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## RESEARCH ARTICLE

### TREATMENT PROSTATE GLAND ENLARGEMENT BY NEW METHOD: LOW-LEVEL LASER

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#### ABSTRACT

**Abstract:** Our modeling aims to the rehabilitation of the prostate gland by low – level laser in near-infra radiation. The first therapy is the combo effect of two wavelengths - 780 nm and 940 nm. It is projected directly into the prostate from the skin in the pubic area. The second step is using 940 nm that puncture at the acupuncture points in traditional Eastern acupuncture. The third step is the intravascular laser in a vein that enhances microcirculation of blood at different depth lesions. Based on the basics of the method, this modeling provides important parameters that make treatment easy and useful for treatment facilities.

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## INTRODUCTION

Prostate gland enlargement is a common condition as elder men in which make uncomfortable urinary symptoms as a bladder, urinary tract, or kidney disease[1]. When the prostate enlarges, it squeezes into the urethra. The wall of the bladder becomes thicker. The bladder may weaken and lose its ability to empty, leaving some urine in the bladder that narrows of the urethra and urinary retention - unable to empty the bladder - causes many problems of the prostate gland enlargement[2, 3]. Among the selection of medical therapy, patients and physicians can choose among many herbal preparations or herbal, inhibitors of receptor  $\alpha$ -adrenergic receptor, inhibitors of 5 $\alpha$ -reductase, or select the combination therapy including use of anticholinergic drugs in case symptoms fit stimulate the overactive bladder[5]. If lifestyle changes or medications to control your symptoms, or your symptoms are serious, there are some different types of surgery available to treat prostate expansion as such as prostate resection of prostate, enzyme holmium laser prostate, regular evaporated prostate, bladder neck incision, also known as prostate regular incisions, surgery to remove the prostate[4]. Although many men feel the surgery is effective, some men will not feel a significant improvement in their symptoms after surgery. From these problems, we realize that one new therapy is needed to safely treat, preserve the prostate, and minimize side effects for patients.

## MATERIALS AND METHODS

**Method:** In our modeling, we propose three methods of treatment together. The first therapy is the combining of two wavelengths (780 nm and 940 nm). The suitable intensity and dose of near-infrared light can prevent apoptosis of cells, improve the level of cell proliferation, tissue healing, and inflammation[6, 7]. The propagation of 780nm wavelength is deeper than that of 940 nm into the prostate gland by Monte Carlo simulation[8]. Laser therapy of patients with prostatitis and vesiculitis can eliminate infiltrative-exudative changes, improve reproductive and copulatory functions[9].

The second therapy is acupuncture with the low-level laser. Laser acupuncture is a non-invasive technique involving stimulation of traditional acupuncture points with low-intensity laser irradiation[10]. This effect is highly effective in reducing pain, edema, and hemorrhaging and improving the quality of life [11]. Low-intensity near – infra laser therapy as an aid in chronic prostatitis of bacteria in the presence of genital chlamydia for ciprofloxacin HCL urinary[12]. The third treatment is the intravascular laser into a vein. Low – level laser has created some changes in the elements of blood rheology, effective recovery, and regeneration to stimulate mitigation and antiseptic effects on biochemical and cell membranes[13-15].

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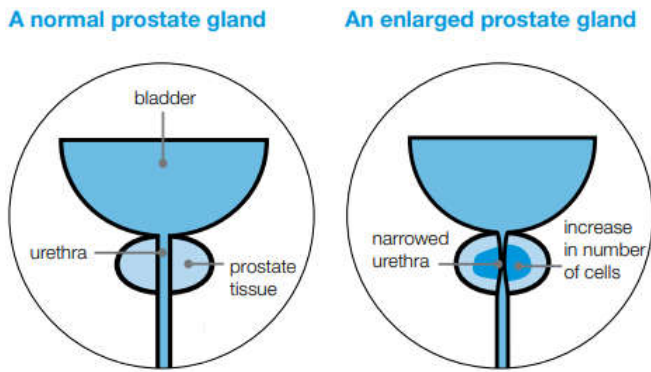


Figure 1. Prostate gland enlargement. Reprinted from[4].

**Modeling Treatment:** In the first treatment, The simultaneously of two wavelengths (780 nm and 940 nm) are interactive directly in two areas: Khu Gu point – that reduce the proliferation of the central zone and transition zone to release compression in the neck of the bladder – the urethra, Hui Yin point – that reduces prostatic sphincter and peripheral zone to reduce distortion of the prostate urethra, pressure, and congestion. The second therapy is using near – infra low – level laser to treat at three points traditional medicine: Qi Hai, San Yin Jiao, Zhong Ji – treating urinary retention. The third therapy is treating by the intravascular laser into a vein that enhancing the character of the component in blood. This is a good supply for capillaries and blood vessels feeding the urethra, bladder, and prostate areas.

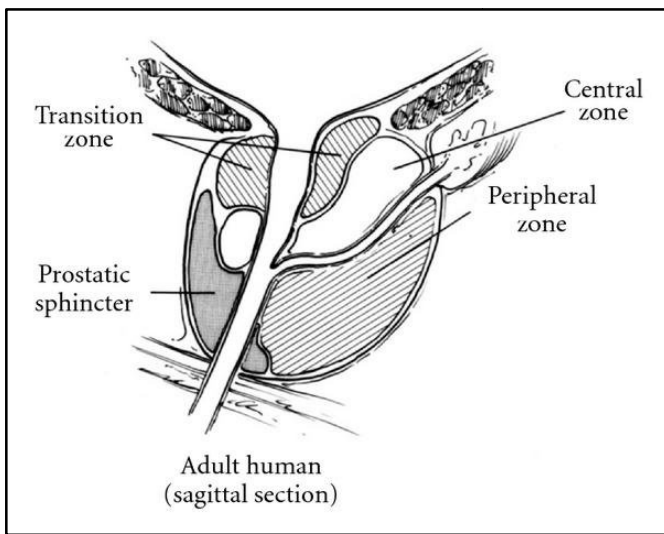


Figure 2. Adult human prostate gland anatomy. Reprinted from[16]

**Types of equipment**

Two devices are used in this modeling which are the products of two national scientific research (B96.20.TĐ.06 and B.2007.20-27).

- The low – level semiconductor laser equipment: the processing unit of this device consists of two parts. Part 1 has two therapy channels which have the same functions but operate independently of each other. Each channel has a jack for connecting to probe treatment therapies for patients. The probe is combined with the effects of the two wavelengths (780nm and 940 nm). Part 2 has three

traditional medicine channels which have the same functions but operate independently of each other. Each channel has a jack for connecting to probe treatment therapies for patients. In this case, we use 70% or 80% of the maximum power output beam (20 mW – therapy channels and 12 mW – traditional medicine channels) and frequency modulation at a 50 Hz beam.

- The intravenous low-level semiconductor laser device: 650nm wavelength is used in transducer therapy. The processing unit of the device has a channel in which the probe jack to connect. The probe will be connected with an optical fiber needle before the laser interacts with the blood. In this study, we used 50% or 60% of the maximum power output beam (5 mW) and frequency modulation at a 50 Hz beam.



Figure 3. The low – level semiconductor laser equipment and two therapy probes, three traditional medicine probes



Figure 4. The intravenous low-level semiconductor laser device and the laser probe

**Conclusion**

A model of low – level laser is proposed to treat prostate gland enlargement of different sizes: small, medium, large, and very

large. The important thing this model wants to do is preserve the physiological function of the prostate in the best way.

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