Abstract

Aims and objectives

To examine current guidelines and the evidence base to illustrate the importance of nutrition, diet and lifestyle advice to support people who have survived cancer and help them integrate back into normal life, improve their quality of life and potentially improve their chance of long-term survival.

Background

Cancer survivors need to know about nutrition and other lifestyle behaviour changes to help them recover and potentially reduce the risk of the same cancer recurring or a new cancer developing. From this perspective, frontline registered nurses are in a prime position to support cancer survivors who are in their care.

Design

Discursive paper.

Methods

On the basis of the international research evidence and a critical analysis of recent policy and practice literature, themes emerged, which illustrate the importance of nutrition, diet and lifestyle advice for cancer survivors. This paper discusses the need for more focused education and greater interprofessional working for quality care delivery.

Conclusion

New professional guidance for emerging frontline nurses indicates they should be able to provide appropriate and more consistent advice on nutritional issues, physical activity and weight management, although more research is needed to understand the right mode of nutrition training. Additionally, interprofessional working needs improving as well as encouraging cancer survivors to respond.

Relevance to clinical practice

High-quality nutrition education and training is required for nurses working across both the acute and primary care sectors. They require this to effectively monitor and advise patients and to know when, where and from whom they can access more specialist help. Interprofessional collaborative working across multi-centre settings (National Health Service and non-National Health Service) is key to provide the best effective care and support for cancer survivors.

Aims

There is an increasing body of evidence that lifestyle interventions including a healthy diet, weight management and increased physical activity can influence the rate of cancer progression and improve overall survival (Davies et al. 2011, Pekmezi & Demark-Wahnefried 2011). When appropriate, it is important that after completing treatment, cancer survivors know how they can alter eating patterns and lifestyle behaviour and be able to follow current diet and lifestyle recommendations to help them recover, improve their quality of life and potentially reduce the risk of the same cancer recurring or a new cancer developing. However, there exist different needs and challenges with respect to educating both the public and health professionals to understand the current and evidence base of nutritional benefits and their impact on sustaining recovery. Following the ongoing plans to restructure and modernise the Health Service in the UK (Department of Health 2010a), the healthcare workforce is challenged with the need to work differently and develop new models of care to empower people, so they can manage their own care at home. Improving nutrition, diet and lifestyle represent key public health targets, and patients often turn to frontline registered nurses for help and advice. As such, there is a need to explore the extent to which these growing demands are able to be met, identify any gaps and make recommendations for practice.

The aim of this paper is to examine current guidelines and the evidence base for the provision of nutrition, diet and lifestyle advice to support people surviving cancer and help them integrate back into normal life, improve their quality of life and potentially improve their chance of long-term survival. It will explore the attitudes of cancer survivors towards dietary change and the implications for frontline staff. It addresses the importance of interprofessional working and the need for sound knowledge and education for those offering dietary advice to surviving patients with cancer to respond appropriately to the current state of knowledge.

Background

It is estimated that there are around 2 million people living with or surviving cancer in the UK (Maddams et al. 2009). Cancer incidence is increasing, and with improvements in healthcare and reduction in mortality rates, the prevalence of cancer survivors will continue to rise at a rate of over 3% per year (Department of Health 2010b). For example, Cancer Research UK (2010) has reported that people diagnosed with breast, bowel, ovarian cancers as well as non-Hodgkin lymphoma are twice as likely to survive for at least 10 years as those diagnosed in the early 1970s. For instance, the percentage of women likely to survive breast cancer for at least 10 years has increased from <40–77%, whilst those who are likely to

survive bowel cancer has increased from 23–50%. People surviving cancer are also at greater risk of developing secondary conditions notably cardiovascular disease and type 2 diabetes (Yabroff et al. 2004, Eakin et al. 2006, 2007).

Whilst people with cancer are surviving for longer, there are long-term consequences for many survivors that involve them dealing with both physical side effects and psychological issues. Indeed the creation of a National Cancer Survivorship Initiative (NCSI; http://www.ncsi.org.uk) [Department of Health (DH) 2010b] aims to ensure that support services are developed to manage the long-term sequelae of cancer, both physically and psychologically, and to consider the wide implication for survivors and their families. The NCSI vision document identifies the steps needed to ensure that cancer survivors receive support and services to meet their needs (DH 2010b). Most significantly, it is likely that this vision will be one of the most effective catalysts for moving frontline healthcare professionals, particularly cancer nurse specialists (CNSs) from a disease treatment model to a model of prevention. This greater focus on well-being and prevention after cancer treatment is one of the document's key aspects including advice on nutrition, diet and lifestyle changes as part of personalised care planning.

The focus of care is moving from acute care and treatment of patients to improving the survivorship experience and integrating patients with cancer back into normal community life. The shift focuses upon a supported self-management approach at the point of diagnosis and establishing an important relationship between healthcare professionals and particularly specialist nurses working within acute and community services. However, with the publication of the Care Quality Commission report (CQC 2011) identifying the difficulty of almost half the audited hospitals in England in meeting patients' nutritional needs, this raises the question as to whether cancer survivors in the community have access to sufficient knowledge and expertise to support them. Whilst frontline registered nurses are in a prime position to provide diet and lifestyle advice, it is important that they know when and where to access more specialist help and from whom.

Design

This position paper explores the importance of nutrition and lifestyle advice to those surviving cancer and recognises the value of education and interprofessional working to support frontline nursing staff in this endeavour.

Methods

Research, professional literature and policy documents have been sourced using the comprehensive electronic discovery service provided by EBSCO, including key databases such as MEDLINE, Science Direct, CINAHL and Web of Knowledge. Additionally, government policy documents and quality standards as well as regulatory body standards have been sourced. We used key words from the EBSCO discovery service: nutrition, cancer, nursing practice, education, practice development to support the search. On the basis of these findings, themes emerged related to the current state of knowledge of, and attitudes to, nutrition, diet and lifestyle impacting on cancer survivorship and the importance of education and interprofessional working to maximise the chances of long-term survival.

