Original Research

The role of follow-up and retrospective data analysis in alternative cancer management: the Gerson experience

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ABSTRACT

Objective. Retrospective statistical analysis of the outcomes of melanoma patients treated with Gerson's nutrition-based cancer therapy was undertaken not only to present data to the lay and medical communities, but also to guide critical analysis of the alternative therapy itself. In a previous publication, patients moving through the Gerson treatment system were found to enjoy an overall survival advantage at 5 years when compared to the outcomes reported by other centers. In this publication, Kaplan-Meier life tables were used to demonstrate differences in the outcomes of subsets of Gerson diet patients affected by two variables, complementary use of surgery, and consumption of raw veal liver/carrot juice. Survival rates were higher for patients who employed surgery along with diet therapy when compared with those who did not have surgery. Similarly, survival rates were higher for those who reliably received safe liver juice, than for those whose supplies were interrupted or discontinued due to contamination.

Design. Retrospective analysis was done on a case series of 53 consecutive stage IIIA, IIIB, and IVA melanoma patients admitted to the Gerson cancer management program from 1975 through July of 1990. Follow-up is ongoing.

Setting. Centro Hospitalario Internacional del Pacifico, S.A. (CHIPSA), a 58-bed semi-intensive care hospital located in Playas de Tijuana, Baja California, Mexico.

Patients. This study reports on all self-selecting stage IIIA, IIIB, and IVA (M1-only) adult superficial spreading and nodular melanoma patients who presented for treatment during the time frame. Almost all patients were from the U.S., while several came from other English speaking countries. All were Caucasian.

Intervention. All patients were treated with the nutrition-based cancer management described by Max Bernard Gerson, M.D. It is a salt and water management, restricting sodium and supplementing potassium. It increases nutrient intake while forcing fluids by hourly administration of raw vegetable and fruit juices. Calorie burning is accelerated by thyroid administration, while caloric content of the diet is limited (2,600 - 3,200 cal/day) by a low-fat, lactovegetarian diet. Protein is temporarily restricted. Coffee enemas are administered *pro re nata* (as frequently as every 4 hours) to improve host nutritional parameters and to relieve pain. The diet-based cancer treatment was developed empirically, i.e. by trial and error, by Gerson alone, over the course of 30 years of clinical experimentation. It is one of several unique dietotherapies developed by Gerson, stemming from prior successes in nutritional management of tuberculosis and other pathologies. Several versions of the cancer treatment were published by Gerson. About a third of the patients in this study received the last version published (Gerson, 1958). Unlike its predecessors, the last version included three glasses/day of raw veal liver/carrot juice.

Main Outcome Measured. Survival according to two variables, concomitant use of surgery, and use of raw veal liver/carrot juice.

Results. Within the Gerson system, all rTa, T4b, N1, N2, and M1 patients who combined Gerson's cancer therapy with surgical tumor debulking ($n = 32$) achieved a 114% greater (.40 difference in means) 5-year survival rate (75%), a survival advantage double that for those who did not have surgery (35%, $n = 17$). The difference is statistically significant (Fisher's Exact test, $P = 0.013$). This finding contradicted an oral tradition surrounding the diet therapy, and led to a change in clinical practice. During the same evaluation, first a Wilcoxon life test, and then a Cox proportional hazards regression significantly correlated both gender and stage with risk. Although the sample size was too small for the 95% confidence required for statistical significance, the Cox regression revealed a 90% probability that entry into the Gerson system after the development of a bacterial contamination problem in veal liver supplies was associated with lower survival rates, especially during the first two years of treatment. A Kaplan-Meier survival plot showing comparative survival curves revealed a sharp drop in 1st and 2nd year survivals for patients admitted after July of 1987. On comparison with the 95% 18-month survival rate of patients who received dependable liver supplies ($n = 19$), those whose supplies were interrupted or discontinued altogether ($n = 16$) achieved only 56% 18-month survival. The difference in mean (.39) is statistically significant, with a 99% probability score (Fisher's Exact test, $P = 0.013$). A thorough cross-analytical comparison of the different versions of cancer management published by Gerson, and the associated literature of the period, revealed the probable cause of increased short term mortality and resulted in a change in the clinical practice of CHIPSA.

