

## **POTENTIAL FOR USE OF DEVICES RESONANSVÅG THERAPY, "AQUATONE"**

### **For complex treatment of chronic prostatitis.**

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In Saratov, chronic prostatitis is one of the most common diseases in the practical work of the urologist. The first independent case was listed for more than 100 years ago, in spite of this, the disease is the least studied in terms of pathogens and pathophysiology (M. Collins, R. McDonald, T. Wilt, 2000).

The information on the epidemiology of prostatitis is limited and contradictory. According D.V. Channel and A.S. Segal (1984), experiencing 20% of men aged 20 to 50 years of symptoms of chronic prostatitis.

Approximately 9% of men experience symptoms of prostatitis, two thirds of those seeking medical help (J. Nickel, 1999).

The classification of prostatitis is recognized in accordance with the National Institute of Health, USA, introduced in 1995.

Summary data showing the frequency of certain types of prostatitis: acute bacterial - 5-10%, chronic bacterial - 6-10%, abacterial prostatitis (chronic pelvic pain) - 80-90%, asymptomatic inflammatory prostatitis - 5%.

It is known that the frequency of abacterial prostatitis bacterial exceeding 8 times, and that its origin is still unknown. Knowledge deficiencies on the type of prostatitis it is about depriving often doctors opportunities to achieve complete success in treatment.

One of the more successful treatments for prostatitis, particularly the communicable, is medical, but that is not always effective and often lead to undesirable consequences. Use of pharmacological drugs faced a number of constraints, such as resistance to antibiotics, high sensitization of the population and the development of disbakterios.

Currently, physical therapy is the most effective in the treatment of prostate and therefore integrated in the treatment of chronic prostatitis of different etiology. There are many different methods of physical therapy and treatment devices to accomplish this.

Often different physiotherapy techniques: medical electrophoresis, ultrasound, microwave, laser, magnetic and thermal therapy. It is well known, radio, and microwave energy is absorbed by the aqueous property. At physical therapy for more than 30 years, the effects of millimeter waves demonstrated lack of adverse long-term outcomes, side effects and absolute contraindications to the use of the method (Ordanskaya T., Porucikov P.V. Ordynsky V.F., 2008).

Analyses of the EHF wave effects in quasi-biological systems noticed several researchers at millimeter waves special role in aquatic in nature.

New results show the interaction of electromagnetic radiation with the millimeter wave in aqueous media, demonstrating the ability to detect various types of hydrogenation processes for absorbing EHFstrålning (Petrosyan VI Sinitsyn VA NI Elkin et al, 1999 Betsky OV Devyatkov ND, 1999) , absorption of EHF EMR water and water-soluble substances with different chemical nature.

It turned out that in aqueous solutions of hydrated ions, potassium and sodium have different sensitivities of MM-radiation at different frequencies (Kudryashov V. A., Zavizion V. A., Betsky O.V., V. V. Kislov, 1999).

In light of the fact that most of the processes that occur in a living organism is dependent potassium sodium in the cells, it is possible in principle with the EHF signals control various processes in the body.

The above effects are clinically detectable by anti-inflammatory, analgesic and anti-edema effects, improved tissue regeneration processes, enhanced non-specific the resistance of the body, improved system and regional hemodynamic, anti-stress effects, normalization of regulation of the autonomic nervous system and a number of other clinical and physiological manifestations.

Purpose: Determine the possibilities of using the devices' Akvaton "and" Akvaton-04 "in the complex treatment of chronic prostatitis.



Figure 1. Devices for resonant therapy, "Akvaton" and "Akvaton-04".

Materials and Methods: general criteria for inclusion in the study: prevalence of informed consent from patients to perform diagnostic methods and treatments, the patient's ability to follow your doctor's instructions about the prescribed treatment and diagnostic studies, consent from the patients to abstain from unprotected intercourse during treatment and follow-up.

General criteria for exclusion from the study: the presence of serious concomitant disease (kidney failure, liver, systemic blood diseases, oncological diseases), seropositive tests for syphilis and HIV, gonorrhea, antibacterial treatment and medicine for prostatitis before treatment (1 month before).

