

Integrative Cancer Therapies

<http://ict.sagepub.com>

Surviving Against All Odds: Analysis of 6 Case Studies of Patients With Cancer Who Followed the Gerson Therapy

A. Molassiotis and P. Peat
Integr Cancer Ther 2007; 6; 80
DOI: 10.1177/1534735406298258

The online version of this article can be found at:
<http://ict.sagepub.com/cgi/content/abstract/6/1/80>

Published by:



<http://www.sagepublications.com>

Additional services and information for *Integrative Cancer Therapies* can be found at:

Email Alerts: <http://ict.sagepub.com/cgi/alerts>

Subscriptions: <http://ict.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations (this article cites 35 articles hosted on the SAGE Journals Online and HighWire Press platforms):
<http://ict.sagepub.com/cgi/content/abstract/6/1/80#BIBL>

Surviving Against All Odds: Analysis of 6 Case Studies of Patients With Cancer Who Followed the Gerson Therapy

A. Molassiotis, RN, PhD, and P. Peat, RGN, DipIPallCare

A considerable number of patients with cancer have used or are using the Gerson therapy, an alleged anticancer metabolic diet. However, there is almost no scientific support for this regimen. Hence, the present case review study of 6 patients with metastatic cancer who used the Gerson therapy aims at critically evaluating each case to derive some valid interpretations of its potential effect. All 6 cases had a cancer diagnosis with poor prognosis. Despite the presence of some confounding variables, it seems that the Gerson regimen has supported patients to some extent both physically and psychologically. More scientific attention needs to be directed to this area so that patients can practice safe and appropriate therapies that are based on evidence rather than anecdotes.

Keywords: *Gerson diet; alternative therapy; alternative medicine; complementary medicine; cancer*

The Gerson therapy is a nutritional approach that allegedly has anticancer effects. It was developed by Max Gerson in the 1920s as a metabolic therapy that claims to cure a number of chronic and degenerative diseases by detoxifying the body and boosting the immune system.^{1,2} This dietary regimen is based broadly on detoxifying the body with coffee enemas, a diet based on organic fruits and vegetables, a large amount of freshly made juices, and supplementation with several enzymes or natural medication (ie, niacin, acidol pepsin, Lugol's solution [iodine], pancreatin, potassium, co-enzyme Q10, and/or thyroid extract), as seen in Table 1.^{3,4}

Since Gerson published his book in 1958 (now in its third edition) detailing the "cure" of patients with advanced cancer,⁵ the medical community has been highly skeptical and sharply hostile toward this nutritional therapy. There is consistently strong criticism of it in the medical literature, and attempts to assess the effect of this regimen have failed to identify any benefit, with some of the reasons behind this including neg-

ative medical attitudes, unavailability of funding, limited availability of appropriate patient data, and lack of follow-up in treated patients. The American Cancer Society and the US National Cancer Institute (NCI) do not recommend the use of Gerson therapy, warning that patients should not turn away from mainstream therapy.

Besides the (potentially biased) publication of successful treatments in the book by Gerson⁵ and a summary of the experience of the therapy published in the 1970s,⁶ there is only 1 report in the international medical literature that has attempted to show some positive results in a more coherent and scientifically appropriate manner.⁷ The latter report was a retrospective review of 153 patients with malignant melanoma, comparing their 5-year survival rates with those of published reports of patients receiving conventional treatments. The authors showed that the survival rates of patients using the Gerson therapy were significantly higher than rates published in the literature for stage II melanoma (100% vs 79%), stage IIIa (82% vs 39%), stage IIIa and IIIb (70% vs 41%), and stage IV(a) (39% vs 6%).⁷ This is the only peer-reviewed publication showing positive results using the Gerson regimen in the medical literature. Another case series report summarizing the 6-year experience of using a drastically modified type of the Gerson therapy in an Austrian medical center was published in 1990, which provided strong clinical impressions of the effectiveness of this regimen.⁸ The authors presented findings from 18 matched pairs of cancer patients (gastrointestinal and breast cancer were the 2 most common diagnoses) who underwent surgery with adjuvant modified Gerson therapy or surgery

AM is at the University of Manchester, Manchester, United Kingdom. RP is at Cancer Options, London, United Kingdom.

Correspondence: Prof. A. Molassiotis, RN, PhD, University of Manchester, School of Nursing, Midwifery & Social Work, Coupland III, Coupland Street, Manchester M13 9PL, UK. E-mail: alex.molassiotis@manchester.ac.uk.