Conclusions. Self-selecting adult melanoma patients utilizing Gerson's aggressive nutritional intervention have achieved far better stage-related 5 year survival rates than have been reported elsewhere in the literature. Within the Gerson system, advanced (nonlocal disease) patients who combined surgery with Gerson's therapy enjoyed a more than doubled 18 month-survival rate when compared with those who relied on only non-surgical treatment. At 18 months, patients who received liver juice achieved a 70% greater survival advantage than did those whose supply was interrupted by contamina-

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tion or discontinued altogether. These outcomes led to changes in clinical practice.

INTRODUCTION

The late Senator Sam Irvin remarked during the famed Watergate hearings, "The human being is like the lightening bug, in that we tend to carry our illumination behind us." Recently, in his book *The Death of Common Sense*, Philip K. Howard invoked a visionary statement by Alexis de Toqueville, who wrote, "If the lights that guide us ever go out they will fade little by little as if by their own accord." In their absence, we will "lose sight of basic principles" and will be "only able to make a clumsy and unintelligent use of wise procedures no longer understood." While Toqueville foresaw the dismal ineptitude which can result from the decay of a well-organized system, he might have reminded us that, even when lost in uncharted territory, we can regain our bearings by retracing our steps (and those of our predecessors).

It is fortunate that, even while targeted by an illegal, anti-competitive, AMA-led boycott, Max Gerson, MD was able to publish a small body of literature chronicling the development and best-case results of his nutrition-based cancer management. Those publications and a surviving oral tradition have served as the clinical rule book for the medical practice of the Centro Hospitalario Internacional del Pacifico, S.A. (CHIPSA), of Playas de Tijuana, Baja California, Mexico.

Recent dynamically changing circumstances, coupled with surprising retrospective findings, as well as in depth studies of Gerson's publications and the relevant literature of his time, have raised questions, provoked animated debates, and led ultimately to changes in CHIPSA's clinical guidelines and practice. In this paper, we describe our experiences with the hope that they may be instructive to other alternative practitioners who are ready to add a retrospective analytical component to their own practices.

Background

We recently reported (1) stage-related 5-year survival rates for stage I, II, IIIA, IIIB, and IVA patients drawn from a consecutive sample of 153 melanoma patients treated with the nutrition-based cancer therapy proposed by Max Bernard Gerson. (2) To our knowledge, this report was the first published retrospective analysis of survival outcomes for any of the well-known alternative method of cancer management. (3)

For the benefit of this discussion, we will summarize the outcomes as reported in *Alternative Therapies in Health and Medicine* (Sept-Oct, 1995). A 100% 5-year survival rate for stage I and II melanoma patients was seen in the Gerson system ($n = 14$). This was considerably higher than the 79% 5-year rate found by Balch (4) in his 1992 meta-analysis, but the Gerson sample was a third too small for statistical significance ($c2 = 2.56$, $P = 0.109$).

However, the 100% recurrence-free survival of localized melanoma patients can be seen more favorably in the light of an 82% 5-year survival rate in stage IIIA melanoma patients (any T4a, T4b, or N1) in the Gerson system ($n = 17$). Stage IIIA Gerson patients experienced a 110% greater (.43 difference in means) survival advantage ($c2 = 9.48$ with 1 degree freedom, $P = 0.002$, Power = 0.887) than did same-stage patients of the Fachklinik Hornheide ($n = 103$) whose 39% 5 year survival rate is published by the American Cancer Society.(5)

All T4b, N1, and N2 patients (stages IIIA + IIIB) within the Gerson system ($n = 33$) achieved 70% 5-year survival in contrast to same-stage patients of Fachklinik Hornheide ($n = 134$), whose 5 year survival rate was 41%. The 0.29 difference in means is statistically significant ($c2 = 7.62$ with 1 degree freedom, $P = 0.006$, Power = 0.802).