In assessing the effectiveness of systems used in the complex therapy of chronic prostatitis were excluded patients were excluded from the study of other diseases of the prostate gland (adenoma, cancer), problems with urination, concurrent diseases that can cause symptoms similar to clinical prostatitis, history of injuries and surgery in patients with acute prostatitis and disorders of the pelvic organs and the urogenital system, urethritis, cystitis, vesikulit, epididymitis, orchitis, urethral stricture, exacerbation of hemorrhoids, proctitis, paraproctit, bleeding cracks rectum, stones in the bladder, the urethra and prostate, and takes medicines that affect the function of the urogenital system [Schetin VV, Zotov EA, 2003; Kuznetsov U.Y., Kurbatov G. D., 2006].

Diagnosis is based on: data history, subjective and objective clinical symptoms, results of TRUZ, urine flow measurement.

The algorithm includes the use of a questionnaire survey at times before and after treatment according to a standardized system - SOS CP (system for comprehensive evaluation of patients with chronic prostatitis). The purpose of the study is to evaluate the dynamics of subjective symptoms. Additionally, all patients studied by transrectal ultrasound of the prostate (TRUZ), urine flow measurement.

In the embodiment

Using TRUZ estimated dimensions of the prostate and the degree of inflammatory infiltration of the prostate. The urodynamic study also included evaluation of the quality of urination.

All patients included in the study were divided initially into three groups of comparable indicators and the patients judged to meet the criteria for inclusion in the study. Patients were

divided into three groups, group 1 consisted of (16 patients), which in addition to standard drug treatment undergone physiotherapy treatment with the device "Akvaton". Group 2 consisted of 15 patients receiving drug treatment and resonansvågsterapi with the unit "Akvaton-04, which has an improved electromagnetic radiator. The treatment with physical therapy consisted of 8-10 sessions. The comparison group consisted of 11 patients who were given medical drug therapy. Treatment with " Akvaton " the unit (1 GHz, 10 mW) was performed according to the following scheme:

Exposure Range - suprapubic area

Power - 1.5 mW / cm<sup>2</sup>

Duration of the session - 20 minutes

Exposure - daily

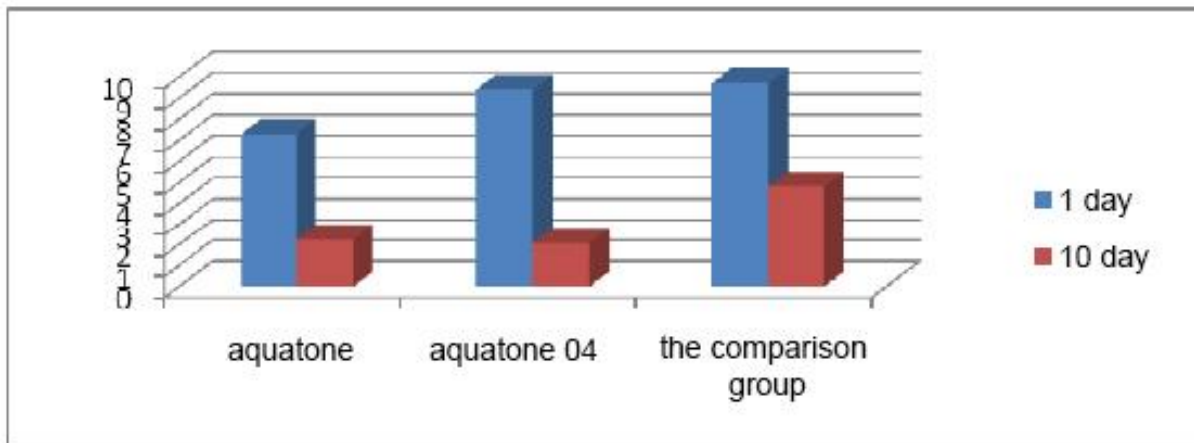
Course of treatment - 8-10 sessions.

Results of the study:

The treatment results were evaluated according to the following indicators: The results included subjective assessments of pain, urinary problems and quality of life. The indicators for the various groups presented in Figure 2-4.

