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Photodynamic therapy for early cervical cancer.

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Background: Photodynamic therapy (PDT), with its high efficiency and selective impact on tumor cells without damaging healthy tissues, is an organ-sparing treatment preserving the anatomy and function of the cervix. Preservation of the reproductive function is the most significant criterion for the efficacy of an organ-sparing treatment. The purpose of this study was to evaluate the efficacy of PDT for early cervical cancer. **Methods:** PDT results were studied in 74 patients aged 18-40 years with early cervical cancer. The patients were divided into 3 groups depending on the type of transformation zone (TZ), the degree of invasion and the tumor site: group 1 - 36 patients with preinvasive cancer in the exocervix (TZ type I-II); group 2 - 34 patients with preinvasive cancer in the endocervix (TZ type III); group 3 - 4 patients with microinvasive cancer T1a1N0M0 with invasion of no more than 1 mm as an alternative to surgical intervention. Infection with high-risk genotypes of HPV (16, 18, 31, 33, 35, 45, 56) was detected with PCR in 62 (84%) women. All patients received PDT with the semiconductor Latus laser up to 3 W, a single-use diffusing fiber for the exocervix irradiation and a single-use cylindrical diffusing fiber for tumors in the cervical canal. Chlorin e6 was used as a photosensitizer. The efficiency criteria included the normalization of the colposcopic and morphological picture, and the HPV elimination confirmed by the PCR test. 4 to 8 procedures were required to restore the normal layer of stratified squamous epithelium. **Results:** PDT was followed by direct photocoagulation necrosis caused by the destruction of cellular structures, and ischemic necrosis as a result of damage and destruction of the microvasculature of the initial tumor changes in the cervical epithelium. Epithelialization of the cervix was completed by days 35-40. Normal morphological picture was observed in 96% of patients in group 1 and in 95% of patients in group 2; all patients in group 3 had a pronounced positive response. PCR 3 months after PDT showed a positive HPV reaction in 5.1% of patients. No negative changes in the cytogram were detected 6 and 12 months after PDT. The maximum follow-up period has lasted for 5.1 years. No relapses of the disease have been registered. During the follow-up period, four patients with preinvasive cancer and one patient with microinvasive cancer successfully gave birth to healthy children. **Conclusions:** PDT is an alternative treatment for precancerous and early malignant tumors of the cervix; it preserves the anatomical and functional integrity of the organ, which is important for the female reproductive function. The results of the study allow recommending PDT in the treatment of early cervical cancer. Research Sponsor: None.