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Abstracts from IPA 2025 Shanghai

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and targeted therapy in treating advanced esophageal cancer, focusing on short-term tumor shrinkage and long-term suppression.
Approach: We retrospectively analyzed 80 patients with advanced obstructive esophageal cancer treated between November 2019 and November 2024. Patients were grouped based on PDT combined with various therapies. Clinical outcomes, tumor responses, and immune changes were assessed using endoscopy, histology, flow cytometry, and RNA sequencing.
Results: The effectiveness rate was 100%, with an objective response rate of 66.3%. Dysphagia scores improved significantly ($P < 0.05$). The median survival was 11 months, with the combination PDT+T+I showing the best outcome (13.5 months). Immune analysis indicated increased local immune cell infiltration and decreased PD-1 expression.
Conclusions: PDT alone and combined therapies show promising efficacy in esophageal cancer, improving both tumor shrinkage and immune responses.

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558 Poster

Pathological complete remission of an advanced gastric cancer patient after treatment with photodynamic therapy combined with chemotherapy, targeted therapy and immunotherapy: a case report and literature review

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Significance: To investigate the efficacy of photodynamic therapy combined with chemotherapy, targeted therapy and immunotherapy in the conversion therapy of dMMR/MSI-H advanced gastric cancer to improve the prognosis of patients.
Approach: The clinical data of a patient with dMMR/MSI-H advanced gastric cancer admitted to our hospital were retrospectively analyzed, and the process of conversion therapy for this patient was described. Through images, laboratory examination and clinical evaluation of therapeutic effect.
Results: The successful conversion therapy using photodynamic therapy combined with chemotherapy, targeted therapy and immunotherapy in this patient created an opportunity for subsequent radical resection of gastric cancer.
Conclusions: Photodynamic therapy combined with chemotherapy, targeted therapy and immunotherapy is significantly effective in the conversion therapy of dMMR/MSI-H advanced gastric cancer, which has great clinical reference value.

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560 oral

Validation of a Computational Model for Light Dosimetry in Lung Therapies: Tailoring Energy-Efficient Monte Carlo Simulations to Thoracic Anatomy and Tissue Optics

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Significance: External irradiation for photonic therapies in internal organs, such as lungs, faces challenges due to varying patient anatomy. Conditions like pneumonia and COVID-19 demand precise light delivery through the thoracic wall to the lungs.
Approach: We employed in-house Monte Carlo simulations to model light dosimetry in the lungs. Anatomical 3D models derived from human CT scans included 12 tissue types and lung regions (normal, collapsed infiltrate, blood vessels). Wavelength specific optical properties were based on literature data.
Results: Simulations revealed energy deposition and fluence distribution patterns for distinct lung lobes and pathologies (focal/diffuse pneumonia, COVID-19 inflammation) under varied light configurations.
Conclusions: This study highlights the need for detailed anatomical and optical modeling to optimize light-based therapies enabling personalized and effective treatment strategies for lung diseases.

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562 oral

Photodynamic therapy combined with sintilimab combined with bevacizumab in the treatment of patients with KRAS gene mutant advanced rectal cancer: A Case Report

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For some patients with advanced rectal cancer who are ineligible for surgical intervention or unresponsive to drug - based therapies, the current treatment options are typically restricted, and the therapeutic outcomes are suboptimal. This article reports a case of a patient with advanced rectal cancer who was resistant to anti-EGFR due to KRAS gene mutation and was treated with photodynamic therapy combined with sintilimab and bevacizumab. After two cycles of treatment, the patient's carcinoembryonic antigen (CEA) level decreased from 21 ng/ml to 6.98 ng/ml. After six treatment cycles, the CEA level further declined to 4.30 ng/ml, and MRI examination showed that the tumor volume shrank significantly. Besides, throughout the entire treatment process, there was no tumor progression. The integration of PDT with traditional therapeutic approaches, including chemotherapy, targeted therapy and immunotherapy, has the potential to elicit a synergistic effect, thereby augmenting the overall therapeutic efficacy.

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564 oral

Curcumin targets YAP1 to promote mitochondrial function and autophagy and its protective effects against UVB induced photodamage in vitro and in vivo

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Ultraviolet B (UVB) radiation is a key environmental factor causing skin damage through DNA damage, oxidative stress, inflammation, and collagen alterations. This study investigates curcumin's protective effects on UVB-induced skin and keratinocyte damage using mouse models and HaCaT cells. We assessed cellular changes via viability, mitochondrial function, ROS, and apoptosis assays, and applied transcriptomics to uncover curcumin's molecular mechanisms, . Curcumin treatment notably ameliorated UVB-induced skin lesions and inflammation in vivo. In vitro, it counteracted UVB's negative effects on HaCaT cells, enhancing viability and reducing apoptosis and ROS. Transcriptomic analysis showed curcumin upregulated YAP signaling and mitochondrial autophagy while inhibiting IL-18.

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