



Carmel Pezaro

MBChB, is Medical Oncology Fellow, Division of Haematology and Medical Oncology, Peter MacCallum Cancer Centre, Melbourne, Victoria.

Michael Jefford

MBBS, MPH, MHIthServMt, PhD, FRACP, is Associate Professor, Division of Haematology and Medical Oncology, Peter MacCallum Cancer Centre and Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, and Cancer Information and Support Service, Cancer Council Victoria. michael.jefford@petermac.org

Early stage bowel cancer

Follow up and survivorship

Background

Colorectal cancer is the most common internal malignancy affecting both men and women in Australia.

Objective

This review discusses screening, follow up, the long term physical effects of treatment, and the need for survivorship care plans for those with colorectal cancer.

Discussion

Following primary treatment, patient follow up includes screening for recurrence and second primaries, management of long term treatment effects, advice about health promotional strategies, and monitoring and appropriate referral for psychosocial issues. Optimal survivorship care is likely to include considerable general practitioner involvement with ongoing support from oncology specialist teams. Survivorship care can be guided by a tailored survivorship care plan.

■ **Colorectal cancer (CRC) is the most common malignancy affecting both men and women in Australia,¹ and the incidence is expected to rise with the aging population and as a result of increased screening.² Colorectal cancer survivors represent the third largest group of cancer survivors in western countries.³ The traditional focus of follow up has been the detection of cancer recurrence. However, an increasing body of literature indicates that survivors have a range of other issues and unmet needs following the completion of potentially curative treatments.**

In 2005, the United States Institute of Medicine released a pivotal report, 'From cancer patient to cancer survivor: Lost in transition' documenting the many issues that survivors face and highlighting the shortcomings of traditional follow up.³ Post-treatment survivorship was emphasised as a separate phase of the cancer journey, with distinct requirements.³ Four key elements of survivorship care were described (*Table 1*). Survivorship care for women with early stage breast cancer was recently discussed in this journal.⁴ This review considers survivorship issues for people with CRC.

Identified needs

Despite potentially curative treatments (surgery +/- radiation +/- chemotherapy), up to 40% of people with high risk early stage (nonmetastatic, potentially curable) CRC will experience cancer recurrence.⁵ A small percentage of these patients will have resectable, potentially curable disease.⁶ Patients are also at increased risk of developing second cancers or polyps.⁶ Many long term survivors experience good overall quality of life.⁷ In a USA survey of 474 patients with early CRC treated at least 4 years previously, the most commonly reported symptoms were fatigue (23%), negative feelings about body appearance (14%), and altered bowel habit (diarrhoea in 13%, constipation in 7%).⁸ Twenty-four percent of respondents reported ongoing worries about their health, including fear of recurrence – the 'Sword of Damocles' under which many cancer survivors live. Type of treatment received had relatively

Table 1. Four essential elements of post-treatment survivorship care³

1. Prevention	– of recurrent and new cancers
2. Surveillance	– for new or recurrent cancers – for the medical and psychosocial effects of cancer and its treatment
3. Intervention	– to reduce or prevent physical and psychosocial consequences of cancer and its treatment
4. Coordination	– between specialists and primary care providers

Table 2. Recommended follow up after treatment of primary CRC^{9–12}

Intervention	Frequency
• History, physical examination	• 3–6 monthly for 3 years, then 6–12 monthly to 5 years
• Colonoscopy	• At 12 months, then every 3–5 years
• Carcino-embryonic antigen measurement*	• 3–6 monthly for 3 years, then 6–12 monthly to 5 years
• Computerised tomography* chest/abdomen (+/- pelvis)	• Annually, years 1–3 in patients at high risk of relapse
• Consider liver ultrasound*	• 6 monthly to 3 years, then years 4 and 5

* Not recommended in Australian Cancer Network guidelines¹²

little impact on the late effects described, except that people with ostomies were more likely to report negative body image.

Cancer screening/follow up

Despite relatively weak evidence that surveillance improves survival, there is general consensus regarding post-treatment medical follow up. Australian, USA and European guidelines support regular surveillance for people who might benefit from early detection and aggressive treatment of recurrence (Table 2).^{9–12}

Evidence to support surveillance was examined in a recent Cochrane review.¹³ Although the meta-analysis showed a small survival benefit with more intensive follow up, there was significant heterogeneity in the comparator arms of the studies included. The authors indicated that it was 'not possible to infer from the data the best combination and frequency of clinic (or family practice) visits, blood tests, endoscopic procedures and radiological investigations to maximise the outcomes' for each individual. There are ongoing studies examining surveillance strategies, including the role of carcino-embryonic antigen measurement.

