

Moving Ahead: Challenges With Combination Therapies for Colorectal Cancer

REFERENCES

Novel Challenges Affecting Quality of Life

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1. Skibber JM, Minsky BD, Hoff PM. Cancer of the colon. In: De Vita VT Jr, Hellman S, Rosenberg SA, eds. *Cancer: Principles & Practice of Oncology*. 6th ed. 2001:1216-1271.
2. Grothey A, Sargent D, Goldberg RM, et al. Survival of patients with advanced colorectal cancer improves with the availability of fluorouracil-leucovorin, irinotecan, and oxaliplatin in the course of treatment. *J Clin Oncol*. 2004;22:1209-1214.
3. Hurwitz H, Fehrenbacher L, Novotny W, et al. Bevacizumab plus irinotecan, fluorouracil, and leucovorin for metastatic colorectal cancer. *N Engl J Med*. 2004;350:2335-2342.
4. Approval of two colon cancers therapies triggers debate on trials, reimbursement. *Cancer Lett*. 2004;30(10):1-7.
5. Jemal A, Tiwari RC, Murray T, et al. Cancer statistics, 2004. *CA Cancer J Clin*. 2004;54:8-29.
6. Hoff PM, Ansari R, Batist G, et al. Comparison of oral capecitabine versus intravenous fluorouracil plus leucovorin as first-line treatment in 605 patients with metastatic colorectal cancer: results of a randomized phase III study. *J Clin Oncol*. 2001;19:2282-2292.
7. Hoff PM, Pazdur R, Lassere Y, et al. Phase II study of capecitabine in patients with fluorouracil-resistant metastatic colorectal carcinoma. *J Clin Oncol*. 2004;22:2078-2083.
8. Cassidy J, Tabernero J, Twelves C, et al. XELOX (capecitabine plus oxaliplatin): active first-line therapy for patients with metastatic colorectal cancer. *J Clin Oncol*. 2004;22:2084-2091.
9. de Gramont A, Bosset JF, Milan C, et al. Randomized trial comparing monthly low-dose leucovorin and fluorouracil bolus with bimonthly high-dose leucovorin and fluorouracil bolus plus continuous infusion for advanced colorectal cancer: a French intergroup study. *J Clin Oncol*. 1997;15:808-815.

10. de Gramont A, Louvet C, André T, et al. A simplified bimonthly regimen with leucovorin (LV) and 5-fluorouracil (5-FU) for metastatic colorectal cancer (MCRC). Feasibility study. *Proc Am Soc Clin Oncol*. 1997;16:287a. Abstract 1019.
11. André T, Louvet C, Maindrault-Goebel F, et al. CPT-11 (irinotecan) addition to bimonthly, high-dose leucovorin and bolus and continuous-infusion 5-fluorouracil (FOLFIRI) for pretreated metastatic colorectal cancer. GERCOR. *Eur J Cancer*. 1999;35:1343-1347.
12. Oxaliplatin full prescribing information. Available at: <http://www.eloxatin.com/hcp/pi.asp>. Accessed June 4, 2004.
13. Maindrault-Goebel F, Louvet C, Andre T, et al. Oxaliplatin added to the simplified bimonthly leucovorin and 5-fluorouracil regimen as second-line therapy for metastatic colorectal cancer (FOLFOX6). GERCOR. *Eur J Cancer*. 1999;35:1338-1346.
14. Goldberg RM, Sargent DJ, Morton RF, et al. A randomized controlled trial of fluorouracil plus leucovorin, irinotecan, and oxaliplatin combinations in patients with previously untreated metastatic colorectal cancer. *J Clin Oncol*. 2004;22:23-30.
15. Rothenberg ML, Meropol NJ, Poplin EA, et al. Mortality associated with irinotecan plus bolus fluorouracil/leucovorin: summary findings of an independent panel. *J Clin Oncol*. 2001;19:3801-3807.
16. Irinotecan full prescribing information. Available at: http://www.pfizer.com/download/uspi_camptosar.pdf. Accessed June 4, 2004.
17. de Gramont A, Figer A, Seymour M, et al. Leucovorin and fluorouracil with or without oxaliplatin as first-line treatment in advanced colorectal cancer. *J Clin Oncol*. 2000;18:2938-2947.
18. Tournigand C, Andre T, Achille E, et al. FOLFIRI followed by FOLFOX6 or the reverse sequence in advanced colorectal cancer: a randomized GERCOR study. *J Clin Oncol*. 2004;22:229-237.
19. Gamelin E, Gamelin L, Bossi L, et al. Clinical aspects and molecular basis of oxaliplatin neurotoxicity: current management and development of preventive measures. *Semin Oncol*. 2002;29:21-33.
20. Barhamand B. Management of pharyngolaryngeal dysesthesia associated with oxaliplatin therapy. *Clin J Oncol Nurs*. 2003;7:452-453.
21. Pederiva S, Caspar CB. Management of acute oxaliplatin-related peripheral sensory neuropathy with magnesium and calcium. In: Program and abstracts of the ASCO 2004 Gastrointestinal Cancers Symposium; January 22-24, 2004; San Francisco, Calif. Abstract 2820.