DOI: 10.1177/1534735406298258

Table 1. Overview of the Gerson Regimen

<i>Included in Gerson Regimen^a</i>	<i>Not Allowed</i>
Coffee and/or castor oil enemas	Aluminum utensils
Vegetable juice, 13 glasses/d or more (ie, carrot juice); juices must be pressed	Salt Oil
Only organic fruits and vegetables	Coffee
Tablespoons of linseed oil	Berries or nuts
Acidophilus-pepsin capsules; drops of Lugol's solution; niacin; pancreatic enzymes	Drinking water Animal protein
Thyroid tablets	Bottled, canned, refined, preserved, or frozen food
Rectal/oral hydrogen peroxide	
Rectal ozone therapies	
Megadoses of vitamin C for severe pain	

a. Treatment is individualized, and different enzymes may be used in varied quantity based on the patient's needs.

and continuation of usual lifestyle. While the clinical details of the cases are briefly presented, the authors reported with regard to the Gerson therapy group impressive survival improvements (28.6 vs 16.2 months), prevention or at least delay in the onset of cancer cachexia, fewer postoperative complications, less marked side effects from the chemoradiotherapy (it is not clearly reported how many patients received either chemotherapy, radiotherapy, or both), use of lower doses of analgesics, slower progression of existing liver metastasis, and a lower occurrence of malignant effusions.⁸ On the other hand, reports based on a review of records demonstrating a lack of evidence of any beneficial effect have also been published^{2,9}; mostly due to lack of biopsy confirmation of the cancer diagnosis and are limited in terms of follow-up processes.

However, despite the strong medical opposition to this therapy, many patients have used and are using it for managing their often advanced cancer. This can either be a public health issue if proven to be an inappropriate intervention or an added choice for patients if proven to be helpful. Thus, more concrete answers in scientifically rigorous and appropriate methods are necessary. The aim of the current study was to critically review data from patients with cancer who used the Gerson therapy and provide some scientifically interpretable information about its potential effect in an attempt to reignite the debate and contribute to a balanced discussion on the appropriateness of such a nutritional approach to cancer treatment.

Methods

This study was a record review based on the Best Case Series approach as described by the NCI (<http://www>

.cancer.gov/cam/bestcase_intro.html, and personal communication). The case studies were selected for the completeness of their data in terms of documented pathological diagnosis of cancer, documented use of the alternative therapy, documented tumor regression appropriate for the disease type and location, and absence of confounding and/or concurrent anticancer therapies. Cases meeting all the above criteria are persuasive cases (of which at least 2 are needed), but cases that do not meet all of the above criteria (ie, with some confounding factors) can still be reviewed as supportive cases. A case study design can be capable of providing valuable insight into an alternative therapy and can generate useful preliminary conclusions and research questions.¹⁰

The current study is based on a review of 6 cases, with some patients being involved in the study as co-researchers. All case studies were derived from the UK-based Gerson Support Group, which has as its members a considerable number of cancer patients who have used the Gerson regimen successfully. This is a small national patient group that is supporting patients who are considering the use of or are using the Gerson regimen through information, advice, education, and material support. We have used the medical records of patients for conducting this review but have also clarified points during short interviews with patients. The research question and the subsequent review have been prompted by the patients themselves, who wanted to explore the effects of this intervention in a more rigorous way and contribute to the development of the research agenda around alternative therapies. All patients (and the main caregiver of the deceased person) have received information about the case study by letter, and they all signed a consent form giving permission to the researchers to obtain a copy of their medical records and use that information for the case study. Confidentiality and anonymity were maintained. The review process was approved by the Ethics Committee of the University of Manchester, United Kingdom. The complete records of each patient were reviewed by the 2 researchers independently, following the case report format of the NCI Best Case Series program. Scans and slides had been previously reviewed by pathologists and/or radiologists—in most cases by more than 1 specialist—and hence the current review is based on their reports. In addition, all summaries of the evidence were submitted and reviewed by clinical oncologists ($n = 4$) who made comments on the clinical progress of the cases relevant to their specialty and suggested possible clinical explanations for the recovery observed in some of the cases. Their comments are incorporated in the discussion of this study.

Results

Case 1

Case 1 was an 82-year-old female (born in 1924) diagnosed with malignant melanoma in November 1979 following a 2-year history of a pigmented skin lesion. She underwent a local excision on December 6, 1979. Histological examination revealed invasive malignant melanoma, Clark level IV, with a maximum tumor thickness of 2 mm. A wide excision took place. Nearly 1 year later, in December 1980, an enlarged right inguinal node was palpated on examination, measuring 2 × 1.5 cm in diameter. Reportedly, abdominal and pelvic computed tomography scans (CTs), complete blood counts, and liver function tests were normal. In 1981, this patient started the Gerson regimen. A CT scan dated April 13, 1984, reported a "well defined solitary mass in the right groin." A pathology report of a biopsy sample confirmed secondary malignant melanoma with lymph node involvement. No surgery or any other treatment was carried out, as the patient followed the Gerson regimen exclusively. A physician's letter in May 1989 stated that the patient was well and without symptoms, there was no lymphadenopathy on examination, and abdominal and chest CTs were clear. This patient is alive and well at present (2006) based on personal assessment by the principal author.