Following a definition of terms, this paper will examine the policy directives and current evidence to support nutrition, dietary and lifestyle recommendations for cancer survivors and explores the need for more focused education and greater interprofessional working for quality care delivery.

Definition of terms

Whilst there may be some degree of overlap, the distinction in the roles of the registered dietician and registered nutritionist should be understood to ensure appropriate help and support (see Table 1). The registered nutritionist (on the UK Voluntary Register of Nutritionists – see http://www.associationfornutrition.org/) provides evidence-based information and guidance about the impacts of food and nutrition on the health and well-being of humans (at an individual or population level). They do not provide specific clinical dietary advice to individual patients – this is the role of the dietician. A dietician uses the science of nutrition to devise eating plans for patients to treat medical conditions. They also work to promote good health by helping to facilitate a positive change in food choices amongst individuals, groups and communities under statutory regulation with the Health Professions Council; see http://www.hpc-uk.org/). Whilst there is general agreement regarding specific areas of practice and approaches, there are some variations in different countries regarding the specific roles of dietician and nutritionists (Gericke et al. 2008). Dieticians working in community settings have a wide remit and are qualified to undertake the roles defined in the right hand column of Table 1 as well as the left-hand column.

Table 1. The main differences between registered dieticians and registered nutritionists

Registered dieticians	Registered nutritionists
The Employment of Nutritionists in NHS Nutrition and Dietetic Departments – a professional guidance document from the British Dietetic Association and Nutrition Society 2002.	
Both therapeutic and preventative role	Mainly preventative role
Work with ‘ill’ people and ‘healthy’ people	Work with ‘healthy’ people
Mainly work on a one to one basis	Mainly work with groups

It is also important to recognise the fundamental differences between the work and the registration requirements of registered nutritionists and nutritional therapists to avoid misunderstanding. The registered nutritionist (on the UK Voluntary Register of Nutritionists) is committed to the promotion of strong evidence-based nutrition, and registrants must meet science based competencies in nutrition and agree to abide by rigorous code of ethics. This is in contrast to the many areas of work of the nutrition therapist (http://www.bant.org.uk/) who does not have UK Voluntary Register of Nutritionists- or HPC-recognised qualifications (http://www.bda.uk.com/publications/dietitian-nutritionist2010.pdf). The term, 'frontline nurses' refers to those registered nurses working on the front line of care for people surviving cancer, both in the community as well in the acute sector.

Current evidence of food, nutrition and lifestyle recommendations for cancer survivors

The policy agenda

The 2007 report from the World Cancer Research Fund (WCRF/AICR) published an extensive systematic review of literature identifying the connection between food, nutrition, physical activity and cancer prevention (WCRF/AICR 2007). The recommendations from the expert panel are shown in Table 2. They concluded that there is emerging evidence that some aspects of food, nutrition or physical activity (all of which control body weight) may help prevent recurrence (of breast cancer) (Bekkering et al. 2006). However, the evidence was not sufficiently developed to enable the panel to make judgements that apply specifically to cancer survivors. As such cancer survivors (not those undergoing active treatment) should be encouraged to follow the current guidelines for diet, healthy weight and physical activity for cancer prevention unless otherwise advised (Table 2). Cancer survivors (before, during and after active treatment) should receive nutritional care from an appropriately trained professional.

Table 2. Current guidelines for the prevention of cancer

Adapted from World Cancer Research Fund/American Institute for Cancer Research (2007).

1. Body fatness

Be as lean as possible within the normal range of body weight

2. Physical activity

Be physically active as part of everyday life

3. Foods and drinks that promote weight gain

Limit consumption of energy-dense foods. Avoid sugary drinks

4. Plant foods

Eat mostly foods of plant origin

5. Animal foods

Limit intake of red meat and avoid processed meat

6. Alcoholic drinks

Limit alcoholic drinks

7. Preservation, processing, preparation

Limit consumption of salt. Avoid mouldy cereals (grains) or pulses (legumes)

8. Dietary supplements

Aim to meet nutritional needs through diet alone

9. Breastfeeding

Mothers to breastfeed; children to be breastfed

10. Cancer survivors

Follow the recommendations for cancer prevention

More recently, the review of the literature 'Advising Cancer Survivors about Lifestyle' by Davies et al. (2010) for the NCSI updated the WCRF report 'A Systematic Review of RCTs Investigating the Effect of Nutritional and Physical Activity Interventions on Cancer Survival' (Bekkering et al. 2006) and included observational studies that were excluded from the WCRF review. This review aimed to provide evidence that could support health professionals, and particularly frontline nurses, in guiding and advising cancer survivors about lifestyle. Despite gaps in the evidence, some key dietary recommendations were provided that included a reduction in saturated fats, increased fish intake, consume a varied diet to ensure adequate intake of vitamins and minerals, increase green and cruciferous vegetables as well as brightly coloured fruits and vegetables that contain carotenoids (precursors of vitamin A).

Key research evidence

The following section highlights some of the key studies to date (for more details, see the recent reviews of Davies et al. 2011 and Pekmezi & Demark-Wahnefried 2011).

The high level of obesity is a concern having reached epidemic proportions across the world and, together with being overweight, is a risk factor for a number of serious chronic diseases and long-term conditions including cancer (Allender & Rayner 2007, WHO 2010). The body of evidence from observational studies do increasingly indicate that obesity is a modifiable risk factor for both breast and colorectal cancers progression and survival (Calle et al. 2003, Batty et al. 2005, Dignam et al. 2006, Doria-Rose et al. 2006, Cleveland et al. 2007, Nichols et al. 2009, Sinicrope et al. 2010, Ewertz et al. 2011). From the evidence to date, it would appear that both weight reduction and physical activity rather than weight loss alone may well achieve this objective and should also have a positive effect on comorbid conditions such as diabetes and cardiovascular disease (Davies et al. 2011).

