Fluorescence diagnosis in urology and gynecology: a comparative study of porphyrin and Chlorin photosensitizers.

Preclinical study of a new photosensitizer based on Coproporphyrin III.

A comparative study of the sensitivity and specificity of porphyrin (Alasens, Russia) and Chlorin (Photoditazini, Russia) photosensitizers with fluorescence diagnosis of bladder cancer, background and precancerous diseases of the cervix and vulva was performed. Photosensitizers were administered intravenously, intravesical and by the application method.

The diagnosis of papillary tumors of MP obtained the following data: sensitivity - alasens - 95.8%, Photoditazini - 98.5% (p = 0.73), specificity - 66.2% and 73.7% respectively (p = 0.82); accuracy - 89.3% and 87.4% (p = 0.78). The sensitivity in the diagnosis of CIS was: alasens - 93.2%, Photoditazini - 98.2% (p = 0.57), specificity, respectively - 66.3% and 72.1% (p = 0.24).

The diagnosis of diseases of the cervix and vulva sensitivity intravenous Photodytazin was 93.3%, with applicative - 90.0%, specificity - 87.5% and 66.8% respectively. Local application of the solution alasensa was significantly less than Photodytazin sensitivity (76.5%) and did not significantly differ on the specificity (66.7%).

Preclinical study of a new photosensitizer, based on coproporphyrin III, showed that the drug has a high photoactivity, selectively accumulates in tumor tissue, expels quickly out of the body, is non-toxic, and penetrates well through the skin. Coproporphyrin is a water-soluble natural metabolite of the organism and therefore has very low toxicity (LD50 = 400 mg / kg). The test will use a photosensitizer in the clinic for the photodynamic diagnosis and therapy of tumor and non-neoplastic diseases.

In vitro comparative experimental studies of absorption and luminescence spectra of preparations Fotoditazin and Coproporphyrin III are carried out with the purpose of revealing the efficiency of application of these photosensitizers (PS) in photodynamic diagnostics.

In vitro comparative experimental studies of concentration of singlet oxygen generated by means of preparations Fotoditazin and Coproporphyrin III with the purpose of revealing the efficiency of their application for photodynamic therapy.

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