participate in clinical trials of targeted therapies, which may ultimately identify agents that further improve clinical outcomes.

EVALUATION OF RESPONSE

The efficacy of cancer-directed therapies is gauged by various methods and has been granted its own vocabulary. In patients with metastatic disease, all known sites of disease are monitored by physical examinations and serial radiologic imaging. Responses are judged according to the internationally accepted Response Evaluation Criteria in Solid Tumors (RECIST) rules. Disappearance of all known lesions is called a *complete response*, whereas a 30% or greater reduction in size is called a *partial response.* Appearance of new lesions or an increase in the size of known lesions by 20% is termed *progression of disease* and implies failure of treatment. A tumor that is neither responding nor progressing is termed *stable disease.*

The percentage of patients who experience a response is called the *response rate* to the agent or agents being administered. New drugs are often evaluated on the basis of response rates. However, a "response" does not imply cure. Even a drug with a 100% response rate is not curative if all patients relapse. Therefore, the "gold standard" for measuring the efficacy of a drug is considered to be an improvement in *survival*, or its surrogate, *disease-free survival*—the time interval during which the patient is alive without disease. The use of effective second-line therapies may minimize the survival differences between two treatments prescribed as initial therapy, and in this context, disease-free survival can serve as an important end point in evaluating new regimens. Increasingly, quality-of-life end points such as use of pain medications or patient-reported outcomes are being used to assess the efficacy of drugs in palliation. In patients receiving adjuvant therapy, response rates cannot be measured because there is no clinically evident disease: Disease-free survival and overall survival are the only end points of efficacy in this setting. Serial measurement of tumor markers can also be useful in identifying recurrence of cancer and monitoring response to therapy in patients with some cancers.

SUPPORTIVE CARE

Supportive care interventions can improve the safety and tolerability of cancer treatments. Many drugs can moderate chemotherapy-related side effects. Serotonin receptor antagonists and neurokinin-1 receptor antagonists, in combination with older antiemetic drugs, may control chemotherapy-induced nausea and vomiting. Granulocyte colony-stimulating factor (filgrastim) and granulocyte-macrophage colony-stimulating factor (sargramostim) stimulate the proliferation and differentiation of myeloid progenitor cells and can prevent or minimize the duration of chemotherapy-induced neutropenia and reduce the likelihood of neutropenic fever. These agents are also used to mobilize and collect stem cells for transplantation. Filgrastim can shorten the duration of cycles of chemotherapy, permitting the dose-dense approach in adjuvant treatment of breast cancer (see earlier discussion). Recombinant human keratinocyte growth factor (palifermin) reduces chemotherapy- and radiation therapy–induced mucositis.

Supportive care is an integral part of the treatment of cancer, particularly in noncurative settings. Palliative aspects of treating cancer address not only physical symptoms, in particular pain syndromes, but also psychosocial and spiritual concerns. Chemotherapy and radiation therapy are often used with palliative intent and can improve quality of life.

Acknowledgments

Dr. Khorana is supported by grants from the National Cancer Institute (K23 CA120587), the National Heart, Lung and Blood Institute (R01HL095109), and the V Foundation and would like to acknowledge the Sondra and Stephen Hardis Endowed Chair in Oncology for research support.

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