22. André T, Boni C, Mounedji-Boudiaf L, et al. Oxaliplatin, fluorouracil, and leucovorin as adjuvant treatment for colon cancer. *N Engl J Med*. 2004;350:2343-2351.
23. André T, Figer A, Cervantes A, et al. FOLFOX7 compared to FOLFOX4: preliminary results of the randomized OPTIMOX study. Paper presented at: American Society of Clinical Oncology Annual Meeting; June 1, 2003; Chicago, IL.
24. Wilkes GM. New therapeutic options in colorectal cancer: focus on oxaliplatin. *Clin J Oncol Nurs*. 2002;6:131-137.

Moving Ahead With Adjuvant Treatment

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1. American Cancer Society. Cancer Facts & Figures 2004. Available at: http://www.cancer.org/docroot/STT/stt_0.asp. Accessed May 2004.
2. Jemal A, Tiwari RC, Murray T, et al. Cancer statistics, 2004. *CA Cancer J Clin*. 2004;54:8-29.
3. Smith RA, Cokkinides V, Eyre HJ; American Cancer Society. American Cancer Society guidelines for the early detection of cancer, 2004. *CA Cancer J Clin*. 2004;54:41-52.
4. Greene FL, Page DL, Fleming ID, et al, eds. *AJCC Cancer Staging Manual*. 6th ed. New York, NY: Springer-Verlag; 2002.
5. Midgley R, Kerr D. Colorectal cancer. *Lancet*. 1999;353:391-399.
6. Benson AB, Catalano PJ. A rose, is a rose, is a rose, ...or not. *J Clin Oncol*. 2004;22:1773-1775.
7. Greene FL, Stewart AK, Norton HJ. New tumor-node-metastasis staging strategy for node-positive (stage III) rectal cancer: an analysis. *J Clin Oncol*. 2004;22:1778-1784.
8. Gunderson LL, Sargent DJ, Tepper JE, et al. Impact of T and N stage and treatment on survival and relapse in adjuvant rectal cancer: a pooled analysis. *J Clin Oncol*. 2004;22:1785-1796.
9. Gill S, Loprinzi CL, Sargent DJ, et al. Pooled analysis of fluorouracil-based adjuvant therapy for stage II and III colon cancer: who benefits and by how much? *J Clin Oncol*. 2004;22:1797-1806.
10. Mayo Foundation for Medical Education and Research (MFMER). Reliable information for a healthier life. Adjuvant systemic therapy tools. Available at: <http://www.mayoclinic.com/calcs>. Accessed June 4, 2004.