There have been a number of studies that have evaluated the influence of individual food and nutritional components on cancer recurrence and/or survival notably in women with diagnosed breast cancer. There have been mixed findings from two early large-scale studies that have examined the relationship between high fat or vegetable intake to breast cancer outcomes (Pierce et al. 2007). The randomised, prospective trial, the Women's Intervention Nutrition Study (WINS), examined the effect of a dietary intervention to reduce fat intake in women with early stage breast cancer and showed a reduced risk of recurrence after a five-year follow-up in the intervention group (Chlebowski et al. 2006). However, a randomised controlled trial of dietary change, the Women's Healthy Eating and Living (WHEL) study, found no evidence that a dietary pattern very high in vegetables, fruit and fibre and low in fat reduces additional breast cancer events or mortality during a 7·3-year follow-up period (Pierce et al. 2007). Small increases in weight gain were shown in the WHEL study but not in the WINS study, which may account for some of the difference between the two studies. Further secondary analysis studies have established the role of fat reduction and significant changes in diet as important determinants for breast cancer prognosis (Davies et al. 2011), especially for postmenopausal breast cancer survivors (Gold et al. 2009). Interestingly, longitudinal exposure to carotenoids was associated with breast cancer–free survival irrespective of study group (Rock et al. 2009). Also, the findings by Patterson et al. (2010) of the WINS and WHEL trials and secondary analysis studies show that dietary intervention without weight loss or physical activity is not sufficient to improve breast cancer prognosis.

Another study has shown that a high intake of a ‘Western’ dietary pattern (high intake of meat, fat, refined cereals, sweets and sugars) may be associated with higher risk of recurrence and mortality amongst patients with stage III colon cancer, although components of the dietary intake were not examined (Meyerhardt et al. 2007). The findings of the Reach-out to Enhance Wellness (RENEW) study, a randomised controlled trial of 641 overweight or obese survivors, showed that a 12-month home-based tailored programme of telephone counselling plus mailed materials (diet and exercise) intervention reduced the rate of self-reported functional decline in older survivors of breast, colorectal and prostate cancers (Morey et al. 2009).

Attitudes of cancer survivors towards dietary change

Whilst some studies suggest poor adherence to some aspects of lifestyle change in cancer survivors (Blanchard et al. 2008, Satia et al. 2009), there have been other findings showing that cancer survivors become strongly motivated to modify their diet (and exercise) behaviours in the hope that nutrition would increase well-being, maintain health and prevent recurrence (Maskarinec et al. 2001, van Weert et al. 2005, Demark-Wahnefried & Jones 2008). As such a cancer diagnosis may signal a ‘teachable’ moment for undertaking health behaviour change (Demark-Wahnefried et al. 2000) although the optimal method and timing for interventions are unclear (Rabin 2008). Despite this, the lifestyle advice and tailored care currently provided for specific groups of people in the general population, such as exercise

prescriptions (DH 2001), are not yet integrated into the supportive care needs of cancer survivors (Addington-Hall et al. 2010).

What is also evident is that cancer survivors are more likely to explore complementary and alternative medicine including nutritional therapies in the hope that they will enhance the effects of treatment, protect against treatment-related side effects or improve quality of life despite the absence of scientific evidence from controlled clinical trials to support their claims (Jones & Demark-Wahnefried 2006, Van Tonder et al. 2009). Studies have also shown widespread use of vitamin and mineral supplements in between 64–81% of cancer survivors (Rock et al. 2004, Rock 2007, Velicer & Ulrich 2008, Ng et al. 2010). However, the use of vitamin and mineral supplements is not likely to improve prognosis or overall survival after the diagnosis of cancer and could in fact increase mortality (Bekkering et al. 2006). For example, multivitamin use during and after adjuvant chemotherapy was not associated with improved outcomes in patients with stage III colon cancer (Ng et al. 2010). A randomised trial of patients with head and neck cancer receiving radiotherapy showed that supplement use was associated with higher cause-specific and all-cause mortality (Bairati et al. 2006). There is some information on the role that certain micronutrients may play in cancer, notably of interest is folate due to its role in DNA synthesis. Whilst folate status is inversely associated with the initiation of cancer (Kim 2007), folate may enhance cancer proliferation particularly at pharmacological intakes (Kim 2008). The WCRF/AICR advise cancers survivors to meet their nutrient needs through food but recognise there may be situations of illness or dietary inadequacy when supplements may be advised.

Knowledge of nutrition, diet and lifestyle changes in frontline care

Given the motivation and positive attitude of cancer survivors towards changing diet and other lifestyle behaviours, it is therefore vital that frontline nursing staff are in the best position to confidently provide accurate information on nutritional issues, physical activity and weight management. Indeed, many CNS were appointed as a recognised core to the multiprofessional team following the report of the UK NHS Cancer Plan (DH 2000), and more recently, specific outcome measures have been identified for the CNS within the multidisciplinary team (NHS 2008). However, a study by Willard and Luker (2007) of CNS within a hospital environment confirmed the importance of interprofessional working but recognised the difficulties that CNSs have in gaining acceptance of their role and the need to establish role boundaries due to ambiguity about their function within the team. With the publication of New Measures for the Manual of Cancer Services in the UK (NHS 2008), the specialist nature of the CNS has been more clearly defined, and although the minimum academic level of education preparation for the role has been clearly set out, the main focus has been on the need for effective communication skills, with specialist nutritional knowledge offered through a dietician as a core member of the MDT in specific cancers. The lack of consistent role implementation and development means that they face continual challenges to achieve their potential.

