

Dear patient,

PDT mechanism of action

The technology used in photodynamic therapy (PDT) involves the use of a photosensitizer, a special substance with increased fluorescence. This photosensitizer, such as Photolon in our case, is a pharmacological preparation that can accumulate in altered cells and mark them. The destruction of tumor tissues is achieved by applying red spectrum radiation of specific power and wavelength, targeting the marked areas without affecting healthy tissues. When the photosensitizer interacts with oxygen molecules, it generates high-energy singlet oxygen with cytotoxic properties, leading to necrosis or cell death by damaging the nucleus and membranes of tumor cells.

Advantages of the method

PDT offers several advantages compared to other cancer treatment methods, including:

- Minimal risk of recurrence and complications
- Limited contraindications (such as pregnancy, lactation, chronic renal and hepatic failure)
- Outpatient treatment option
- Preservation of surrounding tissues without trauma
- Elimination of disease and underlying dysplasia causes
- Fast healing
- Compatibility with chemotherapy and radiation therapy
- Non-invasive procedure without incisions or sutures
- Scar-free treatment, allowing flexibility for future pregnancies
- No accumulation of chlorophyll or adverse effects on the body.

Pre-procedure tests

Before undergoing ordinary PDT, a comprehensive examination is required to exclude any underlying pathologies. This examination may include:

- Oncocytology smear
- PCR smear for HPV screening (qualitative and quantitative)
- Complete blood and urine analyses with leukocyte formula
- Coagulation profile assessment
- Testing for hepatitis B and C, HIV, and syphilis
- Biochemical tests: ALT, AST, glucose, total protein, bilirubin (direct and indirect), creatinine, urea, albumin, lipoproteins, and iron
- Chest X-ray (fluorography)
- Pelvic ultrasound
- Electrocardiogram

- Blood type and Rh factor testing
- Physician's approval for PDT admission.

The specific tests may vary depending on the specialist's requirements to obtain a comprehensive understanding of the patient's health status.

Types of anesthesia

Local anesthesia is usually administered for small fragments using lidocaine or novocaine with thin needles to minimize discomfort.

Procedure for photodynamic therapy of the cervix

The patient is positioned on a gynecological chair, and the cervix is exposed using a vaginal dilator. After cleaning the area with a sterile swab, a colposcopy is performed. Following a waiting time of approximately one hour, any remaining gel is distributed, and light exposure is applied to the site of atypical cells using special nozzles (diffusers) in a pulsed mode. The procedure is conducted under visual control with monitoring on a computer screen, enabling full control and tracking of the treatment process. The duration depends on the extent of the lesion, as determined by the doctor. At the end, the patient's well-being is assessed, and recommendations are provided. It's important to note that manipulation for cervical dysplasia may involve taking a biopsy for histological evaluation.

Side effects

To prevent burns to the eyes and skin, minimal light protection is necessary since the photosensitizer is eliminated from the body within two days after the procedure. The following precautions should be taken:

- Avoid sun exposure and cover the body with clothing, applying sunscreen with an SPF of at least 50 to exposed areas when going outside.
- Wear tinted glasses.
- Limit computer usage, TV watching, and tablet/ smartphone activities.
- Maintain indoor illumination below 50 lux.

Rehabilitation after PDT

After the elimination of dead tumor cells, wound areas form on the cervical mucosa. Healing occurs around the twentieth day, during which a scab may separate, accompanied by bloody discharge. For one month after the procedure, it is important to avoid taking baths, visiting the solarium, swimming pool, sauna, or bath. Refrain from strenuous activities, weightlifting, douching, inserting tampons or vaginal medications. Sexual rest is necessary for six weeks, as any disturbance at the treatment site can lead to complications. Additionally, other forms of stimulation of the erogenous zones should be avoided, as the abdominal wall tension during orgasm may cause bleeding.

Assessing the positive effect of cervical PDT

To verify recovery and detect any potential relapse in a timely manner, the doctor will prescribe six follow-up examinations, including:

- The first examination is conducted on the 5th to 6th day after PDT, involving a blood test.

- The second examination takes place after one month to assess epithelialization and determine the need for further therapy. If progress is on track, restrictions may be lifted.
- Subsequent examinations are scheduled after 3, 6, 9, and 12 months from the PDT procedure. These examinations may involve various tests, including smears and analysis for the human papillomavirus, depending on the specific examination.
- If the patient desires pregnancy and there are no contraindications, the doctor can provide a positive answer. Following this, one preventive visit per year is sufficient for relapse monitoring.

From the third examination onward, all assessments should include video colposcopy and cytology smear. The fourth and sixth examinations additionally include HPV analysis.