

# ABSTRACT

SUTORIS, Karol. *Fotodynamická terapie xenotransplantovaných lidských tumorů*. [Photodynamic therapy of xenotransplanted human tumours]. Prague, 2015. 168 pp. Doctoral Thesis. Charles University in Prague, Third Faculty of Medicine, Department of Surgery Faculty Hospital Královské Vinohrady. Lector GÜRLICH, Robert. Language Czech.

In today's clinical practice oncological indications of photodynamic therapy (PDT) are limited primarily to palliative treatment and are used as an adjunct to conventional oncosurgical routines with the aim of improving the quality of life and prolonging patient survival.

The efficacy of experimental PDT on xenotransplanted human tumours has been proven in our *in vivo* study on nu/nu mice. One particular cell line of mammary carcinoma (MDA-MB-231) and two biologically different cell lines of prostate carcinoma (LNCaP, PC-3) were tested. The key aspect of our experiment was the application of newly developed photosensitizer – hydroxy-aluminum phthalocyanine (AlOH-Pc) in the form of liposomal gel designed for locotopical application. Therapy achieved complete remission in 90% of mice with mammary carcinoma xenografts and in 100% of those with prostate carcinoma xenografts. The new photosensitizer, unlike the older ones, has minimal drug-light interval and does not cause photosensitivity or organ toxicity.

In contrast to all contemporary oncological modalities, PDT is fully capable of selective tumour destruction being thrifty and safe to surrounding healthy tissues. Photodynamic therapy seems to be a very promising therapeutic tool especially for the treatment of smaller primary or recurrent and metastatic breast and prostate cancer. Excellent anatomical accessibility of their cutaneous metastases makes it an ideal indication for the application of PDT with locotopical photosensitizer.

## Key Words:

breast cancer, prostate cancer, cutaneous metastasis, photodynamic therapy, nu/nu mouse, xenotransplantation, phthalocyanine, liposomal photosensitizer