11. André A, Boni C, Mounedji-Boudiaf L, et al. Oxaliplatin, fluorouracil, and leucovorin as adjuvant treatment for colon cancer. *N Engl J Med*. 2004;350:2343-2351.
12. ClinicalTrials.gov. National Institutes of Health. Available at: <http://www.clinicaltrials.gov/>. Accessed June 4, 2004.
13. Kattlove H, Winn RJ. Ongoing care of patients after primary treatment for their cancer. *CA Cancer J Clin*. 2003;54:172-196.
14. Klemm P, Miller MA, Fernsler J. Demands of illness in people treated for colorectal cancer. *Oncol Nurs Forum*. 2000;27:633-639.
15. Alexander HR, Allegra CJ, Lawrence TS. Metastatic cancer to the liver. In: De Vita VT Jr, Hellman S, Rosenberg SA. *Cancer: Principles & Practice of Oncology*. 6th ed. 2001:2690-2713.
16. Gilbert HA, Kagan AR. Metastases: incidence, detection, and evaluation without histologic confirmation. In: Weiss L, ed. *Fundamental Aspects of Metastasis*. Amsterdam: North-Holland Publishing; 1976:385-405.
17. Kemeny N, Huang Y, Cohen AM, et al. Hepatic arterial infusion of chemotherapy after resection of hepatic metastases from colorectal cancer. *N Engl J Med*. 1999;341:2039-2048.
18. Koea JB, Kemeny N. Hepatic artery infusion chemotherapy for metastatic colorectal carcinoma. *Semin Surg Oncol*. 2000;19:125-134.
19. Barber FD, Fabugais-Nazario LE. What's old is new again: patients receiving hepatic arterial infusion chemotherapy. *Clin J Oncol Nurs*. 2003;7:647-652.
20. Blair SL, Grant M, Chu DZ, et al. Quality of life in patients with colorectal metastasis and intrahepatic chemotherapy. *Ann Surg Oncol*. 2003;10:144-149.
21. Skibber JM, Minsky BD, Hoff PM. Cancer of the colon. In: De Vita VT Jr, Hellman S, Rosenberg SA, eds. *Cancer: Principles & Practice of Oncology*. 6th ed. 2001:1216-1271.
22. Hoff PM, Ansari R, Batist G, et al. Comparison of oral capecitabine versus intravenous fluorouracil plus leucovorin as first-line treatment in 605 patients with metastatic colorectal cancer: results of a randomized phase III study. *J Clin Oncol*. 2001;19:2282-2292.
23. Capecitabine tablets. Full prescribing information. Available at: <http://www.xeloda.com/#>. Accessed May 1, 2004.

24. Twelves C, Boyer M, Findlay M, et al. Capecitabine (Xeloda) improves medical resource use compared with 5-fluorouracil plus leucovorin in a phase III trial conducted in patients with advanced colorectal carcinoma. *Eur J Cancer*. 2001;37:597-604.
25. Approval of two colon cancer therapies triggers debate on trials, reimbursement. *Cancer Lett*. 2004;30(10):1-7.
26. Cassidy J, Taberero J, Twelves C, et al. XELOX (capecitabine plus oxalplatin): active first-line therapy for patients with metastatic colorectal cancer. *J Clin Oncol*. 2004;22:2084-2091.

Doorways to the Future

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1. Grothey A, Sargent D, Goldberg RM, Schmoll HJ. Survival of patients with advanced colorectal cancer improves with the availability of fluorouracil-leucovorin, irinotecan, and oxaliplatin in the course of treatment. *J Clin Oncol*. 2004;22:1201-1208.
2. Saltz LB, Meropol NJ, Loehrer PJ Sr, et al. Phase II trial of cetuximab in patients with refractory colorectal cancer that expresses the epidermal growth factor receptor. *J Clin Oncol*. 2004;22:1201-1208.
3. Rothenberg ML, Berlin JD. Therapeutic strategies for metastatic colorectal cancer: simultaneous, sequential, or specific? *J Clin Oncol*. 2003;21:3716-3717.
4. Goetz MP, Erlichman C, Windebank AJ, et al. Phase I and pharmacokinetic study of two different schedules of oxaliplatin, irinotecan, fluorouracil, and leucovorin in patients with solid tumors. *J Clin Oncol*. 2003;21:3761-3769.
5. Tournigand C, André T, Achille E, et al. FOLFIRI followed by FOLFOX6 or the reverse sequence in advanced colorectal cancer: a randomized GERCOR study. *J Clin Oncol*. 2004;22:229-237.
6. Hurwitz H, Fehrenbacher L, Novotny W, et al. Bevacizumab plus irinotecan, fluorouracil and leucovorin for metastatic colorectal cancer. *N Engl J Med*. 2004;350:2335-2342.
7. Goldberg RM, Sargent DJ, Morton RF, et al. A randomized controlled trial of fluorouracil plus leucovorin, irinotecan, and oxaliplatin combinations in patients with previously untreated metastatic colorectal cancer. *J Clin Oncol*. 2004;22:23-30.
8. Approval of two colon cancer therapies triggers debate on trials, reimbursement. *Cancer Lett*. 2004;30(10):1-7.
9. ClinicalTrials.gov. National Institutes of Health. Available at: <http://www.clinicaltrials.gov>. Accessed June 4, 2004.