Over the last 15 years, there have been a number of UK surveys of both nurses and other healthcare professionals working across both primary and secondary care showing inadequacies in both their nutrition education and knowledge (Hopper & Barker 1995, Barrett 2001, Hankey et al. 2004, Savage & Scott 2005, Mowe et al. 2008, Kennelly et al. 2010). Notably serious knowledge gaps about aspects of diet and activity in cancer care and for secondary prevention have been shown (Hodge 2008, Anderson et al. 2010). A study has shown that there may be a reluctance (usually related to knowledge and confidence) from health professionals (including doctors and nurses) to discuss lifestyle factors with cancer patients due to limitations in knowledge and an inadequacy in the available evidence on the underlying mechanisms of benefit for individual lifestyle factors (Miles et al. 2010). Our own research conducted in preregistered and registered nurses demonstrated that the general awareness of the importance of diet and lifestyle issues specifically in relation to cancer survivorship is limited (Rodman & Murphy 2011). Furthermore conflicting messages about diet and exercise provided by healthcare professionals can inhibit successful behaviour after a cancer diagnosis (Anderson et al. 2010).

The provision of nutrition education for nurses

At the preregistration level, poor levels of nutrition knowledge in nurses are perhaps not surprising as nutrition education has not been an important component of the preparation of healthcare professionals for the past 50 years (Richards 2009). Specific learning outcomes of basic nutritional concepts and applications for healthcare professionals were identified almost 20 years ago as part of the Nutrition Core Curriculum document, by the Nutrition Task Force (Department of Health 1994), yet little progress in frontline care has been made. The intention of this document was not to create experts in nutrition but rather to equip practitioners with a minimum level of knowledge and understanding of nutrition. Given concerns over the increasing prevalence of malnutrition across all care settings (Elia & Smith 2009), the need to address current levels of nutrition knowledge of nurses still remains as an important part of care (Royal College of Nursing 2008).

Recently, the Nursing and Midwifery Council (Nursing & Midwifery Council 2007) identified in detail the need for preregistration nurses to achieve a number of Essential Skills Clusters, and this has been reinforced by the new NMC Standards for Pre-Registration Nursing for the all-graduate intake nationally, from 2013 (Nursing & Midwifery Council 2010). Additionally, the new standards (Nursing & Midwifery Council 2010) require the achievement of the Essential Skills Clusters at two progression points within their education programme and again at point of registration to the profession. The extent of their importance within the curriculum both theoretical and in practice is dependent on the interpretation by each approved education institution, and to some extent, the knowledge and skills of mentors in the placement setting. Even the introduction of the Holistic Common Assessment (Cancer Action Team 2007), which encourages a partnership approach to assessment and promotes a number of assessment tools, relies on the knowledge and interest of the nurse to explore nutrition in greater depth.

Of the five essential skills clusters, one is focused specifically on ‘nutrition and fluid management’ (Nursing & Midwifery Council 2010, p. 103). Within this skills cluster, there are five discreet sections, each one requiring the development of competency outcomes. These five sections require outcomes that are comprehensive and wide reaching (see Table 3).

Table 3. NMC requirements for the essential skills cluster of ‘nutrition and fluid management’ (Nursing & Midwifery Council 2010, p. 129–133)

People can trust the newly registered graduate nurse to assist them to choose a diet that provides an adequate nutritional and fluid intake

People can trust the newly registered graduate nurse to assess and monitor their nutritional status and in partnership formulate an effective plan of care

People can trust the newly registered graduate nurse to assess and monitor their fluid status and in partnership with them formulate an effective plan of care

People can trust the newly qualified graduate nurse to assist them in creating an environment that is conducive to eating and drinking

People can trust the newly qualified graduate nurse to ensure that those unable to take food by mouth receive adequate fluid and nutrition to meet their needs

People can trust the newly registered graduate nurse to safely administer fluids when fluids cannot be taken independently

These essential skills may be assessed in practice and reinforced in the theoretical aspect of the programme. However, no matter how comprehensive the education programme may seem, it is important to acknowledge that the competency achievement, both in theory and practice, is dependent on the knowledge and skills of those assessing. If assessment of the essential skill clusters is limited to their assessment on placement, then students will be assessed by practitioners who themselves are not well versed in matters nutritional (Richards 2009). In spite of all preregistration nursing requiring the achievement of competence in the area of nutrition and fluid management, the Royal College of Nursing (RCN) has been so concerned about the level of nutrition and hydration care offered in practice that they introduced a campaign in 2007/2008 to raise standards of nutrition and hydration in hospitals and in the community to make nutrition a priority. The intention was to develop ‘team effectiveness and enhance nutritional care in a designated area’ (Royal College of Nursing 2008, p. 3). The report reinforced the need for interprofessional working, identifying the importance of patient involvement, organisational support, the need for clear goal setting and regular review, as well as the need for:

The opportunity for mixed groups of healthcare professionals to come together and work together with the objective of implementing sustainable change differently is essential in enhancing effectiveness and improving nutritional care. (Royal College of Nursing 2008, p. 22)

Need for teamworking and interprofessional practice

More recently, in spite of key recommendations arising from this extensive campaign (Royal College of Nursing 2008), catastrophic concerns have been raised about patient nutrition and hydration in some NHS hospitals from the Care Quality Commission (2011), the health and social care regulator for England (http://www.cqc.org.uk/) to the extent that some doctors have felt obliged to prescribe water to ensure patient hydration. Additionally, a number of papers document the problems of advising the public on healthy eating with a number of government initiatives failing to make an impact on healthy eating patterns (Brown & Psarou 2008, Richards 2009, Robinson 2010) with many more referring to the high levels of hospital malnutrition in many developed countries (Jefferies et al. 2011, Ullrich et al. 2011). A number of barriers to effective nutrient intake have been identified as inconsistent and contradictory advice both by health professionals but also government websites (Robinson 2010).

