

FIVE-YEAR SURVIVAL RATES OF MELANOMA PATIENTS TREATED BY DIET THERAPY AFTER THE MANNER OF GERSON: A RETROSPECTIVE REVIEW

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Objective • Compare 5-year melanoma survival rates to rates in medical literature.

Design • Retrospective.

Setting • Hospital in Tijuana, Mexico.

Patients • White adult patients (N=153) with superficial spreading and nodular melanoma, aged 25-72 years.

Intervention • Gerson's diet therapy: lactovegetarian; low sodium, fat and (temporarily) protein; high potassium, fluid, and nutrients (hourly raw vegetable/fruit juices). Metabolism increased by thyroid; calorie supply limited to 2600-3200 calories per day. Coffee enemas as needed for pain and appetite.

Main Outcome Measure • 5-year survival rates by stage at admission.

Results • Of 14 patients with stages I and II (localized) melanoma, 100% survived for 5 years, compared with 79% of 15,798 reported by Balch. Of 17 with stage IIIA (regionally metastasized) melanoma, 82% were alive at 5 years, in contrast to 39% of 103 from Fachklinik Hornheide. Of 33 with combined stages IIIA + IIIB (regionally metastasized) melanoma, 70% lived 5 years, compared with 41% of 134 from Fachklinik Hornheide. We propose a new stage division: IVA (distant lymph, skin, and subcutaneous tissue metastases), and IVB (visceral metastases). Of 18 with stage IVA melanoma, 39% were alive at 5 years, compared with only 6% of 194 from the Eastern Cooperative Oncology Group. Survival impact was not assessed for stage IVB. Male and female survival rates were identical for stages I-IIIIB, but stage IVA women had a strong survival advantage.

Conclusions • The 5-year survival rates reported here are con-

siderably higher than those reported elsewhere. Stage IIIA/B males had exceptionally high survival rates compared with those reported by other centers. (*Alternative Therapies in Health and Medicine*. 1995;1(4):29-37)

This article summarizes the clinical outcomes of melanoma patients treated with the nutrition-based cancer therapy proposed by the German physician Gerson¹ (who conducted research at the University of Munich in the 1930s) and contrasts them with rates reported in the literature. To our knowledge, this report is the most thorough retrospective analysis to date of the potential survival benefit of this, or any other, well-known alternative method of cancer management.

The genesis of this inquiry occurred during a landmark study by the US Congressional Office of Technology Assessment (OTA),² to which one of us (GH) was an advisor. In its report, OTA put forward a protocol for best-case reviews based on the premise that, no matter how many patients failed, as few as 10 or 12 cases with objective evidence of tumor response would be enough to propel an investigation by the National Cancer Institute (NCI). Because we had proposed the original best-case review protocol to OTA, we were eager to construct such a review. However, we found OTA's (and later NCI's) protocol to have a serious shortcoming when used retrospectively: its focus on tumor regression only. Adequate documentation of tumor regression is unlikely to be collected in most alternative medical practices.

We abandoned the best-case review for the more informative retrospective review. In contrast to the best-case review, the retrospective review describes all patients, including nonresponders, giving a more adequate impression of the outcomes of treatment.

Our efforts to complete a best-case review, however, were not without some rewards. Practitioners at Centro Hospitalario Internacional del Pacifico, SA (CHIPSA) in Playas de Tijuana, Baja California, Mexico suggested cases with different types of

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cancer they believed had unusually positive outcomes. Of the 27 cases cataloged, 33% were long-term melanoma survivors, which underscored the need to do a more complete evaluation of melanoma per se.

In the process, we determined that the institutions at which the patients were originally diagnosed were reliable. We requested histological specimens for the above 27 cases, and forwarded the numbered slides, without clinical histories, to the Armed Forces Institute of Pathology (AFIP). AFIP pathologists' findings agreed with those reported by the original institutions with the exception of one specimen, which had been destroyed by improper handling and storage. In a related exercise, original diagnostic scans were read by contemporary UCLA physicians, whose interpretations were in virtually complete agreement with those of the original readers.

METHODS

Over 15 years, from 1975 through July 1990, 249 patients presented for treatment of melanoma; however, 53 (21%) were lost to follow-up. Survival outcomes were learned for the other 196, but 14 were excluded because they did not have verified nodular or superficial spreading melanoma. Of the remaining 182, 29 (19%) charts could not be assessed for stage at admission. Therefore, this paper is based on the outcomes of 153 adult melanoma patients treated with Gerson's nutrition-based cancer therapy. All assessable patients were white. Almost all were hospitalized by CHIPSA physicians, but several were treated by physicians in private practice. Medical charts supplied by CHIPSA were consolidated from three predecessor facilities, Hospital la Gloria, Hospital Jardines la Mesa, and Hospital del Sol, all from the Tijuana metropolitan area.

