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Editorial

# Special Issue on Current Challenges and Future Directions in Monitoring Recurrence after Treatment of Primary Cancer

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Cancer recurrence after treatment of primary cancer is the primary cause of cancer-related mortality, while no effective and universally accepted approaches exist that can reliably monitor and detect cancer recurrence at the early stages. The current special issue of the Journal of Cancer presents four articles from world leading experts, which unequivocally introduce clinically relevant guidelines, critically analyze commonly encountered challenges, and clearly elucidate potential strategies to monitor recurrence after treatment of primary colorectal and breast cancer. These experts' insightful assessment and personal experience are likely to be substantially beneficial to our colleagues in the field.

Articles contributed by Dr. Scott R. Steele's group [1,2] reports that despite advances and improvement in neoadjuvant and adjuvant therapy, surgical technique, and node staging, almost half of all colorectal cancer patients will develop recurrent disease; this includes ~25% of patients with theoretically curable node-negative, non-metastatic Stage I and II disease. It is therefore imperative that strategies aim for detection of recurrence as early as possible to allow initiation of treatment. However, early detection of cancer recurrence faces a number of challenges, including (1). Controversy in the optimal surveillance strategy (high-*intensity vs.* traditional), ideal testing regimen, and overall effectiveness, and (2). Unwanted side-effects including more invasive tests, higher rates of reoperation, and increased costs. For the potential future directions in monitoring recurrence after treatment of primary colorectal cancer, the authors report that the role of chemotherapy regimens, genomic databases/biomarkers, and imaging modalities are the most widely discussed topics in the literature at present. The authors have elucidated a number of specific approaches for each of these topics.

Articles contributed by Dr. George E. Peoples' group [3,4] reports that only 1–1.5% of women who present with recurrent breast having potentially curable disease. The authors have presented several clinically relevant guidelines recommended by nationally and internationally recognized authorities for the surveillance after treatment of primary breast cancer, which mainly involves radiographic and clinical evaluations. The authors have listed and analyzed the specific approaches of radiographic and clinical evaluations. The authors have concluded that identifying the optimal imaging modality for radiographic evaluation remains a significant challenge, as there are no randomized clinical trials evaluating the effectiveness of breast MRI, ultrasound, or positron-emission computed tomography (PET/CT) in the setting of breast cancer surveillance. Similarly, none of the clinical evaluation methods can reliably predict and detect recurrence. For the potential future directions in monitoring recurrence after treatment of

primary colorectal cancer, the authors have suggested several advanced radiographic systems and novel clinical evaluation methods and laboratory tests.

Together, these articles have clearly suggested that "Assessment of tumor recurrence is an integral part of this long-term survival and plays a pivotal role in the selection of those that will undergo re-intervention or adjuvant therapy and those that should not" (from Dr. Steele's group). Although several advanced radiographic systems, novel clinical evaluation methods, and genomic databases/biomarkers have emerged for monitoring cancer recurrence, "Clinicians should continue to be aware of the risk/benefit ratio of available options with future guidelines designed for optimal disease management that avoid both over- and under-evaluation of a patient's disease status" (from Dr. Peoples' group).

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