Long term physical effects of treatment

Abdominal/pelvic surgery and radiotherapy may result in long term diarrhoea or urgency, leading to a 'new normal' habit.^{14,15} Chronic radiation proctitis, most commonly manifesting as bleeding or discharge, occurs in 5–20% of individuals following pelvic radiation.¹⁶ Both surgery and radiation can cause anatomical and physiological changes resulting in pain, adhesions or obstruction.

Treatments for rectal cancer may also cause erectile dysfunction. Laparoscopic surgery is increasingly used for colon and rectal cancer and appears to be associated with fewer short term side effects.¹⁷ Long term results are not well documented.

Chemotherapy can be combined with radiation preoperatively for patients with locally advanced rectal cancer or given alone postoperatively, generally for patients with node positive colon or rectal cancer. Commonly used drugs are 5-fluorouracil, its oral prodrug capecitabine, and oxaliplatin. These drugs produce generally moderate and manageable toxicities and few long term complications. Main ongoing toxicities include fatigue and oxaliplatin induced peripheral neuropathy. In one study, the incidence of moderate and severe neurosensory symptoms during oxaliplatin based adjuvant therapy was 31.6% and 12.4% respectively.¹⁸ Peripheral neuropathy may remain or slowly improve over many months. In the same study, the incidence of moderate and severe symptoms was 4.8% and 1.1% respectively after 12 months follow up.¹⁸ Currently, there are no established treatments to hasten improvement of neuropathy.

Health behaviour messages

Not smoking, having a healthy weight, being physically active, eating a balanced diet and limiting alcohol consumption are the major behavioural strategies to prevent bowel cancer.¹⁹ Completion of primary treatment for CRC represents a 'teachable moment' to encourage and enable behaviour change.²⁰ There is growing evidence that increased physical activity can reduce both cancer related and overall mortality following CRC.²¹ Physical activity is also associated with improved quality of life.²² There is currently no evidence to support dietary supplementation in secondary prevention.

Psychosocial concerns

Survivors report an unmet need for psychosocial support during the post-treatment phase.²³ Cancer diagnosis and treatment can impact on many psychosocial domains, resulting in emotional, social, personal, sexual or financial concerns. There is a high frequency of depression following treatment. In a survey of 128 CRC survivors (average of 40 months after surgery), 37% met criteria for depression.²⁴ Predictors of distress 12 months after cancer diagnosis were examined prospectively in a large Queensland CRC population.²⁵ The strongest identified predictor was psychological distress 6 months after diagnosis. It is therefore recommended that survivors be screened for psychosocial distress and unmet support needs. There are no 'gold standard' screening tools to assess survivors' distress. The 'distress thermometer' is simple and widely used,²⁶ and an Australian measure, the Cancer Survivors' Unmet Needs measure (CaSUN), is also available.²⁷ The *Clinical practice guidelines for the psychosocial care of adults with cancer*²⁸ provide guidance regarding assessment of patients and management of distress.

Support services for CRC survivors

A number of services are available for survivors, families and health professionals (see *Resources*).

The setting of post-treatment follow up

Hospital based cancer services do not have the capacity to manage the increasing numbers of cancer survivors, nor to adequately deal with all issues that survivors may encounter. General practitioners are often best placed to continue the management of other medical issues during and after cancer treatment. A USA cohort study involving bowel cancer survivors found that when follow up was entirely with oncology specialists there was relatively high adherence to cancer screening recommendations, however other health maintenance practices were often neglected.²⁹ A major recommendation from the Institute of Medicine report was that survivorship care plans (SCP) be developed to better prepare patients for the survivorship phase and to explicitly state clinician responsibilities regarding follow up.

Studies randomising between GP or specialist oncology follow up have been reported for survivors of bowel and breast cancer. In one study, 203 patients who had undergone surgical management for CRC were randomised to receive follow up with their GP or surgeon.³⁰ A standardised document was provided to guide follow up. Although GPs ordered relatively more faecal occult blood tests and surgeons performed more colonoscopies and ultrasounds, rates of recurrence, time to detection and death were similar in the two groups. Similar studies in England and Canada involving breast cancer survivors have shown no significant difference in cancer outcomes, but improved participant satisfaction and cost effectiveness in the GP follow up cohort.^{31,32} These results suggest that GP follow up is safe and effective. The results also suggest the value of simple, clear follow up recommendations.