Gerson is credited with the introduction and development of therapeutic sodium (Na^+) restriction³ in the context of a high potassium (K^+) diet, which was first broadly tested in refractory cutaneous tuberculosis (*lupus vulgaris*).⁴ According to eminent dermatologist Erich Urbach,⁵ the majority of authors of note investigated and approved Gerson's diet therapy for lupus. Emerson⁶ was the first US author to refer to the diet as a metabolic therapy. Gerson's tuberculosis diet became the basis of a number of quite different dietotherapies he developed for conditions as diverse as pulmonary tuberculosis and cardiorenal insufficiency.

The cancer management employed by CHIPSA was developed empirically by Gerson over the course of 30 years of clinical experimentation.⁷ Gradually, by trial and error, Gerson evolved an integrated set of medical treatments, which he last published in a 1958 monograph along with 50 cases presented in clinical detail.⁸

Although Gerson's method was published several times in US⁹ and German¹⁰⁻¹² refereed journals, it is not well known by most practitioners and researchers. Therefore, a brief description of the development and nature of the therapy may be useful.

During the 1930s, Gerson's research at the University of Munich was afforded extraordinary laboratory support through funding provided by both the Bavarian and Prussian federal gov-

ernments.¹³ Gerson focused on the experimental use of diet and medications to improve tissue edema occurring in a variety of pathologies. Edema is characterized by salt and water changes that Cope¹⁴ has defined as tissue damage syndrome—decreased cell K^+ , increased cell Na^+ , and increased cell water (cell swelling)—changes that are also observed after death.¹⁵ Nutritional treatment to provide cells with a high K^+ , low Na^+ environment improved edema and led to enhanced tissue resistance and immunities, and therefore better outcomes.¹⁶ This rationale can be traced through all of Gerson's subsequent efforts in cancer management.^{8(pp164,166,184,197)}

The cancer diet is individualized to meet the needs of every patient, but it does have uniform components. For most patients, it is restricted in salt, fat, and (temporarily) protein. It supplies very high quantities of many nutrients and phytochemicals while at the same time forcing fluids through 13 hourly feedings of raw fruit and vegetable juices daily. About half of the melanoma subjects in this study received 24 ounces daily of raw veal liver and carrot juice (each glass contained the pressings of 1/2 pound of liver and 3/4 pound of carrots). Following numerous disruptions in supplies that began in late 1985, raw veal liver was formally discontinued in 1987 because of repeated instances of bacterial contamination (*Campylobacter fetus s. fetus*). Comparisons of patients from different time frames indicate that those receiving liver juice experienced better survival outcomes overall.¹⁵

Gerson restricted calories while simultaneously increasing metabolism in an effort to emulate the antitumor effect of calorie restriction per se, first demonstrated by Moreschi¹⁸ and Rous.¹⁹ Enhanced caloric utilization rates (metabolism) can alter tumor growth, whether metabolism is accelerated by iodine medications²⁰ (Gerson used thyroid and Lugol's iodine solution) or exercise.²¹ The caloric supply is limited to 2600–3200 calories per day by the low-fat, lactovegetarian diet served in three generous daily meals. Niacin, potassium salts (acetate, gluconate, and monophosphate), and crude liver extract with vitamin B_{12} injectable, were given to support accelerated cellular energy production.

In the University of Munich experiments, Gerson found that temporary protein restriction aided edema absorption²² and favored improvement in his patients. In Gerson's cancer diet, protein repletion with nonfat cultured dairy products occurs after at least 6 weeks in most cases. Shorter periods of protein restriction are recommended for children and elderly patients.

Castor oil, a cathartic with no known clinical side effects, was administered every other day for many weeks. Retention enemas medicated with boiled coffee were taken as needed, as frequently as every 4 hours throughout the day and night, for their observed ability to alleviate pain and to improve nutritional condition. Peter Lechner observed statistically significant cancer pain relief from coffee enemas in a prospective matched control trial at the University Hospital of Graz, Austria.²³ Although the mechanism of pain relief is not known, Cope⁷ suggested it may be the result of a crude sort of dialysis across the gut wall for tumor breakdown products such as polyamines, toxic bound nitrogen, and ammonia. Lechner and Kronberger²⁴ have also observed

improved tolerance of aggressive conventional treatments in patients who employed Gerson's therapy at the same time. At CHIPSA, the therapy was prescribed for 18 to 36 months, subject to the physician's judgment and patient response.