Given concerns over the increasing prevalence of malnutrition across all care settings (Brown & Psarou 2008, Elia & Smith 2009, Jefferies et al. 2011, Ullrich et al. 2011), the need to address current levels of nutrition knowledge of nurses still remains as an important part of care (Royal College of Nursing 2008). Involvement of the multidisciplinary team to assist nursing students at preregistration and specialist level, to understand the evidence base underpinning a healthy balanced diet, along with the principles of effective timely nutritional assessment and creating more time to reconnect with nutritional care will help support institutional change (Brown & Psarou 2008, Epstein et al. 2010, Jefferies et al. 2011, Ullrich et al. 2011). Whilst the importance of the multiprofessional team, working together is crucial to prevent malnutrition in hospital, the culture, especially in Australia, has been for dieticians to be responsible for the development of the nutritional care plan and nurses to simply implement the plan (Jefferies et al. 2011). The danger of frontline nurses abdicating the responsibility for nutritional advice solely to the dieticians is likely to deskill them and potentially delays any progress that they may be able to encourage with greater knowledge and active involvement. Regrettably, within the UK and in the acute care setting, the role of the nurse has focused more on ensuring patients are fed and are hydrated, with less importance given to their understanding of what they are feeding them with.

Need to access specialist knowledge

As weight gain and a sedentary lifestyle are common after a cancer diagnosis, there is a clear need to target the achievement and maintenance of a healthy weight in cancer survivors, and one of the most efficacious ways to achieve this is through dietary changes and the uptake of an active lifestyle. However, for the general public and cancer survivors, advice regarding nutrition benefits has been inconsistent and at times contradictory (Anderson et al. 2010), with the NCSI vision (DH 2010b) confirming that at least 15% cancer survivors wished to have more information about diet and exercise. Where advice is sought from healthcare professionals, they rely more on those frontline workers in primary care, and therefore, it seems appropriate that the community practitioner working with the community

nutritionist is where the education investment should be made. Moreover attention should also be directed towards collaborative working with non-NHS settings such as lifestyle intervention programmes (diet, exercise and weight management) to support people surviving cancer (Stull et al. 2007). Whilst there are gaps in the evidence base to support such interventions, a recent feasibility study of a personalised lifestyle intervention programme for colorectal cancer survivors has demonstrated the need for greater support from healthcare professionals across multi-centre settings (Anderson et al. 2010). Therefore, tailored interventions using evidence-based information emphasising the importance of nutrition, exercise and lifestyle change should be formally introduced into routine clinical practice early in the treatment pathway and reinforced at regular intervals thereafter.

Conclusion

This paper highlights the importance of providing nutrition and other lifestyle interventions for people living with or recovering from cancer. Whilst much more scientific research is needed to provide specific nutrition recommendations for cancer survivors to reduce inconsistent messages, there is growing evidence to show the benefits of following healthy lifestyles. There is a need to provide high-quality nutrition education and training for frontline nursing staff and to improve interprofessional working to ensure an integrated workforce is working to enhance patient well-being and quality of life. With a greater focus on the public health agenda, healthcare professionals are required to embrace health promotion and illness prevention as identified in the NCSI vision (DH 2010b) as an intricate part of their role. In particular, staff working across both the acute and primary care sectors require training to ensure consistency in the nature and quality of nutritional and lifestyle advice and to know when and where to refer for specialist support for cancer survivors. More research should determine the right mode of nutrition, diet and lifestyle training. The challenge then remains of how to encourage cancer survivors to respond to appropriate evidence-based advice from nursing and other healthcare professionals rather than resorting to complementary and alternative therapies.

Interprofessional collaborative working across multi-centre settings (NHS and non-NHS) is key to provide effective care and support for cancer survivors. Central to this team should be a registered nutritionist or dietician with robust referral systems in place to ensure specialist nutritional advice when required.

Relevance to clinical practice

Given the recognition that patients with cancer needs are complex, the importance of identifying a baseline knowledge and skills set in the interpretation of the NMC Essential Skills Cluster competencies at the prequalifying level seems essential. Education is key for registered nurses to understand the evidence base underpinning a healthy diet and lifestyle

changes, to monitor and advise patients to enhance their well-being and quality of life. Registered nutritionists could be more actively involved in helping higher education institutes and NHS trusts to develop and establish this base-line.

Additionally, whilst the role of the specialist cancer nurse within the multidisciplinary team has been more clearly articulated (NHS 2008), commitment by the team to embrace the recommendations is necessary to make role clarity a reality and empower the specialist nurse to monitor and advise patients with cancer to sustain their recovery. Within the community setting, interprofessional working is essential for quality care delivery. Both registered dieticians and nutritionist hold the skills set necessary to influence patient nutrition, and through collaborative working, they offer a key role within the wider team to influence patient lifestyle and promote their chance of long-term survival.

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Contribution

Study design: JM, EG; data collection and analysis JM, EG and manuscript preparation: JM, EG.

Conflict of interest

No conflict of interest has been declared by the authors.

References

Addington-Hall J, Foster C, Fenlon D, Payne S, Seymour J, Stephens R, Walsh B, Coleman P, Simmonds P, Moffatt J, Brooks C & Frankland J (2010) Older Women's Experience of Breast Cancer Alongside other Health Conditions: The EPaN Study (Experiences, Preferences and Needs of Women Aged 70 Years and Over). University of Southampton, Southampton.

Allender S & Rayner M (2007) The burden of overweight and obesity-related ill health in the UK. Obesity Reviews 8, 467–473.

Direct Link:

AbstractFull Article (HTML)PDF(83K)References

Anderson AS, Caswell Wells M, Steele RJC & MacAskill S (2010) It makes you feel so full of life: LiveWell, a feasibility study of a personalised lifestyle programme for colorectal cancer survivors. Supportive Care in Cancer 18, 409–415.

CrossRef

Bairati I, Meyer F, Jobin E, Gélinas M, Fortin A, Nabid A, Brochet F & Têtu B (2006) Antioxidant vitamins supplementation and mortality: a randomized trial in head and neck cancer patients. International Journal of Cancer 119, 2221–2224.

Direct Link:

AbstractFull Article (HTML)PDF(146K)References

Barrett J (2001) Diet-related knowledge, beliefs and actions of health professionals compared with the general population: an investigation in a community Trust. Journal of Human Nutrition & Dietetics 14, 25–32.