Case 2

This was a 54-year-old patient (born in 1951) diagnosed with invasive adenocarcinoma of the breast in September 1996 at the age of 44, following presentation with multiple breast lumps. An ultrasound scan dated September 10, 1996, identified a very irregular echo-poor mass extending into the left lower quadrant of the breast. Well defined in places, it appeared to be infiltrating into surrounding breast tissue. Further investigations of a mammogram and fine needle aspirate showed it to be malignant. A left mastectomy was performed on September 19, 1996. Histology showed a moderately to poorly differentiated invasive adenocarcinoma of ductal type (World Health Organization grade 3) with a nodule 2.5 cm in diameter. Deep to the nipple, one of the main ducts showed features of ductal carcinoma in situ, and the overall grading was T2 G3 N1 M0. Fourteen of the 15 lymph nodes examined contained metastatic carcinoma, which were estrogen receptor (ER) and progesterone receptor negative. No disease was evident on chest x-ray and bone scan. The Nottingham Prognostic Index at the time was 6.5, putting her in the worst prognostic group and giving her a 20% chance of 5-year survival.

FEC chemotherapy was given in October 1996 for 9 infusions, until February 18, 1997, when this was discontinued because of severe neutropenic sepsis. She

started oral chlorambucil together with methotrexate and 5-FU (CMF) on March 11, 1997, and also Iscador drops. At the same time, it was noted on x-ray that there was a 1-cm nodule projecting through the heart immediately above the left hemidiaphragm that was suspicious for pulmonary metastasis. On a further x-ray dated April 8, 1997, another nodule was noted in the right sixth interspace, which was also reported as suspicious for pulmonary metastasis. Chlorambucil was discontinued on April 28, 1997, as the clinical opinion of the oncologist was that this was an indication of metastatic disease and that the chemotherapy had not been successful (lung metastasis was suspected but not confirmed).

Concurrent homeopathic therapy (ie, Iscador drops) was increased at this time but discontinued when the Gerson therapy was commenced shortly afterward, in May 1997. In August 1997, after the patient had undergone intensive treatment with the Gerson regimen, her chest x-ray was noted to be clear, with no evidence of pulmonary metastasis. Since April 1997, no other conventional or alternative treatment of the cancer has been used. However, for various unrelated ailments, homeopathic remedies have been used.

The patient is followed up regularly by oncology services, and scans in 2000 and 2002 showed no signs of recurrence. Some problems that were resolved with time included mild lymphoedema of the left arm (lymphatic drainage was used), yellow-orange skin tinge due to high β -carotene intake (due to the large amounts of carrot juice consumed as per the Gerson regimen), and alkaline phosphatase imbalances. These were all transient events that resolved with adjustments in the diet as per the Gerson regimen. The patient is alive and well in 2006 based on personal assessment by the first author and current physician notes, and she continues the Gerson regimen.

Case 3

This case is a 59-year-old woman (born in 1947) diagnosed with lobular carcinoma of the right breast in January 1992 at the age of 45, being node negative and ER positive. The treatment plan was wide local excision followed by radiotherapy, the latter commencing on January 8, 1993. In May 1995, a surveillance mammogram showed microcalcification in her left breast. Needle biopsy showed ductal carcinoma in situ. It was felt to be extensive, and the treatment plan was left mastectomy. Evidence of invasive lobular cancer was found (size/extent not reported). The axilla was not operated on at that stage, no radiotherapy was given, and there was no further adjuvant chemotherapy or hormonal therapy. In December 1997, she presented with pain in the right axilla and

breast changes for the past 2 to 3 months; imaging and cytology confirmed recurrent tumor within the right breast together with a palpable node within the right axilla. The patient was being planned for a right mastectomy and level 2 axillary dissection when staging by CT scan showed evidence of asymptomatic liver metastases (up to 10), although the lungs and bones were clear. She was commenced on tamoxifen. She started the Gerson regimen in January 1998. Tamoxifen was discontinued in July 1999 at the patient's own request. In December 1999, she presented with a number of fine nodules and a hard nodule in her right axilla, which led to the clinical conclusion of "clearly showing evidence of local recurrence of breast cancer." Tamoxifen was reintroduced. In January 2000, liver ultrasound showed no evidence of liver metastasis, and the same was shown in another liver ultrasound in September 2000. In August 2000, it was noted that the skin nodules, which had disappeared, had not recurred. Tests showed that the patient was postmenopausal, and her hormone treatment was changed to letrozole. To date, concurrent examinations have shown no recurrence of her disease.

Case 4

Case 4 is a 33-year-old woman (born in 1973) diagnosed with anaplastic non-Hodgkin lymphoma following core needle biopsy of an axillary mass diagnosed in August 1999 at the age of 25. The biopsy of the mass showed heavy infiltration by an anaplastic large cell lymphoma of null type, with cells being ALK-1 positive, graded at stage IIIa. Concurrent bone marrow biopsy appeared normal and uninvolved by tumor. International performance index was graded at 2. A CT scan was initially reported as showing para-aortic disease in the abdomen but no evidence of splenic involvement. The findings of the CT were considered equivocal, but a scintimammograph did show increased uptake in the para-aortic region. The treatment plan was to proceed with CHOP chemotherapy, and she had only 1 cycle of chemotherapy in early October 1999 before deciding to discontinue treatment of her own accord. At the end of October, she commenced the Gerson regimen. She was taking no concurrent medication or other treatments at the time or since. A CT scan of the chest and abdomen on August 9, 2001, blood tests, clinical examination by a hematologist, and all subsequent examinations to date have shown her to be free of disease. She is currently alive and well based on physician notes (2006).