This study, because of its retrospective nature, makes no attempt to adjust for variables such as mind-body treatments or adjuvant botanical or homeopathic materials (although it is our impression that such treatments were commonly used). We know of only two cases in which nonsurgical conventional treatments were employed concurrently with the Gerson treatment: 2 stage IVA patients, both 5-year survivors, added adjuvant biological response modifiers (One employed interferon for 6 months, and the other used levamisole). Several patients whose disease had escaped surgical management before admission to the Gerson program required one or more surgeries during treatment.

DATA COLLECTION

To begin, we reviewed all records, files, and lists at our disposal from Hospitals La Gloria, La Mesa, Del Sol, CHIPSA, and the Gerson Institute in San Diego. In cases for which original patient phone and address records were no longer valid, we went to stored financial charts in which were found records of collect telephone calls placed by patients to friends and relatives. We used those additional numbers with considerable success to locate living patients and to learn the fate of the deceased. We were also able to extend our search by employing the epidemiological services of Equifax Credit Information Services. In 1993 the Gerson Research Organization began publishing a free newsletter for current and past patients, who were invited to join a support network. They were encouraged to share with all patients, even if they had not been treated by CHIPSA physicians. Through this route, several independently treated patients were discovered, contacts were established with their physicians, and data were collected and used in this study.

LEVELS OF DOCUMENTATION

Because ours is a groundbreaking effort among various alternative forms of cancer management, we believe that explanation of our documentation process is warranted. Two standards of documentation were applied: one for survivors and one for deceased patients.

Forty-five survivor charts were meticulously cataloged to include independent histological verification, previous physicians' notes, surgical summaries, and radiological interpretations. In addition, our own physician notes, extended care consultation records, periodic laboratory reports, roentgenograms and scans, as well as medication purchase records and other evidence of compliance, were included. Charts for 5 survivors could not be sufficiently cataloged to assess staging at admission, even though they did contain adequate evidence of the presence of melanoma.

For purposes of this evaluation, we operated under two assumptions regarding deceased patients: (1) the majority prob-

ably achieved some measure of compliance with the Gerson treatment, and (2) the cause of death for the majority was probably melanoma. Mortality data are being assembled to address these assumptions if possible.

In staging the deceased, we allowed less stringent documentation to suffice, with the understanding that the negative outcomes were probably due to melanoma. Fifty-seven charts of deceased patients contained independent confirmation of staging by their previous physicians, the standard of evidence required for all survivor charts in this study. In contrast, 44 were staged by relying on the admitting physician's oral history and physical examination. Beyond this, questionnaire responses and correspondence were considered to provide adequate information for 7 patients whose charts could not be located.

Such lower-level documentation (admission oral history and physical examinations, and the questionnaire responses) was considered acceptable only for charts of deceased patients whose disease had apparently progressed. If we have erred in this judgment, it was on the side of caution. Because physicians administering the Gerson cancer therapy did not make exhaustive staging efforts on admission for any of their melanoma patients, the possibility certainly exists that deceased patients may have developed undetected distant and internal metastases before admission; in fact, this possibility cannot be ruled out for the survivors. With these criteria, 108 charts of the deceased were assessable for stage at admission.

Twenty-four charts were missing, presumably destroyed in the La Gloria Hospital fire of 1985 in which approximately 900 charts of all different pathologies were lost. Two cases for which outcomes had been documented (Both were noted deceased in a Gerson Institute file index) were identified by initials only, with no gender markers. Survival outcomes are known for 72 women and 81 men; 42 (58%) women and 69 (85%) men are deceased, a finding consistent with the female survival advantage widely reported in the melanoma literature. Two deceased men and 1 deceased woman (all stage III) lived 5 or more years and are reflected in this report as 5-year survivors.

STATISTICAL METHODS

Charts of 153 patients were assessable for both outcome and stage at admission. Five-year survival rates for each stage were compared with rates previously published by Balch,²⁵ Drepper et al (the American Cancer Society),²⁶ Ryan et al (the Eastern Cooperative Oncology Group),²⁷ and Fawzy.²⁸ For most comparisons, we used the chi-square test; when comparing small samples, we employed Fisher's Exact Test. For the above tests, we employed a computer program, SigmaStat, by Jandel Scientific Software. Programs were created (by SC) to generate Kaplan-Meier survival functions. Survival curves were plotted using Harvard Graphics. Cox regressions and log-rank tests for homogeneity of survival curves were used for comparison of data.