It is important to note that follow up in the general practice setting should include ready access to specialist services, if required. Other models of follow up and survivorship care include nurse led clinics and telephone based follow up. The authors have surveyed Australian GPs, oncology specialists and patients regarding follow up.³³ Although there is enthusiasm to consider different models of follow up, there is no consensus regarding a preferred model.

Survivorship care plans

The Institute of Medicine report recommended that survivors be provided with a written SCP detailing diagnosis, treatments, potential late and long term complications from treatment, strategies to remain well, and information about recommended follow up. The SCP should also be provided to GPs and any other professionals involved in the patient's care. The authors surveyed bowel cancer survivors, GPs and oncology specialists (colorectal surgeons, medical and radiation oncologists) regarding SCPs.³³ We found general support for the development and use of a tailored SCP. Previous

work has shown that it is possible to provide GPs with patient specific information in a timely manner that is clinically useful and valuable to practice.³⁴

Conclusion

Patients who have completed primary treatment for CRC have ongoing needs as a consequence of the cancer and its treatment, including surveillance for cancer recurrence, management of long term toxicities, screening for psychosocial distress and provision of psychosocial support. Areas of uncertainty include the optimum frequency of follow up investigations, the most effective way to support survivors, and the ideal provider mix during the survivorship phase. Post-treatment survivorship care is a growing focus for program development and clinical research, both in Australia and internationally.

Resources

- Resources available from the Cancer Council Helpline: 13 11 20
 - Cancer Connect (one-to-one, telephone based peer support)
 - Cancer support groups (face-to-face, telephone or internet based)
 - Life After Cancer (free booklet, developed by the Cancer Council Victoria)
 - 'Just take it day to day: a guide to surviving life after cancer' (free DVD, developed at the Peter MacCallum Cancer Centre)
- The American Society of Clinical Oncology: www.cancer.net
- Lance Armstrong Foundation: www.livestrong.org
- Clinical practice guidelines for the psychosocial care of adults with cancer: www.nhmrc.gov.au/publications/synopses/cp90syn.htm.

Conflict of interest: none declared.

References

1. Australian Institute of Health & Welfare. Cancer in Australia: an overview 2006. Cancer series no. 37. Cat. no. CAN32. Canberra: AIHW, 2007.
2. Ko CY, Ganz PA. Cancer survivorship issues in colorectal cancer survivorship. In: Cancer survivorship. Ganz PA, editor. New York: Springer, 2007, p. 177–87.
3. Hewitt ME, Greenfield S, Stovall E. From cancer patient to cancer survivor: Lost in transition. Washington: National Academics Press, 2006.
4. Brennen M, Butow P, Spillane A, et al. Survivorship care after breast cancer. *Aust Fam Physician* 2008;37:826–30.
5. Libutti SK, Saltz LB, Rustgi AK, et al. Cancer of the colon and cancer of the rectum. In: Cancer: principles and practice of oncology. De Vita VT, Hellman S, Rosenber SA, editors. Philadelphia: Lippincott Williams & Wilkins, 2005, p. 1061–125.
6. Earle CC. Surveillance after primary therapy in cancer survivorship. In: Cancer survivorship. Ganz PA, editor. New York: Springer, 2007, p. 43–53.
7. Ramsey SD, Berry K, Moinpour C, et al. Quality of life in long term survivors of colorectal cancer. *Am J Gastroenterol* 2002;97:1228–34.
8. Schneider EC, Malin JL, Kahn KL, et al. Surviving colorectal cancer: patient-reported symptoms 4 years after diagnosis. *Cancer* 2007;110:2075–82.
9. Van Cutsem EJ, Oliveira J. Colon cancer: ESMO clinical recommendations for diagnosis, adjuvant treatment and follow-up. *Ann Oncol* 2008;19(Suppl 2):ii29–30.
10. National Comprehensive Cancer Network. Colon cancer clinical practice guidelines (version 2), 2008. Available at www.nccn.org/professionals/physician_gls/PDF/colon.pdf.
11. Desch CE, Benson AB, 3rd, Somerfield MR, et al. Colorectal cancer surveillance: 2005 update of an American Society of Clinical Oncology practice guideline. *J Clin Oncol* 2005;23:8512–9.
12. Australian Cancer Network Colorectal Cancer Guidelines Revision Committee. Guidelines for the prevention, early detection and management of colorectal cancer, 2005. Available at www.nhmrc.gov.au/publications/synopses/cp106/_files/cp106.pdf.
13. Jeffery M, Hickey BE, Hider PN. Follow-up strategies for patients treated for non-metastatic colorectal cancer. *Cochrane Database Syst Rev* 2007;CD002200.
14. Di Fabio F, Koller M, Nascimbeni R, et al. Long-term outcome after colorectal cancer resection. Patients' self-reported quality of life, sexual dysfunction and surgeons' awareness of patients' needs. *Tumori* 2008;94:30–5.