Direct Link:

Batty GD, Shipley MJ, Jarrett RJ, Breeze E, Marmot MG & Smith GD (2005) Obesity and overweight in relation to organ-specific cancer mortality in London (UK): findings from the original Whitehall study. International Journal of Obesity 29, 1267–1274.

CrossRef,PubMed,CAS

Bekkering T, Beynon R, Davey Smith G, Davies A, Harbord R, Sterne J, Thomas S & Wood L (2006) A Systematic Review of RCTs Investigating the Effect of Dietal and Physical Activity Interventions on Cancer Survival, updated report. World Cancer Research Fund. Available at: http://www.dietandcancerreport.org/ (accessed 10 September 2011).

Blanchard CM, Courneya KS & Stein K (2008) Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: results from the American Cancer Society's SCS-II. Journal of Clinical Oncology 26, 2198–2204.

CrossRef,PubMed

Brown I & Psarou A (2008) Literature review of nursing practice in managing obesity in primary care: developments in the UK. Journal of Clinical Nursing 17, 17–28.

PubMed

Calle EE, Rodriguez C, Walker-Thurmond K & Thun MJ (2003) Overweight, obesity, and mortality from cancer in a prospectively studied cohort of U.S. adults. New England Journal of Medicine 348, 1625–1638.

CrossRef,PubMed

Cancer Action Team (2007) Holistic Common Assessment of Supportive and Palliative Care Needs for Adults with Cancer: Assessment Guidance. Cancer Action Team, London. Available at: http://ncat.nhs.uk/sites/default/files/Guidance%20holistic%20common%20assessment.pdf (accessed 2 September 2011).

Cancer Research UK (2010) Long-Term Survival from Once-Deadly Cancer Doubles. Available at: http://info.cancerresearchuk.org/news/archive/pressrelease/2010-07-12-deadly-cancer-survival-doubles (accessed 10 September 2011).

Care Quality Commission (2011) Dignity and Nutrition Inspection Report: National Overview. Care Quality Commission, Newcastle.

Chlebowski RT, Blackburn GL, Thomson CA, Nixon DW, Shapiro A, Hoy MK, Goodman MT, Giuliano AE, Karanja N, McAndrew P, Hudis C, Butler J, Merkel D, Kristal A, Caan B, Michaelson R, Vinciguerra V, Del Prete S, Winkler M, Hall R, Simon M, Winters BL & Elashoff RM (2006) Dietary fat reduction and breast cancer outcome: interim efficacy results from the Women's Intervention Nutrition Study. Journal of the National Cancer Institute 98, 1767–1776.

CrossRef,PubMed

Cleveland RJ, Eng SM, Abrahamson PE, Britton JA, Teitelbaum SL, Neugut AI & Gammon MD (2007) Weight gain prior to diagnosis and survival from breast cancer. Cancer Epidemiology Biomarkers & Prevention 16, 1803–1811.

CrossRef,PubMed

Davies N, Thomas R & Batehup L (2010) Advising Cancer Survivors About Lifestyle: A Selective Review of the Evidence. Macmillan Cancer Support. Available at: http://www.ncsi.org.uk/wp-content/uploads/Lifestyle-Review.pdf (accessed 2 September 2011).

Davies NJ, Batehup L & Thomas R (2011) The role of diet and physical activity in breast, colorectal, and prostate cancer survivorship: a review of the literature. British Journal of Cancer 105, S52–S73.

CrossRef

Demark-Wahnefried W & Jones LW (2008) Promoting a healthy lifestyle among cancer survivors. Hematology-Oncology Clinics of North America 22, 319–342.

CrossRef,PubMed

Demark-Wahnefried W, Peterson B, McBride C, Lipkus I & Clipp E (2000) Current health behaviors and readiness to pursue life-style changes among men and women diagnosed with early stage prostate and breast carcinomas. Cancer 88, 674–684.

Direct Link:

AbstractFull Article (HTML)PDF(104K)References

Department of Health (1994) Core Curriculum for Nutrition in the Education of Health Professionals. Department of Health, London.

Department of Health (2000) The NHS Cancer Plan. Department of Health, London.

Department of Health (2001) Exercise Referral Systems: A National Quality Assurance Framework. Department of Health Report, London.

Department of Health (2010a) Equity and Excellence: Liberating the NHS. Available at: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_117794.pdf (accessed 2 September 2011).

Department of Health (2010b) National Cancer Survivorship Initiative: Vision. Department of Health, London.

Dignam JJ, Polite BN, Yothers G, Raich P, Colangelo L, O'Connell MJ & Wolmark N (2006) Body mass index and outcomes in patients who receive adjuvant chemotherapy for colon cancer. Journal of the National Cancer Institute 98, 1647–1654.

CrossRef,PubMed

Doria-Rose VP, Newcomb PA, Morimoto LM, Hampton JM & Trentham-Dietz A (2006) Body mass index and the risk of death following the diagnosis of colorectal cancer in postmenopausal women (United States). Cancer Causes and Control 17, 63–70.

CrossRef,PubMed

Eakin EG, Youlden DR, Baade PD, Lawler SP, Reeves MM, Heyworth JS & Fritschi L (2006) Health status of long-term cancer survivors: results from an Australian population-based sample. Cancer Epidemiology Biomarkers & Prevention 15, 1969–1976.

CrossRef,PubMed

Eakin EG, Youlden DR, Baade PD, Lawler SP, Reeves MM, Heyworth JS & Fritschi L (2007) Health behaviors of cancer survivors: data from an Australian population-based survey. Cancer Causes and Control 18, 881–894.

CrossRef,PubMed

Elia M & Smith RM (2009) Improving Nutritional Care and Treatment Perspectives and Recommendations from Populations Groups, Patients and Carers. British Association for Parenteral and Enteral Nutrition, Maidenhead. Available at: http://www.bapen.org.uk/pdfs/improv_nut_care_report.pdf (accessed 20 October 2011).

Epstein S, Geniteau E, Christin P, Hermouet P, Mok E, Fournier J & Hankard R (2010) Role of a clinical nurse specialist within a paediatric multidisciplinary weight-management programme team. Journal of Clinical Nursing 19, 2649–2651.