STAGING CRITERIA USED IN THIS REPORT

Because so many different staging systems exist for nodular

Table 1 Staging system used for this report

Stage	TNM	Clark	Breslow	Satellites	Largest regional node	In-transit metastases	Nonregional skin, subcutaneous and lymph metastases	Visceral metastases	At 5 years alive/deceased n
IA	pT1 N0 M0	II	> .75 mm	—	—	—	—	—	4/0 4
IB	pT2 N0 M0	III	.75 mm > 1.5 mm	—	—	—	—	—	7/0 7
II	pT3 N0 M0	IV	1.5 > 4.0 mm	—	—	—	—	—	3/0 3
IIIA	rT4a N0 M0	V	> 4.0 mm	—	—	—	—	—	1/1 2
or	pT4b N0 M0	V	> 4.0 mm	Within 2cm of primary	—	—	—	—	1/0 1
or	Any pT N1 M0	—	> 4.0 mm	—	> 3.0 cm	—	—	—	14/3 17
IIIB	Any pT N2a M0	—	—	—	> 3.0 cm	—	—	—	7/3 10
or	Any pT N2b M0	—	—	—	—	> 2 cm from pT/ not beyond region	—	—	1/4 5
IVA	Any pT Any N M1	—	—	—	—	—	Any	—	7/11 18
IVB	Any pT Any N M2	—	—	—	—	—	—	Any	0/86 86

Breslow, greatest thickness of pT; M, metastasis; N, node; pT, primary tumor; rT, recurrent tumor.

Clark level of invasion: II, in the papillary dermis; III, at the papillary/reticular dermis interface; IV, in the reticular dermis; V, in the subcutaneous tissue.

and superficial spreading malignant melanoma, we have provided a breakdown of the staging criteria we used in Table 1. We borrowed from current international standards of the TNM (tumor, node, metastasis) system for melanoma as published by the American Joint Committee on Cancer²⁹ as well as the more precise staging divisions for micrometastases as published by the Union Internationale Contre le Cancer (UICC), or International Union Against Cancer.³⁰ Both of these methods incorporate Clark levels (tissue invasion) and the Breslow index (tumor thickness).

The recent reclassification of melanoma staging emphasizes micrometastases and has, therefore, caused considerable stage migration. Many melanoma tumors that would previously have been categorized as stage IIB have moved to stage III. Stage III has been expanded and divided into stages IIIA and IIIB. The net effect of this reclassification, from our point of view, is an amplification of the survival benefit of lifestyle management as represented by the Gerson cancer treatment. In this paper, we have presented our findings with a proposed new division of stage IV into two parts. We believe that our findings support this proposal.

RESULTS

The primary purpose of our study was to assess survival outcomes as measured by 5-year survival rates by stage, which

are summarized in Table 2. Of 249 potential melanoma patients identified from lists and files of the above mentioned organizations, survival outcomes were learned for 196 (79%), whereas 53 (21%) were lost to follow-up. Stage at admission was assessable in 167 cases (85%), whereas in 29 (15%) it was not.

Of 14 patients (8%) who were excluded, 3 did not have malignant melanoma (2 had melanoma in situ, and 1 had a history of melanoma). One case of pediatric melanoma was excluded because of its unique nature. Ten cases of ocular melanoma (2

Table 2 5-year survival rates by most clinically important disease (TNM)

TNM	All pT1-3	(Any T) N1	(Any T) N2	(Any T, Any N) M1	(Any T, Any N) M2
n =	14	17	15	18	86
5-year survival	100%	82%	67%	39%	—
Alive at 5 yrs	14	14	8	7	0
Deceased	0	3	7	11	86

Two rT4a patients and one primary T4b (early stage III) patient are not reflected in the above table.

surviving, 8 deceased), which has different staging criteria and is not directly comparable to either nodular melanoma or the superficial spreading type, were also excluded. Superficial and nodular melanoma become comparable with the use of Clark levels and the Breslow index.²⁴

After exclusions, a total of 153 patients were included in this review; 45 (29%) lived at least 5 years (41 of whom were alive at this writing), and 108 (71%) were known to be deceased. Survival rates within the Gerson system are clearly stage-related (Table 3). A log-rank test for homogeneity of Kaplan-Meier survival curves for early (localized) versus late (regionally or distantly metastasized) disease (Figure 1) revealed that the difference was statistically significant ($P=.007$). However, as will be seen below, survival rates for men and women do not differ until distant (beyond the primary lymphatic drainage system—stage IV) metastases have presented.

STAGES I AND II

Of the 153 patients assessable for stage at admission, 14 (9%) entered the Gerson program with early (stage I or II) melanoma. At admission 4 patients were stage IA, 7 were IB, and 3 were stage II. None suffered progression of melanoma after admission; all remained free from melanoma for up to 17 years; 13 were alive at this writing; and 1 was deceased of other causes.