Stage IVA (any T, any N, M1-only) Gerson patients ($n = 18$) experienced a 39% 5 year survival rate. The Eastern Cooperative Oncology Group (6) reported a 6% 5-year survival rate in same-stage patients ($n = 194$). The .33 difference in means is significant ($c2 = 19.3$ with 1 degree freedom, $P < 0.0001$, Power = 0.997). Survival impact of Gerson's cancer therapy in internally metastasized stage IVB melanoma (any T, any N, M2) was not assessed.

METHODS

Over 15 years, from 1975 through July of 1990, 53 self-selecting adult Caucasian melanoma patients assessable for stages IIIA, IIIB, and IVA at admission were treated with Gerson's nutrition-based cancer therapy. Of the 53 cases, almost all were hospitalized by physicians at CHIPSA, while several were treated by physicians in private practice. Medical charts supplied by CHIPSA were consolidated from three earlier facilities, Hospital La Gloria, Hospital Jardines La Mesa, and Hospital Del Sol, all from the Tijuana metropolitan area. All patients were treated with the nutrition-based cancer management described by Gerson.

In the early part of this century, Gerson was responsible for the introduction of therapeutic sodium restriction (7) into the literature. He developed a salt and water management for cellular edema in refractory cutaneous tuberculosis (*lupus vulgaris*) (8) which was broadly tested and approved by the majority of authors (9) for its curative capabilities. Clarence Emerson (10) of Nebraska's Lincoln General Hospital was the first American author to refer to it as a "metabolic" therapy.

Over the fifty year course of his medical career, Gerson developed a number of unique nutrition-based therapies for management of edemas occurring in various pathologies, (8,11,12) taking into account the widely varying requirements of patients suffering from different diseases. His efforts attracted federal funding for advanced clinical research at the University of Munich.(13) His cancer therapy, which was developed empirically over the course of thirty years of clinical experimentation, (14) was published in several distinct versions. (2,15-17)

The nutritional core of all versions of Gerson's cancer management has remained essentially the same since its first publication in 1945. 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 thirteen hourly feedings of raw fruit and vegetable juices daily. It emphasizes intake of solid foods, mostly vegetables, in addition to the juices.

While at the University of Munich, Gerson concluded that temporary protein restriction aided edema absorption (12) 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 observed with children and elderly patients.

From the outset, Gerson's medications were clearly aimed at ATP production and enhanced carbohydrate, fat, and protein metabolism, reflecting his clinical application of emerging knowledge regarding oxidative phosphorylation (18) and its special nutrient requirements. Niacin, brewer's yeast, dicalcium phosphate with irradi-

ated ergosterol, vitamins A and D, potassium salts (acetate, gluconate, and monophosphate), liver and iron capsules, and crude liver extract with vitamin B-12 injectable, were given to support cellular energy production. Five years after the addition of high dose iodine medications (desiccated thyroid and Lugol's solution 5%), raw veal liver/carrot juice replaced yeast, phosphates, and vitamins A and D.

Castor oil, a cathartic with no known clinical side effects, was administered both orally and rectally every other day for many weeks. Retention enemas medicated with boiled coffee were given as frequently as every four hours, throughout the day and night, to alleviate pain and improve nutrition. Peter Lechner has demonstrated statistically significant cancer pain relief from coffee enemas in a prospective matched-control trial at the University Hospital of Graz, Austria.(19) Cope suggested coffee enemas may achieve a crude dialysis across the gut wall14 abstract for tumor breakdown products. Lechner has also observed improved tolerance of aggressive conventional treatments in those patients who are willing to employ Gerson's therapy at the same time.(20) The management is generally prescribed for a period ranging from 18 to 36 months, on a case by case basis.

Only two of the patients in this study, both stage IVA 5-year survivors, employed conventional but non-surgical treatments as adjuvants. Both used biological response modifiers: 1 employed interferon for 6 months, and the other utilized levamisole. Several patients whose disease had escaped surgical management before admission to the Gerson program required one or more additional surgeries during treatment.

Data collection

Data were originally compiled for the above mentioned retrospective survival analysis. For that study, charts were retroactively cataloged to assess stage at admission. Epidemiological services provided by Equifax augmented our own efforts to locate patients, families, or friends. In 1993, the Gerson Research Organization (GRO) began publishing a free newsletter for current and past patients. Patients were invited to join a support network, and encouraged to share the newsletter with any patient, even those not treated by CHIPSA physicians. Several independently treated patients were located and added to the review.

