	Me(min – max)	X \pm Sx	Me(min – max)
Control group	4,33 \pm 1,89	4,19 1,29- 10,36	7,41 \pm 3,67	7,54 (2,13- 22,00)	3,48 \pm 1,73	3,35 (0,79- 12,00)
BPH, overall	5,35 \pm 3,08*	4,55 (1,26- 32,50)	13,96 \pm 7,30**	11,66 (3,69- 42,27)	7,75 \pm 4,98**	6,01 (1,10- 24,50)

BPH, latent form	4,57±1,55	4,40 (1,26- 8,16)	14,24±5,50**	14,59 (4,56- 23,66)	7,60±4,45**	6,46 (2,20- 15,70)
BPH form with a risk of progression	5,31±3,66*	4,51 (1,26- 32,50)	14,46±7,95**	11,85 (3,69- 42,27)	8,68±5,49**	6,35 (1,10- 24,50)
BPH, progression of the illness	5,70±2,30*	4,67 (2,36- 12,76)	12,98±6,73**	10,54 (4,56- 28,50)	6,16±3,77**	5,17 (1,68 – 18,90)

Conclusions: The development and progression of BPH is a complex process, which is controlled by different factors those can include chronic local and general inflammation. It may be really useful to study immunological (pro-inflammatory) status via cytokines levels, because it can help to predict BPH progression. In our study we revealed that IL-8 and TNF α (which have proven pro-inflammation activity), can be used as markers of BPH progression.