All of the stage I and II patients reviewed were admitted to the Gerson program before May 1987 and were, therefore, included in the assessment of the 5-year survival rate. All of the 14 early stage melanoma patients remained disease-free for a minimum of 7½ years and a maximum of 17 years. No deaths due to melanoma had occurred in this group as of this writing (although a 74-year-old, 15-year stage II survivor died of prostate cancer). When contrasted with a meta-analysis of 15,798 stage I and II melanoma patients from reporting centers worldwide in which Balch²⁵ found an overall average 5-year survival rate of 79%, the sample size in the Gerson treatment system was too small for statistical significance ($\chi^2=2.56$, $P=.11$). The sample would have to be 36% larger (that is, an additional 5 nonrecurrent early-stage patients would be required) to reach significance. However, seen

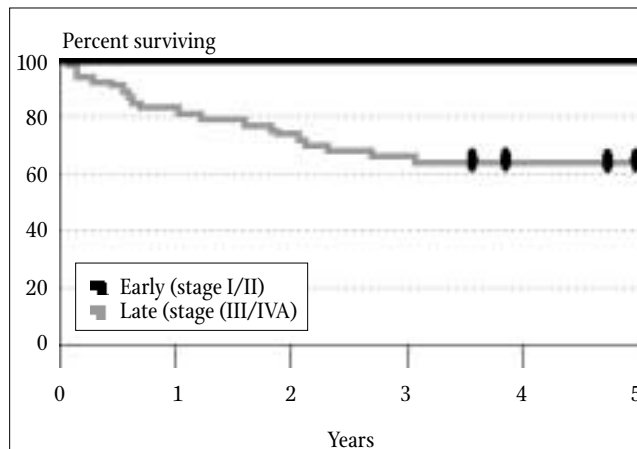


Figure 1 Early (localized) versus late (regionally or distantly metastasized) melanoma

in the context of this study's unusually positive findings for stages III and IVA, these data hint that aggressive lifestyle intervention (eg, Gerson's therapy) may hold a potential to reduce the worldwide 5-year mortality rate for early-stage, localized melanoma. Of the early stage patients in Balch's meta-analysis, 21% (more than 3300) were deceased at 5 years.

It is also of interest that stage I and II patients comprised approximately 88% (15,798 of 17,914) of the melanoma cases reported by centers worldwide, whereas physicians offering the Gerson cancer treatment saw only 9% (14 out of 153) at such an early and hopeful stage.

STAGE III

In all, 35 (23%) of the assessable cases were admitted at stage III. The 5-year survival rate for 35 assessable stage III melanoma patients treated with the Gerson diet therapy is 71%, with 10 deceased before the 5-year mark and 25 cancer-free for at least 5 years.

The American Cancer Society has reported a 39% 5-year survival rate for stage III melanoma. Other reported 5-year survival rates²⁵ range from 27% in Brisbane to 42% at Duke University. Interestingly, no center included in Balch's meta-analysis,²⁵ other than Duke University, reported a 5-year survival rate higher than 37%.

Drepper et al,²⁶ from the Fachklinik Hornheide, reported a 39% 5-year survival rate (n=103) for patients with stage IIIA (N1 only) melanoma. A comparable group from the Gerson system (n=17) achieved an 82% 5-year rate. The comparison (0.43 difference in means), which reveals a 110% greater survival advantage for patients in the Gerson system, is statistically significant ($\chi^2=9.48$ with 1 *df*, $P=.002$, power=.887).

The Fachklinik Hornheide also documented a 41% 5-year survival rate for all (n=134) its stage IIIA (T4b and N1) and stage IIIB (N2 patients). Same-stage patients in the Gerson

Table 3 Survival rates by stage

Year	Stage I/II (n=14)	Stage III/IVA (n=53)	Overall
0	100	100	100
1	100	83 ± 5	87 ± 4
2	100	74 ± 6	79 ± 5
3	100	66 ± 7	73 ± 5
4	100	64 ± 7	72 ± 6
5	100	64 ± 7	72 ± 6

Note: Stage IVB was not assessed.

system (n=33) achieved a 5-year survival rate of 70%. The difference in means (.29) is statistically significant ($\chi^2=7.62$ with 1 *df*, $P<.006$, power=.802).

STAGE IVA

Of the assessable patients, 104 (68%) had a stage IV tumor at admission. All stage IV survivors in the Gerson program were admitted presenting only superficial metastatic disease (limited to skin, subcutaneous, and lymph involvement) with no internal metastases. We believe that these patients represent a responsive subgroup within stage IV, and suggest categorizing such patients separately as stage IVA.

According to Balch, 23% of stage IV patients reported worldwide present first metastases confined to lymph, skin, and subcutaneous tissue (any T, any N, M1). He reports that this group has a median survival of 7.2 months and a 1-year survival rate of 25% worldwide.

Of the stage IV patients admitted to the Gerson program, 18 (17%) were classified M1 (stage IVA); 7 (39%) of 18 were alive at this writing, with a survival range of 5 to 19 years. Therefore, the 5-year survival rate for 18 melanoma patients admitted to the Gerson program at stage IVA was 39%.