Case 5

This case is a 68-year-old man (at the time of death; born in 1935) diagnosed with (inoperable) cholangiocarcinoma. Diagnosis was established by visual

analysis of endoscopic retrograde cholangiopancreatography and supported by CT scanning. The histology report of pancreatic tissue suggests atrophy and inflammation, with no malignant cells in the biopsy specimen. He was diagnosed in May 1997 at the age of 62 years following investigations for obstructive jaundice. The tumor was felt to be resectable, and the plan was to proceed with surgery. Upon laparotomy on June 9, 1997, the tumor was found to be unresectable because of extensive involvement of the portal vein, and biliary bypass was performed. Chemotherapy was offered as a treatment option, but the patient declined and started on the Gerson regimen in August 1997. A magnetic resonance imaging (MRI) scan on July 31, 1998, reported a 4-cm stricture in the common bile duct, with an irregular soft tissue mass visible at the liver hilum. The hepatic artery was seen to be surrounded by tumor in the superior portion of the pancreatic head. An MRI scan on October 5, 1999, suggested that the tumor was progressing but at a very slow pace. The patient was suffering no symptoms at the time. A review on November 14, 2000, reported a 7 × 7 cm irregular mass in the portal vein, CA 19-9 of 70, no ascites, and no metastatic liver disease, remaining asymptomatic. A review on November 8, 2001, reported a CA 19-9 of 204, and physical examination revealed an unremarkable abdomen. A review on February 5, 2002, reported evidence of activity in the tumor; magnetic resonance cholangiopancreatography showed a large tumor mass extending up the hilum, around the duodenum, and infiltrating the retroperitoneum. An MRI scan report on February 13, 2003, showed a tumor at the head of the pancreas, now 8 cm, invading the left lobe of the liver. A small amount of ascites was present. The patient's disease then progressed steadily until his death from cholangiocarcinoma in April 2003.

Case 6

A 44-year-old woman (born in 1962) was diagnosed with fibrillary astrocytoma following stereotactic biopsy in August 1993 after 3 seizures in a swimming pool. The plan was for no immediate active treatment, and the patient commenced carbamazepine 400 mg. Three months later (November 1993), there were further seizures, and the patient commenced Chinese herbal medicines. In May 1995, MRI scan revealed evidence of increase in the tumor size, and the decision was made to resect the tumor. Pathology from the resection showed it to be an anaplastic astrocytoma. The treatment plan was to proceed with radiotherapy (27 fractions), which was given over June and July 1995. In September 1996, she complained of frontal headaches, and after an MRI scan, it seemed that the tumor had recurred in the left

temporal lobe, showing a very large cyst behind the area of craniotomy together with some abnormal tissue, but no active treatment was planned. Two consultant neurosurgeons agreed with this diagnosis based on the radiological progression without clinical progression of the disease. At this time, the patient discontinued the herbs she was taking and commenced Gerson therapy. She continued to have occasional seizures. A review in June 1997 showed that the cyst had decreased quite considerably in size, with no evidence of any active tumor in the surrounding area of the brain. A review in November 1998 showed no increase in size. In 1999, the Gerson regimen was scaled down (maintenance phase of the Gerson regimen), and the homeopathic remedy pulsatilla was added. A review in November 2000 showed no increase in size from the previous year. She has since had annual reviews with no increase in tumor size, although symptoms of headaches and seizures continued throughout. The patient has continued on carbamazepine. The patient remains well and stable at present.

Discussion

These 6 case studies provide some strong impressions of the potential anticancer effect of the Gerson regimen. However, a case study cannot and should not be conclusive of the effect of a treatment. It is rather an opportunity to provide an initial attempt to compile plausible arguments about a phenomenon, synthesize interpretable data, explore appropriate research questions for future research, or identify areas that need more scientific attention. Hence, what the above 6 cases provide is compelling survival data that could potentially be attributed to the Gerson regimen, although the data are inconclusive at times because of confounding variables.

Most cases have used some form of conventional treatment, either concurrently or before they started the Gerson regimen. This fact alone makes interpretations problematic. Case 5 is, however, a fascinating example of someone who declined conventional treatment of a cancer that untreated would have reduced the patient's survival to 3.2 to 6.6 months.^{11,12} While on the Gerson regimen, he experienced a very slowly progressing cancer and a 6-year survival. Furthermore, case 4 had only 1 cycle of chemotherapy, unlikely to have sufficiently managed her lymphoma. The above 2 cases have no confounding variables of past or concurrent treatments, and the outcome should be attributed to the Gerson regimen with some degree of confidence.