Statistical methods

Fifty three charts of patients with stages IIIA, IIIB, and IVA melanoma were reviewed for both complementary use of surgical tumor debulking and use of raw veal liver/carrot juice. In the comparison of two groups, we used the Chi-square (c2). When comparing small samples, we employed the Fisher Exact Test. For most of the above tests, we employed a computer program, *SigmaStat*, by Jandel Scientific Software. Programs were created by one of us (S.C.) to generate Kaplan-Meier survival functions. Survival curves were plotted in Harvard graphics. Wilcoxon life tests, Cox regressions and log-rank tests for homogeneity of survival curves were also used for comparison of data.

Staging criteria used in this report

To enable comparisons of other groups to patients in the Gerson system, we have provided a breakdown of our staging criteria (*see Table 1*). We combined the most utilitarian elements of two similar staging systems, the current international standards of TNM (tumor, nodes, metastases) for melanoma as published by the American Joint Committee on Cancer. (21) and the clearly delineated staging divisions for micrometastases as published by the International Union Against Cancer. (22) Both of these methods incorporate Clark levels (tissue invasion) and the Breslow index (tumor thickness).

In *Alternative Therapies in Health and Medicine*, we proposed the division of stage IV into two parts, IVA (patients with M1 = distant tumors of skin, subcutaneous tissue, and lymph), and IVB (those with M2 = visceral metastases), due to a great difference in 5 year survival rates for those groups in the Gerson system.

RESULTS

Two opportunities for improvement of the clinical algorithm for melanoma were discovered in the process of retrospective epidemiological review of melanoma patients treated with Gerson's cancer management. Both complementary use of surgery and raw veal liver/carrot juice were statistically correlated to patients in the Gerson system whose survival outcomes were better than for those who, respectively, refused surgery, and those whose supplies of liver juice were disrupted by contamination or discontinued altogether.

Complementary Surgery

Within the Gerson treatment system, a number of patients avoided surgery for recurrent melanoma. Forty nine patients assessable for use of surgery were admitted for metastasized disease at stages IIIA, IIIB, and IVA with T4b (n = 1), N1 (n = 16), N2 (n = 15), and M1 (n =17) as their most significant manifestation. Of these, 17 (8 females and 9 males) opted against surgery (N1 =3, N2 = 4, M1 = 10). 6 nonsurgical patients survived 5 years; N1 = 2 (67%), N2 = 1 (25%), M1 = 3 (30%). The average 5-year survival rate for nonsurgical patients was 35%.

Thirty four patients (17 males and 17 females) employed surgery and diet therapy as complementary managements for rT4a (n = 2), T4b (n = 1), N1 (n = 12), N2 (n = 10), and M1 (n = 7). 24 surgical patients survived 5 years; T4a = 1, T4b = 1, N1 = 11 (92%), N2 = 8 (80%), M1 = 4 (57%). The average 5-year survival rate for surgical patients was 75%. The difference in means (.40), which reflects a more than doubled (114% greater) survival advantage, is statistically significant (Fisher Exact Test, P = 0.013).

A log-rank test for homogeneity of Kaplan-Meier survival curves (see *Figure 1*) is also significant (P = 0.039). Review of the survivors charts revealed that complementary surgeries were successfully employed both before and during treatment with Gerson's cancer therapy.

Such a clear demonstration of benefit with complementary managements cannot be overlooked, even though it may, as it did in the case of Gerson's cancer treatment, conflict with the surviving oral tradition surrounding the scholarly alternative practitioner's work. Although avoidance of surgery for melanoma is commonplace among patients of alternative cancer practices, it is unlikely that this has come from the physicians. Instead, lay people involved in cancer advocacy groups may advise avoidance of surgery under the mistaken impression that surgery, because it is not curative of most metastasized melanoma patients, therefore has no role in the treatment of that cancer. In fact, it is often asserted that surgery contributes only to formation of the distant metastases. The experience of CHIPSA directly contradicts such advice. Physicians of the CHIPSA medical practice have gained valuable insight into the combined roles of surgery and host management for patients with stages IIIA, IIIB, and IVA melanoma.