10. US Food and Drug Administration Center for Drug Evaluation and Research. Available at: <http://www.fda.gov/cder/>. Accessed May 1, 2004.
11. Bevacizumab full prescribing information. Available at: <http://www.gene.com/gene/products/information/oncology/avastin/insert.jsp>. Accessed May 1, 2004.
12. Capecitabine tablets full prescribing information. Available at: <http://www.xeloda.com/#>. Accessed May 1, 2004.
13. Cetuximab full prescribing information. Available at: <http://www.fda.gov/cder/foi/label/2004/125084lbl.pdf>. Accessed May 1, 2004.
14. Irinotecan full prescribing information. Available at: http://www.pfizer.com/download/uspi_camptosar.pdf. Accessed May 1, 2004.
15. Oxaliplatin full prescribing information. Available at: <http://www.eloxatin.com/hcp/pi.asp>. Accessed May 1, 2004.
16. Ferrara N. VEGF and the quest for tumour angiogenesis factors. *Nat Rev Cancer*. 2002;2:795-803.
17. Ellis LM, Liu W, Fan F, et al. Role of angiogenesis inhibitors in cancer treatment. *Oncology*. 2001;15(7):39-46.
18. McMahon G. VEGF receptor signaling in tumor angiogenesis. *Oncologist*. 2000;5(suppl 1):3-10.
19. Hanahan D, Folkman J. Patterns and emerging mechanisms of the angiogenic switch during tumorigenesis. *Cell*. 1996;86:353-364.
20. Fox SB, Gasparini G, Harris AL. Angiogenesis: pathological, prognostic, and growth-factor pathways and their link to trial design and anticancer drugs. *Lancet Oncol*. 2001;2:278-289.
21. Carmeliet P, Jain RK. Angiogenesis in cancer and other diseases. *Nature*. 2000;407:249-255.
22. Benson AB, Catalano PJ, Meropol NJ, et al. Bevacizumab (anti-VEGF) plus FOLFOX4 in previously treated colorectal cancer (advCRC): an interim toxicity analysis of the Eastern Cooperative Oncology Group (ECOG) study E3200. *Proc Am Soc Clin Oncol*. 2003;22:243. Abstract 975.
23. Ellis LM, Hoff PM. Targeting the epidermal growth factor receptor: an important incremental step in the battle against colorectal cancer. *J Clin Oncol*. 2004;22:1177-1179.

24. Cunningham D, Humblet Y, Siena S, et al. Cetuximab (C225) alone or in combination with irinotecan (CPT-11) in patients with epidermal growth factor receptor (EGFR)-positive, irinotecan-refractory metastatic colorectal cancer (MCRC). *Proc Am Soc Clin Oncol*. 2003;22:252. Abstract 1012.
25. Saltz L, Rubin M, Hochster H, et al. Cetuximab (IMC-C225) plus irinotecan (CPT-11) is active in CPT-11 refractory colorectal cancer (CRC) that expresses epidermal growth factor receptor (EGFR). *Proc Am Soc Clin Oncol*. 2001;20:3. Abstract 7.
26. *The Pink Sheet*. Erbitux survival study will be submitted to FDA by 2007, ImClone says. February 16, 2004:4-5.