Ryan et al²⁷ of the Eastern Cooperative Oncology Group (ECOG) published an outcomes analysis of 635 advanced-stage melanoma patients in which they offered a breakdown of survival by most significant sites. ECOG showed 11 of 194 patients fitting our stage IVA criteria to have lived 5 years, for a 5-year survival rate of 6%.²⁷ In contrast, the 5-year survival rate for 7 of 18 stage IVA melanoma patients in the Gerson system was 39% (550%) greater (0.33 difference in mean). This comparison is statistically significant ($\chi^2=19.3$ with 1 *df*, $P<.0001$, power=.997).

STAGE IVB

We have made no attempt to assess the survival impact of Gerson's cancer therapy in stage IVB. Because there were no exclusion criteria at any of the Gerson treating facilities, we were unable to find a single comparable treatment group moving through any other reporting treatment system. Of the 86 patients (56% of the assessable group) admitted to the Gerson program at stage IVB, most had gravely advanced disease. All are deceased, 6 of the deceased were not able to start the Gerson treatment, 6 died in the hospital, 1 presented with both melanoma and AIDS, and 14 are known to have had lactate dehydrogenase readings 300% or more above normal at admission. The highest recorded was 3776, or more than 2400% above normal. Major metastases were distributed as follows: 26% had brain involvement, 30% had liver tumors, 18% had tumors in abdominal viscera other than the liver, 40% had lung disease, 21% had melanoma in the bone, and 25% exhibited skin tumors.

Only one patient, a female registered nurse originally admitted at stage III, had documented objective radiological evidence of progression to internal (bone) disease (M2, stage IVB) and subsequent complete remission of those lesions. She had

Table 4 Survival rates by gender

Year	Female (n=39)	Male (n=28)	Overall
0	100	100	100
1	92 ± 4	79 ± 8	87 ± 4
2	87 ± 5	68 ± 9	79 ± 5
3	85 ± 6	57 ± 9	73 ± 5
4	85 ± 6	54 ± 9	72 ± 6
5	85 ± 6	54 ± 9	72 ± 6

Note: Stage IVB was not assessed.

been alive and well for 8 years at this writing.

INFLUENCE OF GENDER ON SURVIVAL

A female survival advantage has been reported widely in the melanoma literature. Although a female survival advantage is seen in the Gerson system (Table 4), male and female 5-year survival rates are not significantly different until stage IVA (distant metastases to skin, subcutaneous tissue, and lymph). Male and female survival rates are substantially the same for patients with stage I and II (completely local disease) as well as those with stages IIIA and IIIB (regionally metastasized disease).

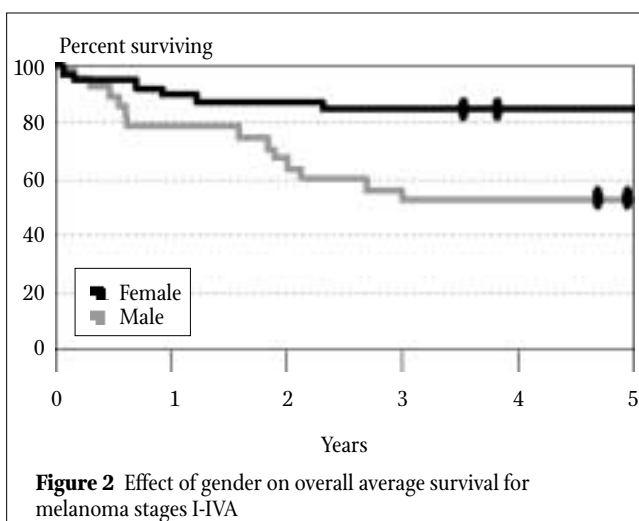
Twelve women and 2 men were admitted with early (stage I and II) melanoma. This shows an unexplained female recruitment bias (6:1) in early-stage patients, which did not occur with any other stage.

Of 35 patients assessed for stage IIIA and IIIB (all primary T4a, primary T4b, N1, and N2) 5-year survival rates, 18 (51%) were male and 17 (49%) were female, a distribution similar to that reported by the Fachklinik Hornheide,²⁶ which had 49% male and 51% female patients. Of those who were cancer-free at 5 years or beyond, 12 were male and 13 were female. Of the deceased, 6 were male and 4 were female.

Comparison of the 67% 5-year survival rate for all stage III men in the Gerson system with the 76% rate for women (0.09 difference in mean) is not statistically significant (Fisher's Exact Test, $P=.71$). Two of the 12 male 5-year survivors had recurrence of tumors after the 5th year and are deceased. One female 15-year survivor had recurrence of tumors and is deceased. Even at 10 years, although the survival rate for females (63%, n=8) is considerably higher than that for males (50%, n=12), the difference in means (0.13) is not statistically significant (Fisher's Exact Test, $P=.49$).