Stage	TNM	Clark	Breslow	Satellites	Largest Regional Node	In-transit Metastasis	Non-regional skin, subcutaneous and lymph metastasis	Visceral metastasis	n	At 5 years (alive/deceased)
IA	pT1 N0 M0	II	< .75mm						4	4/0
IB	pT2 N0 M0	III	.75mm >1.5mm						7	7/0
II	pT3 N0 M0	IV	1.5>4.0mm						3	3/0
IIIA	pT4a N0 M0	V	>4.0mm						1	0/1
or	pT4b N0 M0	V	>4.0mm	Within 2cm of primary					2	2/0
or	Any pT N1 M0		>4.0mm		<3.0cm				17	14/3
IIIB	Any pT N2 aM0				>3.0cm				10	7/3
or	AnypT N2b M0					>2cm from pT/not beyond region			5	1/4
IVA	AnypT Any NM1						Any		18	7/11
IVB	AnypT Any NM2							Any	86	0/86

Table 1. Staging System used for this report (reprinted by permission of *Alt Ther Health Med*).

pT = primary tumor; N = node; M = metastases
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

Breslow = greatest thickness of pT

Veal liver juice

We started testing the impact of the year of admission to Gerson management with the year 1985, which is about when serious difficulties with contamination and interruption of CHIPSA's veal liver supplies began. A Wilcoxon life test hinted at a possible effect (*see Table 2*), which led to a Cox proportional hazards regression. The Cox regression (*see Table 3*) also suggested that date of prescription was likely to be a significant variable if we were able to locate the point of greatest difference. To visualize this, we created a Kaplan-Meier survival plot comparing the survival curves of different time groups (*see Figure 2*). With the Kaplan-Meier plot run out in Harvard Graphics, it became immediately evident that the greatest difference was in the short term survival outcomes of people admitted at stages IIIA, IIIB, and IVA. During the years 1986 - June, 1987 there were multiple outbreaks of campylobacter sepsis which led to interruptions and finally to discontinuance of raw veal liver/carrot juice. We compared patient groups from three distinct timeframes: 1) patients admitted before 1985, who had a safe and continuous liver supply, 2) patients admitted from 1986 - June, 1987, whose liver supplies may have been contaminated or disrupted and 3) patients admitted after July of 1987, after which time it had become clear that there were no safe supplies of raw liver to be found. At 18 months, the survival rate for pre-1985 patients ($n = 19$) was 95%, while for post-July 1987 patients ($n = 16$) it was only 56% (*see Figure 3*). The .39 difference in means is quite significant (Fisher Exact Test, $P = 0.013$). This comparison was also significant with a Wilcoxon life test ($P = 0.032$).

DISCUSSION

Clinical epidemiology provided the CHIPSA medical practice two illuminating findings: the correlation of both surgery and raw veal liver/carrot juice with higher survival rates in stages IIIA, IIIB, and IVA melanoma. With retrospective data analyses in hand, correction of the surgical problem was straightforward and required almost no discussion among the CHIPSA practitioners. Surgical tumor debulking is expected to considerably improve stage IIIA, IIIB, and IVA melanoma 5-year survival rates, and the physicians are eager to share this information with their patients. However, simplicity was not a characteristic of the problem which was created with discontinuation of the liver/carrot juice: a sharp reduction of 18-month survival rate for the same stages. Even though the survival curves eventually evened out and ran closer together at the 5-year

Date Rx	p value log-rank	p value Wilcoxon	# Pts. before	# Pts. after
1/1/85	0.44	0.27	31	36
7/1/85	0.4	0.28	35	32
1/1/86	0.77	0.59	38	29
7/1/86	0.31	0.21	42	25

Table 2

Date Rx	% Risk of death/date	% Risk of death/sex	p value date	p value sex	p value stage
1/1/85	104	274	0.12	0.002	NA
7/1/85	112	279	0.1	0.002	NA
7/1/85	90	218	0.16	0.01	0.05
7/1/86	86	238	0.17	0.004	NA

Table 3

mark, it was clear that something should be done to correct the serious downturn in short term survivals.