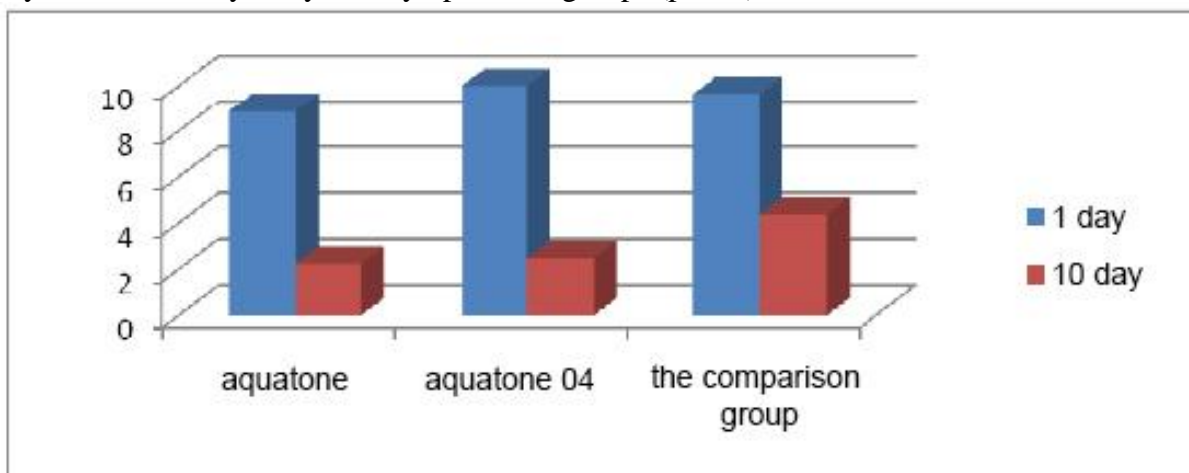
Figure 2

Dynamics of painful symptoms among the groups (points)



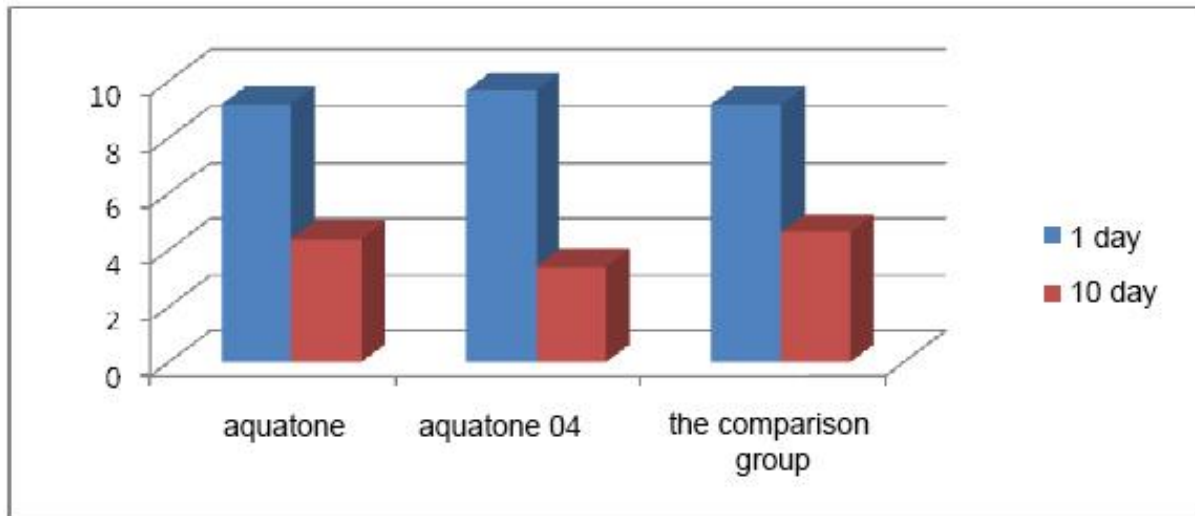
Figur 3

Dynamic difficulty of dysuria symptoms in groups (points)



Figur 4

Dynamics regarding quality of life among the groups (points)



The severity of painful symptoms in the control group at day 10, was  $4.82 \pm 0.52$  points, in group 2 -  $2.25 \pm 0.49$  ( $r < 0.05$ ), with 3 GROUP3 -  $2.07 \pm 0.49$  ( $r < 0, 01$ ).

The severity of dysuria in group 2 and 3 were lower than in the comparison group, and amounted to  $2.25 \pm 0.57$ ;  $2.47 \pm 0.63$  ( $p < 0.05$ ), and  $4.37 \pm 0.74$  ( $p < 0.1$ ). Indicators of quality of life in the comparator group was  $4.64 \pm 0.6$ , for group 2 and 3 were indicators to  $4.38 \pm 0.55$  ( $p < 0.01$ ) and  $3.4 \pm 0.45$  ( $p < 0, 01$ ). Based on these data, we can conclude that the results of treatment with the help of "Akvaton" and "Akvaton-04," is our subjective assessment that the treatment of the patients have been superior to conventional medical treatment.