Cases 1, 2, 3, and 6 have, however, confounding variables including concurrent use of complementary therapies (case 2), Chinese medicine (case 6),

concurrent use of (conventional) hormone therapy (case 3), and use of radiotherapy (cases 3 and 6) and surgery (case 1). Homeopathic remedies used in cases 2 and 6 were for symptom palliation only (as explained by the patients) and are unlikely to affect the course of the tumor itself. Carbamazepine use (case 6) has no known anticancer activity, being an antiepileptic drug. Case 3 is less impressive, as concurrent use of hormone therapies makes it difficult to assign an effect to one or the other treatment, although it may be the combined effect of the 2 treatments that could account for this extraordinary survival story of a woman with a metastatic disease of poor prognosis. However, studies in the past have shown no effect of tamoxifen used alone on metastatic liver disease unless it was used in combination with 5-FU and interferon,¹³ which did not take place in our case. Other limitations of the current review include the insufficient data on how the patients followed the Gerson regimen over the years, which and how many adverse effects were attributable to it, and how serious those events were. Despite the above limitations in the data, patients seem to have benefited from the alternative therapy they used both in terms of survival (Table 2) and maintenance of a good quality of life (as shown in the medical records judged by the patients' overall health and communicated by some of the patients).

Besides the presence of confounding variables that make interpretations difficult, the natural progression of some of the cancers mentioned in this review may further complicate interpretations and may make the reviewed cases less compelling. For example, reviewing oncologists commented that melanoma is an unusual malignancy in that it can excite an immune response, and spontaneous remissions do occasionally occur, estimated at less than 5%,²⁶ especially in patients with small-volume locoregional disease, as in case 1. Also, tumor shrinkage was reported in case 6; clinical experience suggests, as also commented by reviewing oncologists, that postoperative hematoma changes can be misinterpreted as disease progression if scans are done more than 72 hours postsurgery, which normally settles over 3 months. This can be misread as tumor shrinkage. While the cyst may have been a hematoma, the presence of abnormal tissue supports the diagnosis of disease regression.

The key questions are whether the Gerson therapy improves survival and whether patients with cancer objectively benefit from it. The retrospective review by Hildenbrand et al⁷ showed that patients with malignant melanoma appeared to benefit in terms of survival. The review of patient records in Gerson clinics in Mexico in the late 1980s undertaken by British physicians found no evidence of the regimen's survival

Table 2. Characteristics of the Case Studies^a

Case	Gender	Age, y	Diagnosis	Age at diagnosis, y	Conventional Treatment	Gerson Regimen	Other CAM Used	Outcome From Gerson Regimen Use	Duration of Survival	Typical Survival
1	F	82	Malignant melanoma (Clark level IV, 2 mm) Nov 1979 Secondary malignant melanoma April 1984	55	Surgery only Dec 1979	Early 1981 to now	None	Alive No lymphadenopathy Clear CT scans (1989) No evidence of disease	>27 y	66%-68% 5-y survival ¹⁵
2	F	54	Metastatic breast cancer (NPI = 6.5) Sep 1996 Suspected (not confirmed) lung metastasis	44	Mastectomy, Sep 1996 FEC, Oct-Feb 1996 (9 cycles) CMF Mar-Apr 1997 (2 cycles)	Summer 1997 to now	Homeopathic remedies ^b (concurrently with Gerson) Isoscor drops Mar-May 1997	Alive No evidence of disease	>10 y	10-y survival:13% ¹⁵ 24.7% ¹⁶
3	F	59	Breast cancer (R), Dec 1992 Breast cancer (L), May 1995 Recurrent breast cancer (R) and liver metastasis, Dec 1997	45	Lumpectomy, Dec 1992; radiotherapy Jan 1993 Mastectomy, May 1995 Tamoxifen, Dec 1997-Jul 1999; Dec 1999-Aug 2000, then letrozole since and currently	Jan 1998 to now	None	Alive No evidence of disease	>14 y	10 y, 88% ¹⁷
4	F	33	Non-Hodgkin lymphoma (stage IIIa), Aug 1999	25	CHOP chemotherapy (1 cycle only; declined further treatment) Oct 1999	Oct 1999 to now	None	Alive No evidence of disease	>7 y	5 y: 60% ²⁰ 10 y: 49-51% (with treatment) ^{20,23}
5	M	68	Inoperable cholangiocarcinoma, May 1997	62	Declined treatment	Aug 1997 to Apr 2003	None	Dead Slowed disease progression	6 y	3.2-6.6 mo ^{10,11}
6	F	44	Anaplastic astrocytoma, Aug 1993 Recurrence of tumor, Sep 1996	31	Carbamazepine, >Aug 1993 Radiotherapy (27 fractions) Jun-Jul 1995	Sep 1996 to now (scaled down >1999)	Chinese herbs (discontinued Sep 1996) Homeopathic remedy pulsatilla added 1999 ^b	Alive No evidence of disease but still suffering from seizures	>13 y	Median 1.5 y ²⁴ 5-y survival 35% ²⁵

CAM = complementary and alternative medicine; CT = computed tomography; NPI = Neuropsychiatric Inventory.

a. References included are around the time of diagnosis for each patient and matched to patient clinical data as much as possible.

b. Homeopathic remedies used for unrelated ailments.