A literature review began with Gerson, and moved laterally to period articles by other authors of note regarding what was then the newly elaborated complex relationship of vitamins and minerals to each other, and within the thyroid-stimulated metabolism, and to the accelerated metabolism itself.

Gerson's entire medical career was undergirded with his contributions to nutritional chemistry and his practical clinical approaches to the management of cellular edema in tissue damage syndrome caused by various pathologies. (23) Restoration, and periodic stimulation, of cellular metabolism/ATP production, was key to his approach, which clearly had become a form of nutritional immunology.

For nearly 10 years, as described in his first publication on cancer, (2) Gerson utilized nutrients then known to lead to greater cellular energy production (phosphorus uptake) in man: brewers yeast (supplying the vitamin B-complex), liver with iron, vitamin A, vitamin C, and vitamin D, as well as large and frequent dosages of B3. The ability of individual nutrients and nutritional yeast to increase cellular metabolism in human subjects was demonstrated by Basu and De.(24) In the presence of sufficient phosphorus (protein) supplies, supplemental vitamin C increased phosphorus uptake by a third, and vitamin D raised it by half. Both vitamin A and riboflavin independently doubled phosphorus uptake, while vitamin B-complex (from yeast) raised it by more than 400%. Calcium and magnesium requirements tended to increase proportionately with that for phosphorus. The effect of brewers yeast on metabolism may be due, at least in part, to its high ribonucleic acid (RNA) content which aids in the synthesis of mitochondrial proteins. (25) Gerson's own literature (2,15,17) revealed that, for 9½ years (June 1942 - January 1952), he supplemented brewers yeast, liver with iron, vitamins A and D2, and dicalcium phosphate as an integral part of his cancer diet.

In mid-1946, only about 6 months after first publishing his therapy in *The Review of Gastroenterology* (and about 4 years after recruitment of the earliest of his reported cases), Gerson included iodine medications (Lugol's solution and desiccated thyroid)(15) in an effort to greatly increase cell metabolism and ATP (free energy) production in peritumoral edematous tissue. Efforts by Gerson's contemporaries to introduce preformed ATP into the bloodstream have proved toxic.(26) Stimulation of cellular metabolism by thyroid hormones is now understood to produce rapid increases in nuclear RNA synthesis, to alter the content of lipids and proteins in the mitochondrial shelf membrane, to increase both the size and number of mito-

chondria and, in turn, to increase cellular metabolism and demand for coenzymes and the vitamins from which they are derived (thiamine, riboflavin, B12 and C).(27)

In a number of his publications,(16,17) Gerson discussed the anti-tumor effect of calorie restriction *per se*, which had been demonstrated by many authors,(28) but his diet clearly supplied too many calories (2,600-3,200 cal/day; 1,200 cal from the juices alone) to be considered calorie restricted. Gerson referred to the observations of Tannenbaum, (29) 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. Silverstone and Tannenbaum (30) had recently shown the potential utility of thyroid medication in cancer management, a measure which Gerson employed, increasing in his patients the ratio of calorie demand:supply, to emulate the anti-tumor effects of caloric restriction. Contemporary research continues to bolster earlier findings.(31,36)

The literature clearly revealed that high dose thyroid treatment induced far greater than normal nutrient requirements, as well as sobering negative experimental outcomes when those requirements were not met. In the absence of vigorous supplementation with either liver or brewer's yeast, prolonged metabolic hyperstimulation by exogenous thyroid led to wasting and premature death in experimental analogs, even in the presence of the known B-vitamins. Yeast protected against early mortality, created increased appetite, and guarded against weight loss. Liver feeding actually led to thriving weight gain.(32) Approximately 5 years after incorporating high dosages of thyroid and Lugol's solution, Gerson added (in about January of 1952) raw veal liver/carrot juice (17 pg 196) which was prescribed at 24 ounces/day in divided dosages, t.i.d. Each glass contained the pressings from ½ pound of liver and about ¾ pound of carrots. At that time, he discontinued medications which were clearly duplicated by the veal liver/carrot juice, e.g. oral phosphates, brewers yeast, vitamins A and D, and liver with iron capsules.

