CHAPTER 16

PRESENT FORM OF TREATMENT

THE THERAPEUTIC MEASURES against cancer which have evolved thus far out of the pathogenic and pharmacodynamic concepts described in these pages have proved, as we have shown above, to be useful. All along in their development, they have fallen short of producing uniformly, the full measure of benefit which, we have continuously hoped, one day will be attained in most and possibly in all cases of malignancy.

Yet the results achieved with biologically guided therapy, imperfect as they have been, have continuously indicated the great potential of the method.

What has been accomplished during the years has been hardly considered as a final measure of the effectiveness of this basic new approach to treatment but only of the available criteria and agents. With the criteria and agents the method itself has been evolving. In its present form, the method represents a valuable tool for helping many cancer patients who are entirely beyond help with present day methods. In spite of its accomplishments further advances along the same lines—both in techniques for recognizing fundamental offbalances at different levels of organization and even in new compounds more effective in correcting them—are to be expected.

Equal in importance with the current results with biologically guided therapy is the fact that new applications are evolving; that this approach helps us to better understanding and treatment of malignancy and of other pathological conditions as well; and that, by its very nature, the method has the capacity to furnish the guidance needed for improving it.

We are presenting here the form of treatment which we currently use.

In this form, when correctly applied, biologically guided therapy can, in many cases, bring under control even far-advanced malignancies. The importance of the correct application of agents based upon specific criteria makes it necessary to emphasize how agents are chosen and used.

Criteria Used: Recognition that no test is able to indicate by itself the existence of more than an offbalance at a specific level, and that cancer is a complex condition involving many levels, has led to the use of a group of tests able to offer the necessary information on offbalances at different levels. We use the following routinely:

Urinary—specific gravity
pH
surface tension
calcium excretion index
Blood— potassium in serum
potassium in total blood
Pain pattern
Body temperature

In exceptional instances when the routine tests do not suffice, we use:

Urinary—chloride retention index
Blood— chlorides in serum
leucocytes count
eosinophiles count

The offbalance indications provided by these tests are shown in TABLE XXII.

TABLE XXII

Test	Offbalance D	Average Values	Offbalance A
Specific gravity	high	1.016	low
pH	low	6.2	high
Surface tension	low	68	high
Serum potassium	high	4.5 mEq	low
Total blood potassium	low	38 mEq	high
Body temperature	low	37°C	high
Leucocytes	low	7000/cmm	high
Eosinophiles	low	100/cmm	high
Chloride index	high	2.1	low
Calcium index	low	2.5	high
Chlorides in serum	high	525 mg %	low
Pain pattern	alkaline	——	acid

Whereas the other analyses give direct information concerning the offbalances, the values of potassium in serum have to be correlated with the values in red cells or in total blood potassium for a recognition of the offbalance present. A serum potassium above 4.5 mEq and a low total blood potassium below 38 mEq indicate an offbalance D, while a low serum potassium below 4.2 mEq with a high total blood potassium above 40 mEq, an offbalance A. Low values for both analyses indicate a quantitative deficiency of this element in general, while high values for both an excess of this element in the organism.

As related to the different levels of the organization, specific gravity changes reflect processes taking place especially at the systemic level. The pH reveals, indirectly, changes at the tissue level. Surface tension indicates offbalances at the metazoic compartment; both serum and total blood potassium indicate cellular level offbalances. However, while potassium measurements give an indication of cytoplasm changes, calcium indicates cellular level changes, especially in the membranes. Eosinophile counts indicate acid-base changes at the tissue level, and temperature, systemic offbalances.

As we have seen, any abnormal value is most likely to accurately reflect a fundamental offbalance at its corresponding level when the same value is obtained in several repetitions of the test. Tests on two or three successive days are most helpful in ascertaining the existence of an offbalance, especially if it is limited to only a few levels.

The offbalance determines which agents are to be used.

As anti-A agents, we now use:

propionic aldehyde
epichlorohydrin
hexyl or heptyl diselenide
tetralin perselenide
tetralin persulfide
sodium or magnesium thiosulfate
mixture of lipoacids

As anti-D agents, we use:

heptanol
polyunsaturated alcohols
butanol
glycerol
insaponifiable fraction of liver
glycerophosphoric acid

The preparations and usual doses are:

Propionic adlehyde: 10% sol.—for oral administration, used from 50-1000 mgr. daily; for parenteral administration: 2% sol. in saline.

Epichlorohydrin: 0.5% solution in isotonic saline, used from 1/10 mgr. to hundreds of milligrams daily for parenteral and oral administration.

Hexyl or heptyl diselenide: in solutions from 20 micrograms to 50 mgr./cc. for intramuscular injection. Orally, we use either capsules containing from 10 micrograms to 10 mgr. or, still better, a solution of 0.4% in oil, which corresponds to 100 micrograms per drop. The doses vary from 10 micrograms to 50 mgr. or more daily.