benefit, although the authors commented that a small number of patients did show improvements.⁹ The psychological part of the same investigation suggested that the patients were helped psychologically through the use of the Gerson regimen by increasing their hope and empowering them.⁹

The medical establishment has taken a negative and dogmatic approach toward unorthodox therapies.²⁷ However, such preliminary indicators combined with a large number of anecdotal reports of extraordinary survival merit more scientific attention using appropriate and systematic monitoring and prospective evaluation of objective patient outcomes. The medical community has spent considerable time and energy in the past 50 or more years arguing against the Gerson regimen through letters to the editor, commentaries, discussion and opinion papers, review of (almost always) incomplete patient follow-up data, and legislation and directives against the use of the Gerson therapy, and neither side (for their own reasons) has put any effort into getting evaluable and interpretable data that would stand scientific scrutiny. Funding for 1 large and well-controlled prospective study would have been sufficient to give some key initial answers.

Could the Gerson regimen have physical effects in patients with cancer? A number of researchers have shown that this is possible based on laboratory experiments, including the finding that a high-potassium/low-sodium environment (as that induced by the Gerson regimen) can partially return damaged cell proteins to their normal undamaged configuration.²⁸ Other medical hypotheses have also been discussed in the literature.^{29,30}

Could the effects of the Gerson regimen be the result of the patients' psychological responses to the cancer? This is also possible, as complementary and alternative medicine therapies in general empower patients, increase hope and optimism, and can help patients cope better with their very stressful cancer journey.³¹ Some studies argue, including Spiegel's landmark study,³² which was further confirmed by some later studies,^{33,34} that a better psychological status is associated with better survival rates. However, the literature on psychological interventions and survival in cancer has shown mixed results, and the evidence specifically from support group interventions is not convincing.³⁵

Careful dietary manipulation may at least improve quality of life in cancer patients and potentially also increase survival.³⁶ Indeed, a considerable research activity in the breast cancer field suggests that this may be linked to some lifestyle factors by reason of its high incidence in Western society.³⁷ Although multiple factors appear to increase the risk of breast cancer, diet is

one of the most important lifestyle factors associated with it.³⁸⁻⁴¹ Dietary interventions that have been assessed for their potential effect on breast cancer recurrence emphasize fat reduction and increased vegetable intake^{42,43} (key dimensions of the Gerson regimen). Indeed, an analysis of computerized data on lifestyle changes that preceded many spontaneous regressions of cancer (n = 200) indicated that 55.6% of the sample had used some form of detoxification (ie, coffee or castor oil enemas or fasting), 87.5% had made major dietary changes, more usually a strictly vegetarian diet, and 55% had taken a mineral supplement, most commonly potassium and iodine.⁴⁴ Most of the above are in one way or another parts of the Gerson regimen. Another regimen with some nutritional similarities with the Gerson therapy, the Gonzalez diet, has shown positive outcomes in advanced pancreatic cancer.⁴⁵ Hence, dietary manipulation could play a major role in preventing cancer recurrence.

Some patients will continue to choose complementary or alternative medicine, regardless of whether health care professionals agree with these choices. It would be best if their decision making is well informed by providing accurate information on such alternatives. A common concern of health care practitioners is that patients turning to alternative medicine will delay potentially effective conventional treatments, decreasing their chances of survival. However, research has shown that most patients turn to such options when the orthodox medicine is unable to offer anything more.⁴⁶

It would be worth exploring such a dietary regimen in the future and moving away from our conceptual struggle with modern high-tech medicine. We have a responsibility and a professional duty to help patients make the best treatment decisions for themselves, and the only way to do so with regard to the Gerson regimen is to carry out a prospective evaluation of its efficacy in a rigorous manner. A randomized trial, the gold standard of evidence-based medicine, may not be the most appropriate or even ethical design, as it is doubtful if patients would be willing to be randomized to the Gerson regimen. Indeed, the National Institutes of Health has funded a clinical trial of a similarly intense dietary regimen, the Gonzalez regimen mentioned earlier, and although it started as a randomized trial, eventually the design had to be drastically modified, as patients were unwilling to accept random assignment to treatment groups.¹⁴ A preference trial or a prospective case-control trial may provide more appropriate approaches. Studies should look not only at survival benefits but also at psychological and quality-of-life variables as well as symptom experience. Safety data would also need to be collected.

As the Gerson regimen is a very intense regimen and requires a significant amount of time, energy, and resources to be carried out, it may be more appropriate to consider the different elements of the regimen (preserving the principles of the therapy) and assess what is their contribution to improving the physical health of cancer patients and whether it decreases recurrence of the disease. It may also be more appropriate to attempt to integrate this regimen in selected specialist conventional treatment centers, in which patients would have appropriate follow-up by medical practitioners, medical supervision, and a higher regard for patient safety than that experienced by some patients on a number of occasions. Monitoring of patients is essential as they may be at risk of dehydration and loss of micronutrients from the daily enemas and develop calorie, protein, vitamin, and mineral deficiencies. Hence, appropriate monitoring of albumin, transferrin, vitamin B₁₂, blood urea nitrogen, and folic acid levels should take place regularly in an integrated environment. The study by Lechner and Kronberger⁸ also clearly suggests that the Gerson therapy could be equally effective when given concurrently with surgery or other orthodox treatment modalities (although this study was not a randomized trial and all patients had received conventional treatment). This may be a more preferable therapeutic approach, and its benefits were also evident in case study 3 described earlier.