Of 18 patients admitted for treatment of stage IVA melanoma, 9 were women and 9 were men. This recruitment pattern, half and half, is consistent with the melanoma literature. Of 7 who survived 5 years, 6 (86%) were female, whereas only 1 (14%) was male. Although the samples are tiny, the female 5-year survival rate of 67% is statistically significant compared with the male rate of 11% (Fisher's Exact Test, $P=.05$).

When IVA survival and mortality data are included with



data for stages I through IIIB, the Kaplan-Meier survival curves for stage I-IVA male versus female patients (Figure 2) are significantly different ($P=.004$) when log-rank tested for homogeneity over 5 years.

LIMITATIONS

It has been repeatedly suggested that patients who use alternative cancer treatments may be different from patients who employ only conventional treatments. Several differences have been reported by Cassileth et al,³¹ who found that alternative treatment users tended to be white and better educated than those who used only conventional treatments. It remains to be seen whether these or any other influences yet to be discovered can account for the survival advantage observed in the Gerson system. However, at present, we can cite no convincing evidence that patients treated in the Gerson system differed from the comparison groups according to any meaningful prognostic variables.

This report has not accounted for variables such as the role and influence of individual components and various sets of components within the Gerson system. Subsequent to the completion of this report, we have shown two major variables, complementary use of surgery and the use of raw veal liver/carrot juice, to be significantly associated with improved melanoma survival outcomes.¹⁷ Studies of the rationales for modifications made by Gerson over the 30-year course of development of his treatment have led to contemporary modifications,¹⁷ creating still more challenges for thorough analysis.

This study is a retrospective analysis and therefore lacks the luster of a randomized clinical trial. However, the authors have made every attempt to verify adherence to therapy (especially by the survivors), to contrast these data with existing data banks, and to clearly present the comparisons here.

DISCUSSION

No clearly defined mechanism has been identified to

account for the survival advantage demonstrated above. Gerson believed that oxidizing enzymes supplied by the raw juices of his diet therapy improved host functions sufficiently to disadvantage malignant cells, which he believed produced their energy through fermentative metabolism. This belief was based on the long popular, but now disproven, cancer generalization of Otto Warburg discussed by Ling.³² The clinical findings of the present study neither validate Gerson's Warburg-based rationale nor disprove Gerson's idea of host enhancement to challenge malignancy.

Gerson also believed, after Tannenbaum,³³ that calorie restriction, increased calorie utilization rate, and micronutrient hyperalimentation could favor the tumor-bearing host and suppress development of both primary tumors and metastases. In principle, this belief may have withstood the test of time and advances in research.³¹

A huge general category of micronutrients, phytochemicals, has become the focus of a great deal of basic cancer and chemoprevention research. Clearly, Gerson's treatment provides high, and in some cases extraordinary, doses of thousands of phytochemicals. However, the literature does not yield practical knowledge of the effects of either individual or combined phytochemicals on human cancers.

Cope³⁹ wrote that Gerson's salt-and-water management for cancer was an approach that probably led to correction of tissue damage syndrome, or cellular edema caused by poisoning, starvation, hypoxia, or physical trauma. He believed that Gerson's sometimes extraordinary outcomes might have been due, at least in part, to this mechanism.

Although it has been suggested⁴⁰ that any benefits conferred by Gerson's cancer therapy may result in greatest part from its psychosocial impact, this question has never been investigated. It is reasonable that observers assume a mind/body effect, due to the treatment's obvious self-help components and the CHIPSA medical team's active encouragement of family involvement, even during the patient's hospitalization. Provisions have been made at CHIPSA for inexpensive room and board for companions. Spouses and close relatives are often able to stay with the patient in a private room. This accommodation results in a very high level of family and support-community involvement.

Fawzy et al²⁸ recently provided findings demonstrating the positive impact of psychiatric intervention on the 6-year disease-free survival rate of stage I melanoma patients in his treatment system. In his study 13 of 34 stage I control subjects had melanoma recurrences (10 had died at the time of his report), whereas only 7 of 34 test patients had recurrences (3 had died). Therefore, the 6-year disease-free survival rate for Fawzy's control subjects was 62%, whereas for his test patients it was 79%, a rate similar to the one cited by Balch.²⁵ Comparison with the 100% 6-year disease-free survival of 14 early stage (localized) melanoma patients in the Gerson treatment system shows a 27% greater survival benefit (0.21 difference in mean). However, due to the small sample size for Gerson patients, a log-rank test for continuity of survival curves (Figure 3) over the entire study time is below statistical significance, with only 93% confidence