At the same device was rated "Akvaton-04" to be more effective, compared with the initial model of the " Akvaton ".

Upon inspection of the study groups noted the following indicators (Table 1).

Table 1  
Dynamics in prostate volume according TRUZ

	Prostate volume	
	1 day treatment	1 day treatment
The comparison group	27,08	26,01
Aquatone	24,21	20,18
Aquatone-04	24,8	20,6

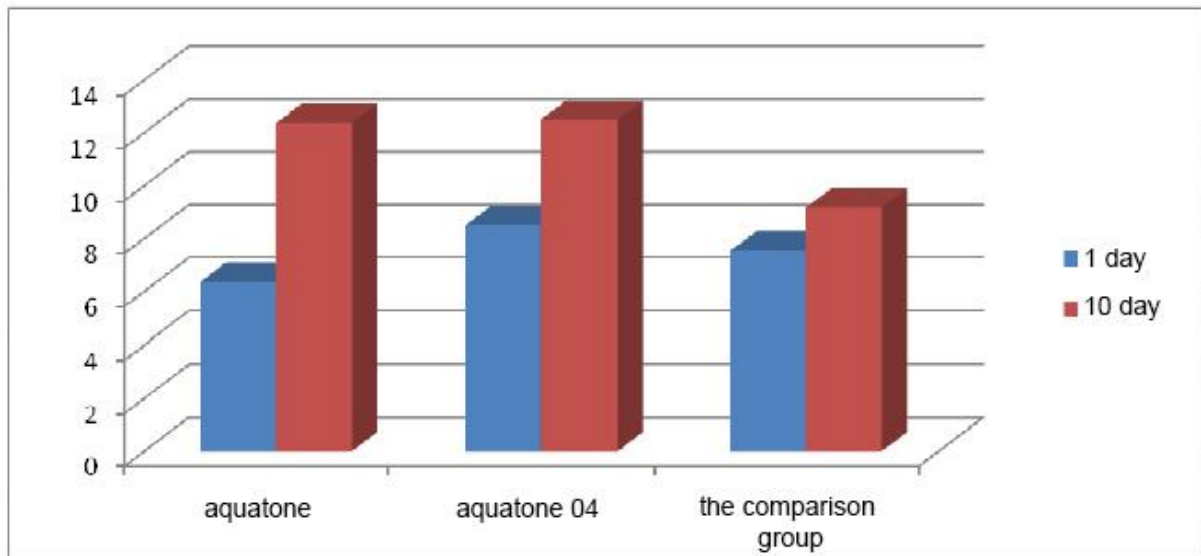
It is also stated that, after completion of treatment with Akvaton unit, declined difficulties of inflammatory infiltration of the prostate as determined by transrectal ultrasound where 100% of patients in group 2 were noted for reduced prostate volume by 16.6% ( $p < 0.01$ ), group 3 by 16, 9% ( $p < 0.05$ ) and in the control group by 0.04% ( $p < 0.05$ ).

We can therefore conclude that Akvaton device has positive effects in the treatment of inflammatory and infiltrative changes in the prostate gland, which occurs in chronic prostatitis, which was also confirmed by transrectal ultrasound.

Positive changes can be tracked quality indicators in urine measurement, which Figure 5

shows.Figur 5

Dynamic changes in urinary flow measurement of control



According urine flow measurement significantly improved urination after treatment with "Akvaton" unit compared with patients in the control group: noted improvement in urinary flow indicators in the application of physiotherapy ( $r < 0.05$ ). In the comparison of the use of the processing apparatus, recorded the best dynamics of the patients in the group treated with "Akvaton-04" ( $r < 0.01$ ).

Conclusion: The results show that it is possible to use "Akvaton" unit at the complex treatment of chronic prostatitis.

When using "Akvaton" unit recorded positive effects on the prostate, which contributed to the shortened duration for the conventional treatment of chronic prostatitis.

Using the appliance "Akvaton-04" is more effective and appropriate for patients with chronic prostatitis than standard drug treatment, which is reflected in the dynamics of the regression of inflammatory changes confirmed through questionnaires, TRUZ and urine flow measurement.