Although the effectiveness of the Gerson regimen has not been rigorously proved, equally it has not been disproved either. Hence, while the situation is far from clear, patients will continue to turn to it (and other similarly intense and unproven alternative therapies) in the years to come, in a desperate attempt to keep alive when everything else has failed. A definitive trial on the efficacy of the Gerson regimen is long overdue. Information from such a trial would be of great value as it would assist patients to make informed decisions, protect their safety, and add to the patients' choices in improving their survival chances and quality of life in their fight against cancer.

Acknowledgments

We would like to thank the patients who shared their experiences with us and the UK-based Gerson Support Group for facilitating communication between the patients and the researchers and for actively participating in the study.

References

- Gerson M. Dietary considerations in malignant neoplastic disease: a preliminary report. *Rev Gastroenterol.* 1945;12: 419-425.
- Questionable methods of cancer management: "nutritional" therapies. *CA: Cancer J Clin.* 1993;43:309-319.
- Bishop B. Organic food in cancer therapy. *Nutr Health.* 1988;6:105-109.
- Unproven methods of cancer management: Gerson method. *CA: Cancer J Clin.* 1990;40:252-256.
- Gerson M. *A Cancer Therapy: Results of Fifty Cases.* 3rd ed. San Diego, Calif: Gerson Institute; 2002.
- Gerson M. The cure of advanced cancer by diet therapy: a summary of 30 years of clinical experimentation. *Physiol Chem Phys.* 1978;10:449-464.
- Hildenbrand GL, Hildenbrand LC, Bradford K, Cavin SW. Five-year survival rates of melanoma patients treated by diet therapy after the manner of Gerson: a retrospective review. *Altern Ther Health Med.* 1995;1(4):29-37.
- Lechner P, Kronberger I. Erfahrungen mit dem Einsatz der Diät-Therapie in der chirurgischen Onkologie. *Aktuelle Ernährungsmedizin.* 1990;2(15):72-78.
- Reed A, James N, Sikora K. Juices, coffee enemas, and cancer. *Lancet.* 1990;336:677-678.
- Lukoff D, Edwards D, Miller M. The case study as a scientific method for researching alternative therapies. *Altern Ther Health Med.* 1998;4(2):44-52.
- Milella M, Salvetti M, Cerrotta A, et al. Interventional radiology and radiotherapy for inoperable cholangiocarcinoma of the extrahepatic bile ducts. *Tumori.* 1998;84:467-471.
- Prat F, Chapat O, Ducot B, et al. Predictive factors for survival of patients with inoperable malignant distal biliary strictures: a practical management guideline. *Gut.* 1998;42:76-80.
- Werner A, Bender E, Mahaffey W, McKeating J, Marrangoni A, Katoh A. Inhibition of experimental liver metastasis by combined treatment with tamoxifen and interferon. *Anticancer Drugs.* 1996;7:307-311.
- Chabot J, Herbert Irving Comprehensive Cancer Center at Columbia University. Prospective cohort study of gemcitabine versus intensive pancreatic proteolytic enzyme therapy with ancillary nutritional support (Gonzalez regimen) in patients with stage II, III, or IV adenocarcinoma of the pancreas. CPMC-IRB-8544, Clinical trial. Available at: <http://www.cancer.gov/cancertopics/pdq/cam/gonzalez/Patient/page2/print>.
- Morton DL, Davtayan DG, Wanek LA, Foshag LJ, Cochran AJ. Multivariate analysis of the relationship between survival and the microstage of primary melanoma by Clarke level and Breslow thickness. *Cancer.* 1993;71:3737-3743.
- Galea MH, Blamey RW, Elston CE, Ellis IO. The Nottingham Prognostic Index in primary breast cancer. *Breast Cancer Res Treat.* 1992;22:207-219.
- Balslev I, Axelsson CK, Zedeler K, Rasmussen BB, Carstensen B, Mouridsen HT. The Nottingham Prognostic Index applied to 9,149 patients from the studies of the Danish breast cancer cooperative group (DBCG). *Breast Cancer Res Treat.* 1994;32: 281-290.
- D'Eredita G, Giardina C, Martellotta M, Natale T, Ferrarese F. Prognostic factors in breast cancer: the predictive value of the Nottingham Prognostic Index in patients with long-term follow-up that were treated in a single institution. *Eur J Cancer.* 2001;37:591-596.
- Selzner M, Morse MA, Vredenburg JJ, Meyers WC, Clavien PA. Liver metastases from breast cancer: long-term survival after curative resection. *Surgery.* 2000;127:383-389.
- American Cancer Society. What are the key statistics about non-Hodgkin lymphoma? Available at: http://www.cancer.org/docroot/CRI/content/CRI_2_4_1X_What_are_the_key_statistics_for_non-Hodgkins_lymphoma_32.asp?sitearea=. Accessed December 4, 2006.

