

PHOTODYNAMIC THERAPY

with the photosensitizer



Basic principles photodynamic therapy (PDT)







These methods are based on the integrated use of light effects and simultaneous application of chemical compounds introduced into the human body, so called photosensitizers. When there is a selective accumulation photosensitizer in the tumor

tissue, and the subsequent irradiation light of the affected areas with a specific wavelength causes in tumor tissue generation active reactive oxygen forms, development of biochemical, structural and functional changes in tumors and their death.



Legislative support PDT

From 2012 PDT is entered in the list of hi-tech medical care according to the Order of the Ministry of Public Health of the Russian Federation (from December 29, 2012) No. 1629n "About the approval of the list of types of hitech medical care".

Also the Order was issued by the Ministry of Public Health of the Russian Federation (from November 15, 2012) No. 915n "About the approval of the stated order of medical care to adult population in the profile "Oncology" about the organization of the offices of photodynamic therapy in the structure of oncological dispensaries, which regulates the rules of organization of the Department of the PDT and recommended regular standards of office of FDT, the standard of equipment of office of FDT".

In 2012, the Order of the Ministry of Public Health of the Russian Federation approved a number of standards of specialized medical care with using the PDT.





"FOTODITAZIN®" and "FOTODITAGEL"

Forms of a preparation are registered currently:







"FOTODITAZIN®" concentrate for solution for infusion (registration certificate No. LS-001246 from 18.05.2012)

"FOTODITAZIN®"
gel-penetrator light radiation (registration certificate
No. FSR 2012/130043
from 03.02.2012)

Gel cosmetic "FOTODITAGEL" 0,5%

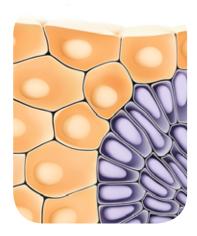


The principle of action of the "FOTODITAZIN®"

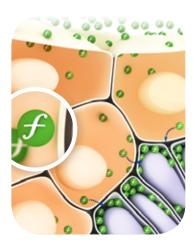
The fragment of the tumor surrounded by the healthy cells

Administration of Photoditazin Accumulation in the malignant tissue Irradiation of the tumor region by the red light of the long wavelength The formation of reactive oxygen species Induction of the tumor cell necrosis

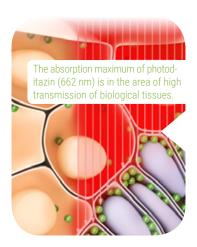
Selective death of the tumor cells surrounded by intact normal tissue



Tumor cells have an increased nuclear-cytoplasmic ratio and higher rate of anabolic processes [1, 2].



Tumor cells uptake the photosensitizer molecules more intensively (10-15 times in case of Photoditazin) due to significant metabolic changes.



Photosensitazer is activated by light of the fised wavelenght. This triggers the cascade of photochemical reactions which result in formation of the reactive oxygen species [3].



Reactive oxygen species make critical damage to membranes and inner parts of the tumor cells. Mechanisms of the cell death are induced [4].



Necrosis of the tumor cells triggers the inflammation and local activation of immune cells responsible for the liquidation of the necrotic tissue.



Advantages of PDT compared to traditional cancer treatments

Using "FOTODITAZIN®" in medical practice, there are the following possibilities:

- Simultaneous use of diagnostic and therapeutic influence
- Selectivity (affected only tumor tissue)
- Organ-preserving effect, the ability to remove tumors in hard-to-reach places
- The possibility of repeated of treatment process

- Cosmetic effect
- Absence of heavy local and systemic complications
- Possibility of treatment the elderly people and patients with heavy comorbidity
- The possibility of treatment in the outpatient setting



Application "FOTODITAZIN®"

The drug is used for fluorescence diagnostics and photodynamic therapy of oncological diseases of various nosological forms, and also pathology of not oncological character in the following areas of medicine:



Dermatology



Stomatology



Combustiology



Gynecology



Neurosurgery



Purulent surgery



Urology



Ophthalmology



Angiology



Thoracic surgery



Traumatology and orthopedics



Cosmetology



The advantages of the drug "FOTODITHAZIN®"

Biomedical tests "FOTODITHAZIN®" showed that the preparation belongs to low-toxic connections: LD-50=194 mg/kg at a therapeutic dose of 0.8 mg/kg (average), non-pyrogenic, histamine effects are absent, the immediate side effects after use of the preparation observed in the form of slight fever in 5.3% of patients during 20–35 minutes.

Photodynamic therapy with the preparation "FOTODITAZIN®" in all cases had led to the development of therapeutic effect. Absence of effect it wasn't noted. When carrying out FDT according to program of PDT in patients with primary and recurrent basal cell skin cancer were achieved complete resorption in 97% of cases, in the treatment of malignant tumors of the internal organs of full and partial resorption observed in 75% of cases.





Clinical tests of the preparation "FOTODITAZIN®"

Tests of the preparation "FOTODITAZIN®" were carried out in the following medical institutions:

- Federal State Institution "State Scientific Center of Laser Medicine of Federal Medical Biological Agency of the Ministry of Health and Social Development of the Russian Federation"
- Federal Government Budgetary Institution "Medical Radiological Scientific Center" of Ministry of Health of the Russian Federation
- Federal Government Budgetary Institution "Research Institute of Oncology of Professor N. N. Petrov" of Ministry of Health of the Russian Federation
- Federal Government Budgetary Institution "The Russian Oncological Scientific Center of N.N. Blochin" of the Russian Academy of Medical Science
- Federal Government Budgetary Institution

 "Research Institute of Influenza" of Ministry
 of Health of the Russian Federation

- State-owned Federal State Institution "Central Military Clinical Hospital of the Academician N. N. Burdenko" of the Ministry of Defence of the Russian Federation
- Federal Government Budgetary Institution "Eye microsurgery" of the Academician S. N. Fedorova"
- Federal Government Budgetary Institution "Russian Research Neurosurgical Institute of the Professor A. L. Polenov"
- State Institution "Research Institute of Oncology of Tomsk Research Central Siberian Branch of the Russian Academy of Medical Sciences"



Effectiveness of PDT with the "PHOTODITAZIN®"











Basal cell skin cancer



Lung cancer



Relapse of basal cell skin cancer



Malignant tumors of the gastrointestinal tract



The medical technologies with use as the photosensitizer of preparation "PHOTODITAZIN®"

- Photodynamic therapy of cancer of lung
- Pdt of the basal cell skin cancer and keratosis of skin
- Pdt of purulent, persistent wounds and trophic ulcers
- Photodynamic therapy of psoriasis and dermatosis of the skin
- Photodynamic therapy of acne vulgar

- Photodynamic therapy of diseases parodontium
- Pdt in treatment of chronic rhinitis and rhinosinusopathy
- Pdt of background and displastic diseases of the cervix uteri
- Photodynamic therapy in the correction of involutional changes of skin
- Pdt of inflammatory joint diseases in children and adolescents



Registration documentation "FOTODITAZIN®"









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