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laser artificial fractional treatment have good efficacy and safety for basal cell carcinoma, providing an effective treatment option for patients who are unable to undergo surgery or refuse surgery.

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455 Poster Highlight Presentation

Effective treatment depth of photodynamic therapy after partial debulking of nodular basal cell carcinoma

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Significance: Tumor debulking before topical photodynamic therapy PDT increases the efficiency, however, this raises question of how much of the residual lesion is actually treated.

Approach: BCC thickness was measured before and after debulking by ultrasound and related to PDT effectiveness. The debulked material was histologically evaluated, and 30 days after treatment, a 2 mm punch biopsy were performed.

Results: The thickness measured by ultrasound before and after debulking ranged from 0.9 to 2.3 mm(mean 1.8 ± 0.4 mm) and from 0.5 to 1.9 mm(mean 1.3 ± 0.3 mm), respectively. This represents a 30% reduction in lesion thickness (0.6 ± 0.3 mm average debulking depth) ($p < 0.001$). Clearance rate was 86%, however, lesions less than 1.4 mm thick after debulking had 100% clearance.

Conclusions: Obtaining the precise thickness of BCC using ultrasound imaging could allow successful PDT treatment of thicker BCC lesions as long as the post-debulking thickness is < 2 mm, with complete clearance being achievable at < 1.4 mm, suggesting that the use of ultrasound imaging is a valuable adjunct for the precise use of PDT in nodular BCC.

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456 oral

Efficacy of Photodynamic Therapy as an Adjunctive Treatment for Cervical HSIL Patients with Positive Margins after LEEP

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Significance: Cervical high-grade squamous intraepithelial lesions (HSIL) often persist following incomplete excision during loop electrosurgical excision procedures (LEEP). Adjunctive photodynamic therapy (PDT) may enhance lesion clearance and HPV suppression.

Approach: A comparative study evaluated PDT following LEEP in HSIL patients with positive surgical margins. HPV clearance and disease regression were assessed at 3 months post-treatment. Statistical analysis used Fisher's exact test.

Results: The PDT group ($n=14$) showed a 71.43% HPV clearance rate (10/14) compared to 55.56% (5/9) in the control group ($P=0.4857$). Disease regression was significantly higher in the PDT group, with 92.86% (13/14) achieving disease-free or downgraded status compared to 66.67% (6/9) in the control group ($P=0.04545$).

Conclusions: PDT as an adjunct to LEEP significantly improves disease regression in HSIL patients with positive margins, despite no significant impact on HPV clearance.

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458 oral

Photodynamic Strategies for Combating Bacterial Biofilm-Associated Infections

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Significance: Persistent and recurrent bacterial pharyngotonsillitis is a significant challenge, often linked to biofilm formation in tonsillar crypts. These biofilms contribute to antibiotic resistance, complicating treatment. Photodynamic Therapy (PDT) has shown promise in enhancing antibiotic effectiveness against planktonic bacteria, but its impact on biofilms requires further exploration.

Approach: This study investigates the effects of PDT using curcumin (CUR) as a photosensitizer on *Staphylococcus aureus* biofilms. The focus is on CUR's ability to penetrate biofilm layers and the subsequent changes in biofilm reformation.

Results: CUR penetration was found to vary with biofilm formation time and complexity, significantly reducing biofilm recovery after PDT. PDT altered the biofilm's structure and metabolism, improving CUR uptake.

Conclusions: PDT demonstrates the ability to disrupt biofilm integrity and hinder bacterial regrowth, offering potential as an adjunctive therapy for biofilm-associated infections.

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459 Poster

Evaluation of Systemic PDT Treatment Outcomes for Cervical Dysplasia with High-Risk HPV Among Women in Kazakhstan

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Relevance: According to Globocan 2020, cervical cancer is the 4th most common type of cancer among women worldwide and ranks 2nd among women of reproductive age (15–49 years). HPV is the primary cause of this disease.

Objective: To evaluate the effectiveness of systemic PDT in women with high-risk HPV.

Materials and Methods: The study presents the treatment outcomes of 150 women: 125 (87%) with LSIL and 25 (13%) with HSIL, all with positive PCR results for HPV. The treatment was conducted at the Hospital of the Medical Center of the Administrative Department of the President of Kazakhstan. Participants were aged 19 to 48 years.

The PDT procedure included four stages:

1. Administration of a photosensitizer (PS), a chlorin-based drug E6-Photolon, at a concentration of 1.2 mg/kg body weight.
2. Photomodification of blood (PMB) through intravenous laser blood irradiation under the influence of the PS.
3. Fluorescent diagnostics (FD) using an AFS emitter (405 nm).
4. Laser photoactivation of the cervical canal with a 4 cm diffuser and vaginal portion of the cervix (300 J/cm^2) using the Lahta-Milon laser apparatus (662 nm).
5. The procedure concluded with fluorescent monitoring.

Results: Treatment effectiveness was assessed by the absence of dysplasia in cytology results, a negative HPV test, and a normal colposcopic picture. Among women with HSIL, HPV prevalence was as follows: type