Tetralin perselenide: This preparation has 40 mgr. of selenium for 100 gr. of tetralin and is used orally as drops, from a solution of 10% or 1% in oil. For injections, a solution containing 10% in 100 cc. of sesame oil, is used in doses ranging from 0.1 cc. to 10 cc. daily. Instead of tetraline, naphthalene or other aromatic hydrocarbons are used. One cc. of a 10% solution of these preparations in oil, contains 0.1 mg. of selenium; the doses used range from 0.1 cc. to 10 cc. daily.

Sodium or magnesium thiosulfate is used in a 10% solution for oral administration or in a 4% solution for intramuscular injection in doses ranging from 25 mgr. to 5 grams or more daily.

Tetraline persulfide: This preparation contains 5% sulfur in oil and is used orally from $\frac{1}{20}$ cc. to more than 10 cc. daily. In intramuscular injections it is used from $\frac{1}{10}$ cc. to 2 cc. daily.

The acid lipids mixture is a solution in oil of 1% bixin, 2% cow liver lipoacids and 7% cod liver oil fatty acids. It is administered in doses of from ½ cc. to 6 cc. daily by intramuscular injection.

Heptanol in a solution of 0.5% or 5% in oil is used for parenteral administration; a solution of 5% in oil is employed for oral administration. The doses range from 1 mg. to hundreds of mgs. a day.

Polyunsaturated alcohols are safflower oil fatty acids with the carboxyl changed to a primary alcohol. They are used in a 10% solution in oil with ¼ to 2 cc. injected intramuscularly up to four times a day.

Butanol in a 6.5% water solution is used for oral administration. A 6.5% saline solution is employed for parenteral administration. Usual doses are from ¼ cc. to more than 100 cc. daily.

Glycerol is used as a 50% solution for oral administration or as a 20% solution for parenteral administration in doses ranging from less than 0.2 gram to a few grams daily.

Insaponifiable fraction of pork liver in a 5% solution in oil is used for intramuscular injections in doses from ½ cc. to 8 cc. daily.

A preparation of a mixture of polyunsaturated alcohol, heptanol and butanol also is used for oral or parenteral administration.

If, during treatment, any other medications appear necessary for various concomitant conditions, it is preferable to choose them with consideration given to the influence they will exert upon the patterns present.

TABLE XXIII shows the effects of some commonly used therapeutic agents upon the fundamental offbalances, which would indicate their use in cases with one or the other offbalance.

TABLE XXIII

EFFECTS UPON OFFBALANCES A AND D OF VARIOUS AGENTS USED THERAPEUTICALLY

Having an anti A effect	*Having an anti D effect*
Dicoumarol	Glycerol
	Glucose
Digitalis	Coramine
Antipyrine	Acetyl salicylic acid
Aminopyrine	
Acetophenetidine	
Atropine	Procaine
Quinine	Codeine
	Morphine
	Demerol
Caffeine	Aminophylline
Liver extracts	Iron
Vit. A, D, B_6	Vit. B_1, B_2, K, E
Testosterone	Progesterone
	Stilbesterol
Epinephrine	Desoxycorticosterone
	Glucosamine
Penicillin	
Streptomycin	
Aureomycin	Cortisone
Sulfas	Insulin
	Barbiturates
	Mercuhydrine
	Benzedrine
	Benadryl

In using the various agents, we have to keep in mind the effect upon the existing offbalances.

Conduct of Treatment: Although there may be some variations depending upon the circumstances of individual cases, treatment is conducted generally as follows:

Urine and blood analyses are performed. Values for two or three consecutive days are usually determined before starting treatment. If all values indicate the same pattern, the diagnosis of the offbalance is clear. If the analyses indicate the presence of different patterns, an interpretation is made on the basis of analyses showing the offbalance at specific levels. For patients in whom manifestations involve the metazoic compartment, urinary surface tension is the important criterion. Urinary specific gravity and urinary pH, are important when systemic or tissular manifestations are present. Potassium is the criterion when changes at the cellular level are most important. The body temperature and the other complementary analyses are used when discordant patterns are encountered. They help to recognize the type of offbalance at the different corresponding levels.

Once the level offbalances are determined, suitable treatment is instituted. The agent is chosen from the proper group according to the level

TABLE XXIV

AGENTS CHOSEN ACCORDING TO THE TESTS

		AGENTS	
Level	Test	Offbalance A	Offbalance D
Cellular	Potassium in blood Urinary calcium	Selenium preparations Epichlorohydrin	Heptanol
Tissue	Urinary pH Blood eosinophiles Surface Tension Pain pattern	Lipoacids Tetralin persulfides Hydropersulfides Mg Thiosulfate	Polyunsaturated alcohols Unsaponifiable fraction liver Glycerol Butanol
Organ and Organism	Urine specific gravity Surface Tension Body temperature	Mg or Na Thiosulfate Propionic aldehyde	Glycerophosphoric or lactic acid

to be influenced. Since, in invasive cancer, the offbalance occurs at the cellular level, the agents used are selenium preparations and epichlorohydrin, for the offbalance A and heptanol for the offbalance D.