Direct Link:

AbstractFull Article (HTML)PDF(71K)References

Ewertz M, Jensen MB, Gunnarsdóttir KÁ, Højris I, Jakobsen EH, Nielsen D, Stenbygaard LE, Tange UB & Cold S (2011) Effect of obesity on prognosis after early-stage breast cancer. Journal of Clinical Oncology 29, 25–31.

CrossRef

Gericke G, Wentzel-Viljoen E, Maunder EMW & Mbhenyane X (2008) Nutrition professionals in South Africa. In Community Nutrition Textbook for South Africa: A Rights-Based Approach (Steyn NP & Temple N eds). MRC, Cape Town, pp. 57–100.

Gold EB, Pierce JP, Natarajan L, Stefanick ML, Laughlin GA, Caan BJ, Flatt SW, Emond JA, Saquib N, Madlensky L, Kealey S, Wasserman L, Thomson CA, Rock CL, Parker BA, Karanja N, Jones V, Hajek RA, Pu M & Mortimer JE (2009) Dietary pattern influences breast cancer prognosis in women without hot flashes: the Women's Healthy Eating and Living Trial. Journal of Clinical Oncology 27, 352–359.

CrossRef,PubMed,CAS

Hankey CR, Eley S, Leslie WS, Hunter CM & Lean MEJ (2004) Eating habits, beliefs, attitudes and knowledge among health professionals regarding the links between obesity, nutrition and health. Public Health Nutrition 7, 337–343.

CrossRef,PubMed,CAS

Hodge A (2008) An exploratory case study of cancer nurses' understanding and use of nutritional screening in patients diagnosed with cancer. Journal of Human Nutrition and Dietetics 21, 373–406.

Direct Link:

AbstractPDF(51K)

Hopper D & Barker ME (1995) Dietary advice, nutritional knowledge and attitudes towards nutrition in primary health-care. Journal of Human Nutrition and Dietetics 8, 279–286.

Direct Link:

AbstractPDF(743K)References

Jefferies D, Johnson M & Ravens J (2011) Nurturing and nourishing: the nurses' role in nutritional care. Journal of Clinical Nursing 20, 317–330.

Direct Link:

AbstractFull Article (HTML)PDF(217K)References

Jones LW & Demark-Wahnefried W (2006) Diet, exercise, and complementary therapies after primary treatment for cancer. Lancet Oncology 7, 1017–1026.

CrossRef,PubMed

Kennelly S, Kennedy NP, Rughoobur GF, Slattery CG & Sugrue S (2010) An evaluation of a community dietetics intervention on the management of malnutrition for healthcare professionals. Journal of Human Nutrition & Dietetics 23, 567–574.

Direct Link:

AbstractFull Article (HTML)PDF(209K)References

Kim YI (2007) Folate and colorectal cancer: an evidence-based critical review. Molecular Nutrition & Food Research 51, 267–292.

Direct Link:

AbstractPDF(945K)References

Kim YI (2008) Folic acid supplementation and cancer risk: point. Cancer Epidemiology Biomarkers & Prevention 17, 2220–2225.

CrossRef,PubMed

Maddams J, Brewster D, Gavin A, Steward J, Elliott J, Utley M & Moller H (2009) Cancer prevalence in the United Kingdom: estimates for 2008. British Journal of Cancer 101, 541–547.

CrossRef,PubMed,CAS

Maskarinec G, Murphy S, Shumay DM & Kakai H (2001) Dietary changes among cancer survivors. European Journal of Cancer Care 10, 12–20.

Direct Link:

AbstractFull Article (HTML)PDF(85K)References

Meyerhardt JA, Niedzwiecki D, Hollis D, Saltz LB, Hu FB, Mayer RJ, Nelson H, Whittom R, Hantel A, Thomas J & Fuchs CS (2007) Association of dietary patterns with cancer recurrence and survival in patients with stage III colon cancer. Journal of the American Medical Association 298, 754–764.

CrossRef,PubMed,CAS

Miles A, Simon A & Wardle J (2010) Answering patient questions about the role lifestyle factors play in cancer onset and recurrences. Journal of Health Psychology 15, 291–298.

CrossRef

Morey MC, Snyder DC, Sloane R, Cohen HJ, Peterson B, Hartman TJ, Miller P, Mitchell DC & Demark-Wahnefried W (2009) Effects of home-based diet and exercise on functional outcomes among older, overweight long-term cancer survivors renew: a randomized controlled trial. Journal of the American Medical Association 301, 1883–1891.

CrossRef,PubMed,CAS

Mowe M, Bosaeus I, Rasmussen HH, Kondrup J, Unosson M, Rothenberg E & Irtun O; Scandinavian Nutrition Group (2008) Insufficient nutritional knowledge among health care workers? Clinical Nutrition 27, 196–202.

CrossRef,PubMed

National Health Service (NHS) (2008) New Measures for the Manual of Cancer Services 2008. Available at: http://www.dh.gov.uk/en/Healthcare/Cancer/Treatment/DH_101998 (accessed 18 November 2011).

Ng K, Meyerhardt JA, Chan JA, Niedzwiecki D, Hollis DR, Saltz LB, Mayer RJ, Benson AB, Schaefer PL, Whittom R, Hantel A, Goldberg RM & Fuchs CS (2010) Multivitamin use is not associated with cancer recurrence or survival in patients with Stage III colon cancer: findings from CALGB 89803. Journal of Clinical Oncology 28, 4354–4363.

CrossRef

Nichols HB, Trentham-Dietz A, Egan KM, Titus-Ernstoff L, Holmes MD, Bersch AJ, Holick CN, Hampton JM, Stampfer MJ, Willett WC & Newcomb PA (2009) Body mass index before and after breast cancer diagnosis: associations with all-cause, breast cancer, and cardiovascular disease mortality. Cancer Epidemiology Biomarkers & Prevention 18, 1403–1409.