With one eye on the time frame during which the above medications were used (patients admitted from January of 1942 through December of 1951), and the other on the time frame for veal liver/carrot juice (patients admitted from January of 1952 through April of 1956), it became apparent that (31) (62%) of the positive outcomes reported by Gerson in his *A Cancer Therapy: Results of Fifty Cases*, were treated with the earlier version, while only 19 (38%) were treated with the version presented.

With information from the literature of Gerson's time, and supporting evidence from his own literature, CHIPSA physicians were empowered to revise treatment procedures, taking into account the reported results of both versions of Gerson's cancer management. A decision was made to add to the CHIPSA armamentarium primary dried brewers yeast, oral liver extract, and Coenzyme Q10, a vitamin recently associated with extraordinarily positive outcomes in breast cancer.(33) CoQ10 is a mitochondrial shelf enzyme pivotal to NADH (niacin) metabolism in oxidative phosphorylation. Even though it was unidentified in Gerson's time, it had been amply supplied to his patients in the large daily required quantities of raw veal liver/carrot juice. CoQ10 is only modestly supplied by brewers yeast and liver extracts. The presence of this material in quantity in whole raw veal liver may explain, at least in part, Gerson's strong conviction that the liver/carrot juice greatly improved his patients' responses, and the surprising difference in CHIPSA short term survivals between those who received liver and those who did not.

It has also become apparent that the administration of phosphorus and calcium (essential for phosphorus uptake) along with vitamin D (essential for calcium metabolism) may be more or less required in certain cases to meet the excessive biological demands of thyroid-stimulated metabolism during protein restriction in the early phase of Gerson's treatment. In fact, administration of these materials along with vitamin A, B12, liver and iron capsules, and brewers yeast at levels far above known biological needs was a decade-long epoch in the development of Gerson's cancer management.

From the contemporary viewpoint, the UV irradiated ergosterol (viosterol) used by Gerson as a source of vitamin D to enhance phosphate absorption was probably biologically inactive, its effects being due only to subsequent conversion by the liver and kidneys into active metabolites. Recent advances in understanding of vitamin D mechanisms have led to materials more effective in aiding gut absorption of phosphorus, e.g. 1,25(OH)2D3, a prescription material. This material is a logical choice to replace viosterol in Gerson's protocol.

Recent findings suggest an important anti-proliferative role in the gut for calcium phosphates,(34) and good absorbability, specifically, of tricalcium phosphate,(35) which may be an additional improvement over materials available to Gerson.

Our discovery, that the 50 cases presented by Gerson (17) in 1958 were treated with two different protocols, was doubly illuminating. First, it illustrated the success of efforts by the American Medical Association to discredit and isolate Gerson. Due to lack of appropriate affiliation and research support, he was forced to rely, with apologies,(17 pg 221) on the antiquated monograph style popular in Germany during the 1930s (the end of the Golden Age of German Medicine), presenting only his best cases even though the situation called for a more modern statistical analysis of all long term follow-up data. Second, read in the context of Gerson's earlier cancer-related publications, *A Cancer Therapy* provided key information for addressing the dilemma of reduced short term melanoma survivals in contemporary practice.

Gerson reflected (17, pp 121-2) on the professional isolation and lack of support he experienced in the USA as a result of the anti-competitive activities of Morris Fishbein's influential American Medical Association. On one occasion, he remarked with chilling candor, "On the one side, the knife of the AMA was at my throat, and on my back I had only terminal cases."(17, pg 406) Gerson's American experience stands out in dark contrast against the brilliant and extraordinary research support which had been afforded him by both the Bavarian and Prussian ministries of health (13) prior to the outbreak of the European conflict. He assessed his predicament bluntly, "In this country, I was not in a position where I could carry out enough experiments to constitute a scientific proof..." The current evidence does nothing to detract from Gerson's legacy. Indeed, retrospective analysis can define current trajectory and predict fruitful directions for the future. The authors are optimistic that the introduction of clinical epidemiology into the CHIPSA medical practice has returned Dr. Gerson's cancer management to an appropriate environment for discovery and growth, i.e. the hands of a medical group engaged in clinical research.