21. Seidemann K, Tiemann M, Schrappe M, et al. Short-pulse B-non-Hodgkin lymphoma-type chemotherapy is efficacious treatment for pediatric anaplastic large cell lymphoma: a report of the Berlin-Frankfurt-Munster group trial NHL-BFM 90. *Blood*. 2001;97:3699-3706.
22. Massimino M, Gasparini M, Giardini R. Ki-1 (CD30) anaplastic large-cell lymphoma in children. *Ann Oncol*. 1995;6:915-920.
23. Blay J, Gomez F, Sebban C, et al. The International Prognostic Index correlates to survival in patients with aggressive lymphoma in relapse: analysis of the PARMA trial. Parma Group. *Blood*. 1998;92:3562-3568.
24. Johns Hopkins Medicine. Stereotactic radiosurgery. Available at: <http://www.radonc.jhmi.edu/radiosurgery/disorders/glioma.html>. Accessed December 4, 2006.
25. Fischbach AJ, Martz KL, Nelson JS, et al. Long-term survival in treated anaplastic astrocytomas: a report of combined RTOG/ECOG studies. *Am J Clin Oncol*. 1991;14:365-370.
26. Richting E, Ludwig R, Kerl H, Smolle J. Organ- and treatment-specific local response rates to systemic and local treatment modalities in stage IV melanoma. *Br J Dermatol*. 2005;153:925-931.
27. Moss RW. Tijuana cancer clinics in the post-NAFTA era. *Integr Cancer Ther*. 2005;4:65-86.
28. Cope FW. A medical application of the Ling association-induction hypothesis: the high potassium, low sodium diet of the Gerson cancer therapy. *Physiol Chem Phys*. 1978;10:465-468.
29. McCarthy MF. Aldosterone and the Gerson diet: a speculation. *Med Hypotheses*. 1981;7:591-597.
30. Richards BA. The enzyme knife: a renewed direction for cancer therapy? *J R Soc Med*. 1988;81:284-285.
31. Molassiotis A, Fernandez-Ortega P, Pud D, et al. Use of complementary and alternative medicine in cancer patients: a European survey. *Ann Oncol*. 2005;16:655-663.
32. Spiegel D, Bloom JR, Kraemer H, Gottheil E. Effect of psychosocial treatment on survival of patients with metastatic breast cancer. *Lancet*. 1989;2:888-901.
33. Fawzy FI, Fawzy NW, Hyun CS, et al. Malignant melanoma: effects of an early structured psychiatric intervention, coping, and affective state on recurrence and survival 6 years later. *Arch Gen Psychiatry*. 1993;50:681-689.
34. Walker LG, Heys SD, Eremin O. Surviving cancer: do psychosocial factors count? *J Psychosom Res*. 1999;47:497-503.
35. Goodwin PJ. Support groups in advanced breast cancer. *Cancer*. 2005;104(11 suppl):2596-2601.
36. Weitzman S. Alternative nutritional cancer therapies. *Int J Cancer Suppl*. 1998;11:69-72.
37. Levi F. Cancer prevention: epidemiology and perspectives. *Eur J Cancer*. 1999;7:1046-1058.
38. Willet WC. Diet, nutrition and avoidable cancer. *Environ Health Perspect*. 1995;103(suppl 8):165-170.
39. Willet WC. Diet and cancer: one view at the start of millennium. *Cancer Epidemiol Biomarkers Prev*. 2001;10:3-8.
40. Rock C, Newman V, Flatt S, et al. Nutrient intakes from foods and dietary supplements in women at risk of breast cancer recurrence. *Nutr Cancer*. 1997;29:133-139.
41. Rock CL, Demark-Wahnefeld W. Nutrition and survival after the diagnosis of breast cancer: a review of evidence. *J Clin Oncol*. 2002;20:3302-3316.
42. Pierce JP, Faerber S, Wright FA, et al. Feasibility of randomized trial of a high-vegetable diet to prevent breast cancer recurrence. *Nutr Cancer*. 1997;28:282-288.
43. Wynder EL, Cohen LA, Muscat JE, Winters B, Dwyer JT, Blackburn G. Breast cancer: weighting the evidence for a promoting role of dietary fat. *J Natl Cancer Inst*. 1997;89:766-775.
44. Foster HD. Lifestyle changes and the "spontaneous" regression of cancer: an initial computer analysis. *Int J Biosocial Res*. 1988;10:17-33.
45. Gonzalez NJ, Isaacs LL. Evaluation of pancreatic proteolytic enzyme treatment of adenocarcinoma of the pancreas, with nutrition and detoxification support. *Nutr Cancer*. 1999;33:117-124.
46. Richardson MA, Russell NC, Sanders T, Barrett R, Salveson C. Assessment of outcomes at alternative medicine cancer clinics: a feasibility study. *J Altern Complement Med*. 2001;7:1-3.