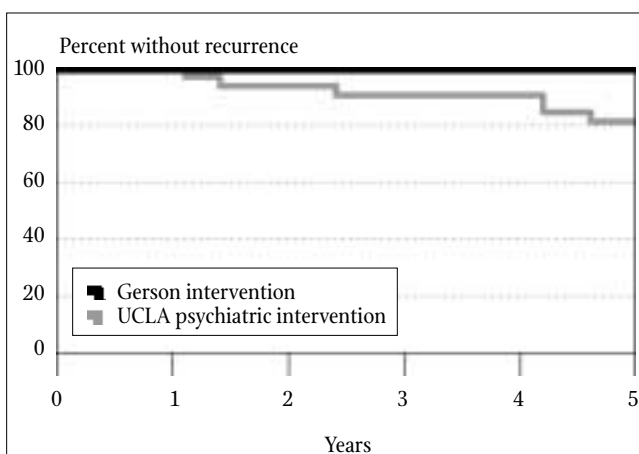


Figure 3 Comparison of survival for psychiatric intervention versus Gerson's therapy

($P=.07$). Still, especially when seen in the light of stage IIIA, IIIB and IVA melanoma patients in the Gerson system, the complete absence of recurrence in the Gerson patients supports the possibility of a potent physiological effect from Gerson's therapy, in addition to its probable beneficial psychosocial effect.

During peer review of this paper, a question arose regarding the potential difference between patients we were able to locate and assess versus those who remained lost to follow-up. How might lost-to-follow-up patients have affected the rates?

To address this issue, we compared the current findings with those tabulated³⁴ in September 1993, at the beginning of our retrospective study. After updating its staging system to match the current report, we found that the 1993 analysis included 44 patients in stages I-IVA assessable for 5-year survival. The 5-year rates were as follows: Stages I and II = 100% (n=12); Stages IIIA and IIIB = 68% (n=25); Stage IVA = 57% (n=7). The average 5-year survival rate for the entire group was 75%.

Fourteen patients who had been lost to follow-up in 1993 were located and assessed during the last 2 years. Adding those 14 cases, bringing the number of assessable patients to 58, the rates remained substantially the same (with the exception of IVA, in which the initial sample size was quite small). The 5-year survival rates including those 14 cases are: Stages I and II = 100% (n=14); Stages IIIA and IIIB = 67% (n=30); Stage IVA = 36% (n=14). The average 5-year survival rate of the enlarged group was 67%.

An additional 9 patients who were admitted after August 1988 but before August 1990 became assessable for 5-year survival. With inclusion of those cases, bringing the number of patients to 67, the rates remained similar: Stages I and II = 100% (n=14); Stages IIIA and IIIB = 71% (n=35); Stage IVA = 39% (n=18). With recently recruited patients, the group's average 5-year survival rate was 69%.

There were no statistically significant differences among the average rates ($\chi^2=0.786$, power=.109). We believe that the continuity of findings at various stages of the investigation suggests

that the current rates are probably reliable, and that discovery or recruitment of additional patients, barring the recruitment of substantially greater numbers of stage I and II patients, will probably not alter the average survival rate significantly.

We were unable to assess a potential survival benefit for stage IVB melanoma patients in this treatment system. While the Gerson treatment provides many clinical benefits to stage IVB melanoma patients with internal metastases who are able to practice it, these benefits must be measured with validated "quality-of-life" instruments. Such measurements can be accomplished only through prospective data collection, which is ongoing and will be the subject of future reports. Data on exact date and cause of death are being pursued by application to the National Center for Health Statistics for use of the National Death Index. We will report findings as they become available.

Clearly, the search for meaningful biological response modifiers, vaccines, and other means of host stimulation may be paramount for the management of advanced melanoma tumors that are internally metastasized. In fact, any means of relatively safe tumor debulking must be given serious consideration.

This retrospective study is our first (but not our last) effort at assessment of the outcomes of cancer patients moving through the Gerson treatment system as represented by the 20-year-old CHIPSA medical practice in Playas de Tijuana, Mexico.

The longest-surviving melanoma patient in this study has been disease-free for 20 years. Four patients who were alive and disease-free at 5 years (reported alive in this assessment) have died. Three stage III patients died of recurrent melanoma after the fifth year (one of them after 16 years). One stage IB patient died after 15 years, of prostate cancer, at age 74. And 41 patients are alive and free from disease.

Although retrospective reviews cannot account for many influences, they clearly can be used to describe aggregate outcomes that can stand on their own for purposes of comparison with other groups and treatment systems, and to further the discussion regarding appropriate methods of cancer management. We encourage those involved with other alternative and complementary methods of cancer management to pursue this route.

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