15. Johnston MJ, Robertson GM, Frizelle FA. Management of late complications of pelvic radiation in the rectum and anus: a review. *Dis Colon Rectum* 2003;46:247–59.
16. Leiper K, Morris AI. Treatment of radiation proctitis. *Clin Oncol (R Coll Radiol)* 2007;19:724–9.
17. Hewett PJ, Allardyce RA, Bagshaw PF, et al. Short-term outcomes of the Australasian randomized clinical study comparing laparoscopic and conventional open surgical treatments for colon cancer: the ALCCaS trial. *Ann Surg* 2008;248:728–38.
18. Andre T, Boni C, Mounedji-Boudiaf L, et al. Oxaliplatin, fluorouracil, and leucovorin as adjuvant treatment for colon cancer. *N Engl J Med* 2004;350:2343–51.
19. Kushi LH, Byers T, Doyle C, et al. American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. *CA Cancer J Clin* 2006;56:254–81.
20. Earle CC. Failing to plan is planning to fail: improving the quality of care with survivorship care plans. *J Clin Oncol* 2006;24:5112–6.
21. Meyerhardt JA, Giovannucci EL, Holmes MD, et al. Physical activity and survival after colorectal cancer diagnosis. *J Clin Oncol* 2006;24:3527–34.
22. Lynch BM, Cerin E, Owen N, et al. Prospective relationships of physical activity with quality of life among colorectal cancer survivors. *J Clin Oncol* 2008;26:4480–7.
23. Hewitt ME, Bamundo A, Day R, et al. Perspectives on post-treatment cancer care: qualitative research with survivors, nurses, and physicians. *J Clin Oncol* 2007;25:2270–3.
24. Tsunoda A, Nakao K, Hiratsuka K, et al. Anxiety, depression and quality of life in colorectal cancer patients. *Int J Clin Oncol* 2005;10:411–7.
25. Lynch BM, Steginga SK, Hawkes AL, et al. Describing and predicting psychological distress after colorectal cancer. *Cancer* 2008;112:1363–70.
26. Jacobsen PB, Donovan KA, Trask PC, et al. Screening for psychologic distress in ambulatory cancer patients. *Cancer* 2005;103:1494–502.
27. Hodgkinson K, Butow P, Hunt GE, et al. The development and evaluation of a measure to assess cancer survivors' unmet supportive care needs: the CaSUN (Cancer Survivors' Unmet Needs measure). *Psychooncology* 2007;16:796–804.
28. National Breast Cancer Centre and National Cancer Control Initiative. Clinical practice guidelines for the psychosocial care of adults with cancer, 2003. Available at www.nhmrc.gov.au/publications/synopses/cp90syn.htm.
29. Snyder CF, Earle CC, Herbert RJ, et al. Preventive care for colorectal cancer survivors: a 5-year longitudinal study. *J Clin Oncol* 2008;26:1073–9.
30. Wattoo DA, Weller DP, Esterman A, et al. General practice vs surgical-based follow-up for patients with colon cancer: Randomised controlled trial. *Br J Cancer* 2006;94:1116–21.
31. Grunfeld E, Mant D, Yudkin P, et al. Routine follow up of breast cancer in primary care: randomised trial. *BMJ* 1996;313:665–9.
32. Grunfeld E, Levine MN, Julian JA, et al. Randomized trial of long-term follow-up for early-stage breast cancer: a comparison of family physician versus specialist care. *J Clin Oncol* 2006;24:848–55.
33. Pezaro C, Baravelli C, Lofti-Jam K, et al. Survivorship care plans for people with early bowel cancer – views of healthcare professionals (MOGA 2008 conference meeting abstract). *Asia-Pacific J Clin Oncol* 2008;4(s1):A13–23.
34. Jefford M, Baravelli C, Dudgeon P, et al. Tailored chemotherapy information faxed to general practitioners improves confidence in managing adverse effects and satisfaction with shared care: results from a randomized controlled trial. *J Clin Oncol* 2008;26:2272–7.