For the tissue level, indicated by pain as well as by urinary pH or eosinophiles, lipoacid preparations, Mg thiosulfate and Tetralinpersulfides are used for offbalance A, and polyunsaturated alcohols, unsaponifiable fractions and glycerol and butanol for offbalance D.

For the organ and systemic levels, with the offbalance recognized through urinary specific gravity, surface tension and body temperature, magnesium or sodium thiosulfate and propionic aldehyde are used for offbalance A, and glycerophosphoric acid for offbalance D. (Table XXIV)

Conduct of Treatment

If the patterns of the different tests and clinical manifestations are concordant, concerning the offbalance present, the agents chosen are from the respective group. Special attention is given however to the level which, clinically or analytically, shows the most abnormality, so that for a patient with a limited tumor, but without pain and in good general condition, the factor guiding the therapy will be the analyses related to the cellular level (as revealed by the potassium in blood). If the general condition is poor, indicating rather a predominant systemic condition, the treatment will be directed especially by the abnormalcy at the organism level revealed by the corresponding analytical tests—such as urinary specific gravity, surface tension and body temperature.

This interpretation of the most needed intervention becomes still more important when the data obtained—clinical and analytical are discordant. The treatment will follow the indication furnished by the level which appears the most important. In a case with a limited tumor, and no other clinical manifestations, the pattern of the cellular level, will determine the nature of the treatment, even if the other analyses show different patterns.

For a patient with a tumor and severe pain—it is the pattern of the pain which will indicate the agent to be used—even if this is discordant with that of other analyses. The same is true for a systemic severe condition, the respective analyses determine the agent to be used, even if these are discordant with the analyses concerning the other levels. In general, the decision of what level will represent the guiding factor in the treatment, represents seldom a problem, the condition of the patient directing the attention toward the principal anomaly.

In general, treatment is started with small doses. If the offbalances, and especially the clinical manifestations persist, increased doses are indi-

cated. Larger amounts are used and are administered more often. Once the desired analytical and clinical effect is obtained, dosage is maintained. If analyses corresponding to the offbalance pass far enough on the opposite side, the amount of the medication is first reduced. If this change persists or increases, treatment is discontinued for several days. If the new offbalance still persists, and especially if new clinical symptoms develop, use of the opposite group of agents is to be considered. A slight passage of an offbalance into the opposite is usually salutary and treatment is continued as long as clinical improvement persists.

It appears to be of great importance that treatment be continued for several months after all subjective and objective manifestations have disappeared. In a number of patients, we have been investigating the value of continuing medication for years in very small doses as a prophylactic measure to prevent recurrences. The results have been highly encouraging. No inconveniences have been noted with controlled continued use of any of the substances.

Results obtained

With this form of treatment most of the results obtained are striking. With naphthalene or tetrahydronaphthalene perselenide, epichlorohydrin and bixine as principal agents for the type A and heptanol-glycerol for the type D, the subjective and objective manifestations were seen to be well controlled. Pain, if present, disappeared in a few days, the tumors progressively diminishing until they disappear, even in cases considered as far advanced. The following few recent observations of such cases, give an idea of these results, up to date.

Mrs. M. C., 59 years old, had 3 years ago a mastectomy for adenocarcinoma. She came under our care with metastases in the right 8th rib and in the 11th and 12th dorsal vertebrae, liver metastases, ascites and pleural effusion. With dyspnea, severe pains and almost continuous vomiting, her general condition was judged very poor. Paracentesis was performed, but the fluid accumulated rapidly, needing a second paracentesis 10 days later. In offbalance A, the patient was treated with perselenide, bixine propanal and epichlorohydrin. Shortly after the beginning of the treatment, the pain decreased in intensity and later disappeared completely. The pleural effusion decreased and after the two paracentesis, the ascites no longer reproduced. The general condition changed rapidly for the best, together with the objective changes. Liver reduced in size after three months of treatment was within the normal limits. Radiological examination, two months later showed the bone metastases completely healed. The general

condition continued to improve. The patient resumed her normal life and now does not show any clinical abnormality.

