Preface

This special memorial issue has been developed under the guidance of guest editor Stuart E. Samuels, MD, PhD, in memory of the premature loss of his two sisters, Rana and Beth, to the devastating disease of cancer. It contains tributes to the late Dr. Beth Sharon Samuels and the late Dr. Rana Lynn Samuels-Ofran, as well as photographs with their parents and families.

The issue contains various contributions in the cancer domain solicited by colleagues and associates of Dr. Samuels. They constitute a spectrum of cancer topics that are of current significance and timely. Below, the main highlights of each contribution are briefly described.

Cerbon et al., in “The Genetic Paradigm of Hereditary Breast and Ovarian Cancer in the Afro-Caribbean Population,” investigate the possible disparity of breast and ovarian cancer incidence, survival, and mortality that might be due, in part, to the tumor biology and genetic predisposition that is encountered in the black population in the US. Since the black population in the US is not homogeneous, the authors examine the high incidence of hereditary breast and ovarian cancer in Afro-Caribbean countries. They focus on the incidence and prevalence of pathologic germline mutations in both natives and immigrants, analyzing 72 relevant studies in PubMed published between 2005 and 2022. They investigate patients in the Bahamas, Barbados, Trinidad and Tobago, Jamaica, Haiti, Dominica and Cayman Islands, Puerto Rico, and the US Caribbean Islands, concluding that further research is needed to analyze the genetic landscape of hereditary breast and ovarian cancers, which should help in developing better screening, prophylaxis, diagnosis, and treatment for these patients.

Choi et al., in “Proton Beam Therapy for Breast Cancer,” review the use of proton beam therapy (PBT) in breast cancer, focusing on the advantages of dosimetry, indications, treatment considerations, and current clinical trials. Briefly, they review the potential advantages of PBT relating to cardiac toxicity, pulmonary toxicity, mobility of the arm and shoulder, sparing radiation to the contralateral breast, lower risk of developing secondary cancers, and minimizing radiation to healthy normal tissues. The authors review indications for PBT as well as disadvantages associated with it, which include longer treatment times, high cost, limited accessibility, and uncertainty compared to photon therapy. They summarize current clinical trials in the US that are aimed at establishing the role of PBT in adjuvant radiation therapy, cautioning clinicians to use their best judgment in recommending it.

Rich et al., in “Oral Cavity Squamous Cell Carcinoma: Review of Pathology, Diagnosis, Management,” look at the global health burden of squamous cell carcinoma resulting from the high risks of smoking, smokeless tobacco, and alcohol consumption. They present current information on squamous cell carcinoma of the oral cavity, or oral cavity cancer (OCC), and review (1) epidemiological data and rising incidence in the US and the various risk factors; (2) patient presentation of disease stages and clinical workup; (3) pathology of the primary tumor and risk factors associated with it; (4) the role of the tumor microenvironment in the promotion of cancer as well as the use of genomic and molecular markers for risk-stratifying OCC; (5) lymph node pathology and metastases; (6) management of OCC via surgery, radiation, brachytherapy, and systemic therapy; and (7) prognosis and follow-up. The authors explore future directions and the need for a multidisciplinary approach to management of OCC.

Mihulka et al., in “Surgical Management of the Neck in Oral Cavity Squamous Cell Carcinoma,” review current aspects of surgical management of the neck in oral cavity cancer. Briefly, they discuss the lymphatics and imaging of the neck, surgical approaches and consequent complications, and management of the clinically negative (NO) neck and the role of adjuvant therapy. That there are high rates of nodal metastases even in patients with no apparent clinical disease is critically important in managing the neck in treatment of oral cavity squamous cell carcinoma. The authors recommend larger, prospective clinical trials to determine best practices in treatment.
Herr et al., in “Convolutional Neural Networks for Glioma-Segmentation and Prognosis: A Systematic Review,” discuss the use of convolutional neural networks (CNNs), a specific type of deep learning (DL) architecture, to enhance medical imaging throughput and image analysis in neuro-oncology. Their focus is on the future direction of MRI-based CNNs and their challenges. The authors investigate tumor growth in glioblastoma patients after chemoradiation due to pseudo-progression (PP), which is the mimicking of a nonresponding tumor [known as true progression (TP)]. The challenge is in distinguishing between PP and TP. They also discuss recent DL methods and applications for intratumor segmentation, glioma classification, and prognosis prediction, providing a literature review and an overview of CNNs, performance metrics, intratumor segmentation, the use of CNNs to predict glioma prognosis, and future directions.

Jara, in “The Current Systemic Therapy Options in the Treatment of Advanced Medullary Thyroid Carcinoma,” review therapeutic regimens for medullary thyroid carcinoma (MTC) such as multikinase inhibitors (MKIs) (limited efficacy, drug-related adverse events, and drug resistance) and drugs targeting mutations of the RET protooncogene (efficient but prone to resistance). Briefly, the author reviews systemic therapy with the MKIs vandetanib and cabozantinib, and with the RET inhibitors selpercatinib and praseltinib. Also discussed are mechanisms of resistance to the selective RET inhibitors as well as current clinical trials. The author recommends long-term investigations to identify latent adverse effects of RET inhibitors and new strategies to overcome resistance.

Arlen et al., in “Machine Evaluation of Catchment Area Relevance through Text Mining,” propose a novel text-mining application and scoring algorithm that helps evaluate oncology clinical trials at the University of Miami. Given the significant diversity, both racial and ethnic, in Florida, the developed algorithm allows scans of study titles and eligibility criteria for catchment area relevance. Importantly, it is fully customizable. The authors suggest that their new developments and findings will encourage investigators to design clinical trials more precisely and efficiently.

Lopes et al., in “Disparities in Electronic Cigarette Use: A Narrative Review,” examine 77 articles published in PubMed on electronic cigarette use and its manifestations. Their main aim is to highlight disparities among e-cigarette users and the factors that cause them. The authors analyze studies with inclusion criteria (published in peer-reviewed journals and available in English), finding racial and ethnic, sexual and gender, and socioeconomic disparities. Their conclusions are that racial and ethnic and sexual and gender minorities are at particularly high risk. However, it remains unclear whether there is an association between socioeconomic status and e-cigarette use.

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