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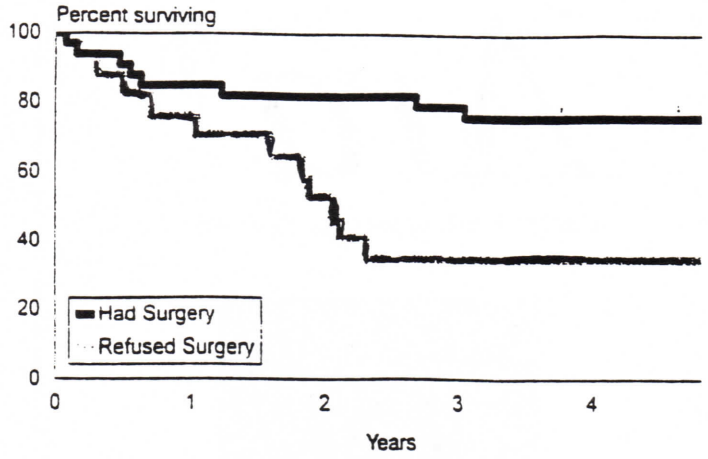

Figure 1. Melanoma stage IIIA, IIIB, and IVA survivals for patients who used surgery vs those who refused it.

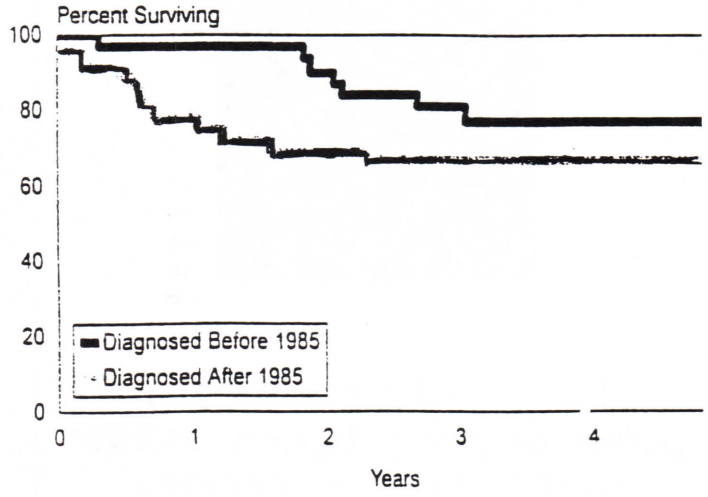

Figure 2. Comparison of survivals for melanoma patients stage IIIA, IIIB, and IVA treated before and after problems developed with supplies of raw veal liver.

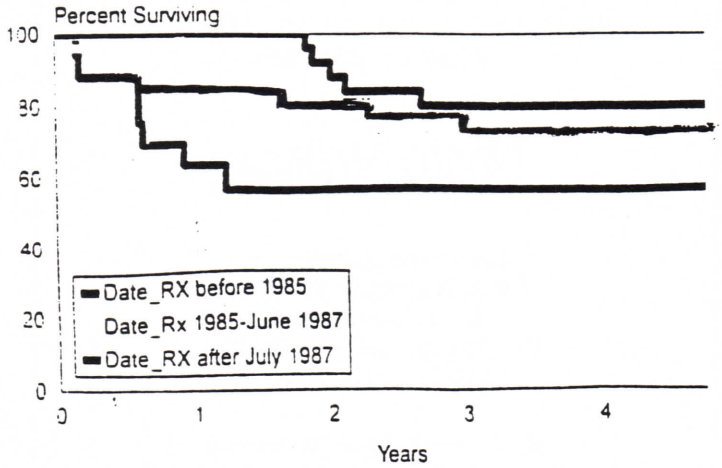

Figure 3. Melanoma stage IIIA, IIIB, and IVA survivals for patients who received safe and continuous liver juice (pre-1985), those whose supplies were repeatedly interrupted by contamination (1985-June, 1987), and those who did not receive liver juice (post-July, 1987).

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