



Making a difference with teamwork

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Lung cancer is the leading cause of cancer-related mortality in Canada¹. The American Cancer Society estimated that, in 2011, more than 200,000 patients would be newly diagnosed with lung cancer and that more than 150,000 would die of the disease. Non-small-cell lung cancer (NSCLC) is the most common form of lung cancer, accounting for approximately 87% of cases^{2,3}.

Systemic chemotherapies, especially platinum-based doublets, have been used to treat NSCLC for several decades, but improvements in outcomes have reached a plateau^{4,5}. When platinum-based doublets are administered for advanced NSCLC, median survival improves to 8–10 months (from 4–5 months without treatment). Significant toxicities limit the number of cycles that can be administered⁶.

Current algorithms for first-line treatment of advanced NSCLC recommend using both histologic and molecular diagnostics in designing the course of treatment⁷. Recent advances in understanding signalling pathways for malignant cells, interconnections in those pathways, the importance of various receptors and biomarkers, and the interplay between various oncogenes have led to the development of targeted treatments that are improving not only efficacy benefits, but also safety benefits. These treatments are aimed at specific—especially genetic—changes in the malignant cells. Various NSCLC subtypes are associated with potentially targetable biomarkers such as mutation of the epidermal growth factor receptor (*EGFR*)^{8–12}, *KRAS*¹³, echinoderm microtubule-associated protein-like 4 (*EML4*), and anaplastic lymphoma kinase (*ALK*) genes or the presence of fusion genes (*EML4-ALK*)^{14,15} and c-Met overexpression or amplification^{16–19}.

The publication of this supplement was made possible through unrestricted grants from Boehringer Ingelheim, Hoffmann–La Roche, and Pfizer. We sincerely thank them for having accepted to help support this project and for their commitment to research and education in lung cancer.

Knowledge about the advantages of treatments with targeted agents in advanced NSCLC is growing, but the hope is eventually to apply that knowledge to earlier stages of NSCLC and thus to increase the cure rate. Combining various targeted agents or sequencing them properly will be of the utmost importance in the new era of targeted personalized therapy.

In this supplement of *Current Oncology*, contributors describe the importance of teamwork from diagnosis through various treatments to supportive care, and from interventional procedures (in which satisfactory tumour specimens must be obtained for analyses by pathologists and molecular biologists) to treatments delivered by radiation oncologists, medical oncologists, and supportive care specialists. In addition, descriptions of ongoing clinical trials provide a glimpse of the future. The result is, we hope, a complete review of present and future approaches to personalized medicine in advanced NSCLC in Canada.

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