CrossRef,PubMed

Nursing and Midwifery Council (2007) Introduction of Essential Skills Clusters for Pre-registration Nursing Programmes. Available at: http://www.nmc-uk.org/Documents/Circulars2007circulars/NMCcircular07_2007.pdf (accessed 18 November 2011).

Nursing and Midwifery Council (2010) Standards for Pre-Registration Nursing Education – Annexe 3: Essential Skills Clusters and Guidance for their Use (Guidance G7.1.5b). Available at: http://Standards.nmc-uk.org/Documents/Annexe3_%20ESCs_16092010.pdf (accessed 18 November 2011).

Patterson RE, Cadmus LA, Emond JA & Pierce JP (2010) Physical activity, diet, adiposity and female breast cancer prognosis: a review of the epidemiologic literature. Maturitas 66, 5–15.

CrossRef

Pekmezi DW & Demark-Wahnefried W (2011) Updated evidence in support of diet and exercise interventions in cancer survivors. Acta Oncologica 50, 167–178.

CrossRef

Pierce JP, Natarajan L, Cann BJ, Parker BA, Greenberg ER, Flatt SW, Rock CL, Kealey S, Al-Delaimy WK, Bardwell RA, Carlson R, Emond JA, Faerber S, Gold B, Hajek RA, Hollenbach K, Jones LA, Karanja N, Madlensky L, Marshall J, Newman VA, Ritenbaugh C, Thomson CA, Wasserman L & Stefanick ML (2007) The influence of a very high vegetable-fruit-fiber, low-fat diet on prognosis following treatment for breast cancer: results from the

Women's Healthy Eating and Living (WHEL) randomized trial. Breast Cancer Research and Treatment 106, S16–S16.

Rabin C (2008) Promoting lifestyle change among cancer survivors: when is the teachable moment? American Journal of Lifestyle Medicine 3, 369–378.

CrossRef

Richards S (2009) The building blocks of a health diet. Practice Nurse 38, 12–17.

Robinson F (2010) Addressing the issue of poor nutrition. Practice Nurse 40, 9–10.

Rock CL (2007) Multivitamin-multimineral supplements: who uses them? American Journal of Clinical Nutrition 85, 277S–279S.

PubMed,CAS

Rock CL, Newman VA, Neuhouser ML, Major J & Barnett MJ (2004) Antioxidant supplement use in cancer survivors and the general population. Journal of Nutrition 134, 3194S–3195S.

PubMed,CAS

Rock CL, Natarajan L, Pu M, Thomson CA, Flatt SW, Caan BJ, Gold EB, Al-Delaimy WK, Newman VA, Hajek RA, Stefanick ML & Pierce JP (2009) Longitudinal biological exposure to carotenoids is associated with breast cancer-free survival in the Women's Healthy Eating and Living Study. Cancer Epidemiology Biomarkers & Prevention 18, 486–494.

CrossRef,PubMed,CAS

Rodman S & Murphy JL (2011) Nutrition knowledge and attitudes of pre-registered and registered nurses in relation to cancer survivorship. Proceedings of the Nutrition Society 70, E307.

CrossRef

Royal College of Nursing (2008) Enhancing Nutritional Care. Royal College of Nursing, London.

Satia JA, Walsh JF & Pruthi RS (2009) Health behavior changes in White and African American prostate cancer survivors. Cancer Nursing 32, 107–117.

CrossRef

Savage J & Scott C (2005) Patients' Nutritional Care in Hospital: An Ethnographic Study of Nurses' Role and Patients' Experience. Royal College of Nursing, London.

Sinicrope FA, Foster NR, Sargent DJ, O'Connell MJ & Rankin C (2010) Obesity is an independent prognostic variable in colon cancer survivors. Clinical Cancer Research 16, 1884–1893.

CrossRef

Stull VB, Snyder DC & Demark-Wahnefried W (2007) Lifestyle interventions in cancer survivors: designing programs that meet the needs of this vulnerable and growing population. Journal of Nutrition 137, 243S–248S.

PubMed,CAS

Ullrich S, McCutcheon H & Parker B (2011) Reclaiming time for nursing practice in nutritional care: outcomes of implementing Protected Mealtimes in a residential aged care setting. Journal of Clinical Nursing 20, 1339–1348.

Direct Link:

AbstractFull Article (HTML)PDF(104K)References

Van Tonder E, Herselman MG & Visser J (2009) The prevalence of dietary-related complementary and alternative therapies and their perceived usefulness among cancer patients. Journal of Human Nutrition and Dietetics 22, 528–535.

Direct Link:

AbstractFull Article (HTML)PDF(173K)References

Velicer CM & Ulrich CM (2008) Vitamin and mineral supplement use among US adults after cancer diagnosis: a systematic review. Journal of Clinical Oncology 26, 665–673.

CrossRef,PubMed,CAS

van Weert E, Hoekstra-Weebers J, Grol B, Otter R, Arendzen HJ, Postema K, Sanderman R & van der Schans C (2005) A multidimensional cancer rehabilitation program for cancer survivors – effectiveness on health-related quality of life. Journal of Psychosomatic Research 58, 485–496.

CrossRef,PubMed

Willard C & Luker K (2007) Working with the team: strategies employed by hospital cancer nurse specialists to implement their role. Journal of Clinical Nursing 16, 716–724.

Direct Link:

AbstractFull Article (HTML)PDF(488K)References

World Cancer Research Fund/American Institute for Cancer Research (WCRF/AICR) (2007) Food, Nutrition, Physical Activity and the Prevention of Cancer: A Global Perspective. AICR, Washington, DC.

World Health Organisation (2010) Global Status Report on Non-Communicable Diseases. World Health Organisation, Geneva.

Yabroff KR, Lawrence WF, Clauser S, Davis WW & Brown ML (2004) Burden of illness in cancer survivors: findings from a population-based national sample. Journal of the National Cancer Institute 96, 1322–1330.

CrossRef,PubMed