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Photo-nano-immunotherapy for metastatic cancer treatment

Feifan Zhou and Wei R Chen

Biomedical Engineering Program, College of Mathematics and Science, University of Central Oklahoma, USA

Cancer has been a leading cause of death since the beginning of human history. Various therapies have been developed, yet cancer remains to be one of the biggest medical challenges for researchers and practitioners. In an attempt to target the root cause of cancer, we developed laser immunotherapy (LIT). LIT aims at eradicating cancers by enlisting the help of the host immune system through a local intervention. It uses the combination of laser phototherapy and immunotherapy to induce tumor-specific immune responses. In our pre-clinical and preliminary clinical studies, LIT is shown to be highly effective against metastatic tumors. The experimental results indicated a systemic, long-term anti-tumor immunological response induced by LIT, using the entire tumor cell as the sources of tumor antigens, based on the principle of in situ autologous whole-cell cancer vaccination. To further improve LIT, we developed laser-nanotechnology-based novel therapy using immunologically modified nanotubes to provide synergistic, synchronized photothermal and immunological interactions for cancer treatment.

fzhou2@uco.edu

Working with paradoxes: Moving from dialectical opposition to interdependent growth in culturally diverse female cancer survivors

Kirti Patel

Sofia University, USA

Psycho-Spiritual Integrated Therapy (PSIT) is a psychosocial and psycho-educational intervention. In this study, it was used to support breast cancer survivors to learn to acknowledge and work with paradoxes (areas of ambiguity, inconsistency and contradiction), which would help them understand, cope with, and transcend the role of cancer in their lives. Previous research established the presence of paradoxes in European Caucasian cancer survivors, but the role of paradoxes among culturally diverse breast cancer survivors, or among participants in an intervention such as PSIT, was not examined. This study examined the experience of 12 breast cancer survivors (6 culturally diverse/6 European Caucasian) who participated in an 8-week PSIT intervention and asked 3 specific questions. First, which of the paradoxes identified in previous research were experienced by breast cancer survivors in the current study? Second, what new paradoxes emerged from the 12 participants' responses? Third, how did culturally diverse women expand the range of paradoxes in the PSIT intervention? This third question aimed to contribute to an under-researched area: culturally diverse breast cancer survivors. The study used a qualitative methodology, based on a thematic analysis of 12 participant interviews in order to identify paradox themes among breast cancer survivors. Findings included the following: (a) the PSIT group replicated 3 paradoxes named in a previous study by Halstead and Hull; (b) that the PSIT participants developed the ability to work with each side of a paradox and hold interdependent opposing realities together simultaneously, while extending the range of paradoxes to include themes of interconnection, personal empowerment, and spiritual edges and tensions; (c) that culturally diverse PSIT participants expanded the range of paradoxes. They built an awareness, not only of the contradictory and co-existing elements of the paradoxes, but also of how these elements could work together to create balance and deeper integration. Culturally diverse participants searched for authentic spiritual experiences, which included self-transcendence during or after the integration of paradoxes. They contributed to subthemes that expressed the value of their insight gained from witness consciousness (neutral-observer stance), their experiences of moderating control and surrender, and their movement from self-criticism to self-understanding.

kirti@innovativegrowthedges.com