Mr. J. S., 71 years old. Two years prior to admission, the patient had persistent hematuria, for which a prostatectomy was performed. Hematuria reappeared. Cystoscopic examination revealed tumors of the bladder, for which he was operated 1½ years ago. Since then, he has had almost constant hematuria, with frequent micturitions during the night and almost every hour during the day. Pain in the lower abdomen became progressively stronger. The patient was admitted and treated, in accordance with the analyses, with perselenide, bixine and epichlorohydrin. In less than a week, the hematuria disappeared, as did the dysuria, the patient being able to pass clear urine every 6 to 8 hours. With the interruption of the treatment for almost a month, the symptoms reappeared, with hematuria and dysuria. With the treatment resumed, the condition responded well again, the hematuria and dysuria being controlled and pain disappeared.

Mrs. R. A., for five years, had symptoms of gastric ulcers, more accentuated in the summer, which improved with treatments. For six months prior to coming under our care, the patient had progressively marked difficulty in swallowing anything other than fluids. Even after taking fluids, she experienced very severe retrosternal pain, almost always followed by vomiting. X-ray examination showed slight dilatation of the esophagus with a clearly visible growth in the stomach near the cardia. According to the analyses, the patient was treated with perselenide in injection, and bixin and epichlorohydrine orally. Two weeks after treatment was started, the patient was able to swallow not only fluids but also finely ground food. The improvement continued, the patient being able after 5 weeks of treatment to swallow food of almost normal consistency.

Mr. J. R., 56 years old, came under our care with severe pains in the right side of the neck and hemoptoic sputum. At examination, a submaxillar gland of 6 cm. diameter was seen. Laryngoscopic examination showed a tumor in the right pyriform fossa—Biopsy revealed a squamous cell carcinoma. The very severe and constant pain and the constant bleeding caused the patient to be hospitalized. According to the analyses, perselenide by injection, epichlorohydrin and bixine were administered. In 24 hours the pain was fully controlled. The bleeding stopped after 4 days, and the gland started to decrease—10 days after the beginning of the treatment. The laryngoscopic examination showed the tumor tranformed into a graying mass, which was progressively decreasing.

Mrs. A. D., 60 years old, admitted to the hospital with dyspnea, cough and pain in the right hypochondrium, epigastrium and generalized weak-

ness. For 30 years, the patient had complained of pain in the right hypochonder, related to the presence of gall bladder stones. In February of 1960, a laparatomy was performed and a tumor of the gall bladder with metastases to liver was found. Only a biopsy was performed which showed a carcinoma. At admission under our care, the patient was in very poor general condition with marked dyspnea, deep jaundice and severe pains in the upper abdomen, emaciated. A right pleural effusion was found and a thoracentesis performed. An irregular mass was found in the right hypochondrium arriving until the umbilicus. She had clay colored stools, typical for obstructive jaundice. In spite of thoracentesis the dyspnea continued to be severe and the patient was kept under oxygen. The patient was placed under chemotherapeutic treatment with epichlorohydrin, bixine and perselenide in accordance with her urinalyses. The patient's condition improved progressively. The stool returned to normal color; fluid in the right chest did not reproduce and the mass on the right hypochondrium decreased progressively to have the liver in normal dimensions. At present, the patient with all the subjective and objective symptoms improved considerably, is ambulatory.

Mr. S. S., 64 years old, was operated in 1953 for a hypernephroma of the right kidney. Two years later, massive metastases were seen in the left femur and pelvic bones. Pathological fracture of the neck of the left femur was treated surgically. Further X-ray examinations revealed extensive metastases of the femura, and pelvic bones, with multiple lung metastases. When the patient came under our care, he was suffering agonizing pain especially in the left hip. An X-ray examination showed an almost complete disappearance of the upper part of the left femur, with multiple metastases in the right femur and pelvic bones, and multiple metastases in both lungs. According to the analyses, the patient was treated with perselenide, bixine, and epichlorohydrin. The condition improved rapidly, the patient being able to sit up and even to walk a little. He was discharged from the hospital to follow the treatment at home which was done very irregularly. He was readmitted a month later with very severe pain and the treatment resumed. The pain subsided gradually and the general condition improved markedly. Recent X-rays revealed a manifest recalcification of the upper part of the left femur which, in previous X-ray examinations, had no longer been visible. At the same time, many of the metastatic lesions of the lung disappeared while in others, a marked decrease in their size was seen. These subjective and objective improvements are continuing constantly, up to date.

F. G., 61 year old female, in July 1960 had partial cecostomy for adenocarcinoma. The mesenteric lymph nodes were found involved. A

month later, because of vaginal bleeding and an erosion of the cervix, a biopsy was performed, showing the same malignancy. With constant bleeding and pain in the abdomen, the patient came under our care. On examination the tumor was seen to occupy all the upper part of the vagina, with infiltration of the recto-vaginal wall. According to the analyses, a treatment with perselenide in injection, epichlorohydrin and bixine was instituted. The bleeding stopped completely after one week, as did the pain. While the patient is still under treatment, the lesion has been seen to regress constantly, up to date.

W. M., 48 year old male. In 1956 he had a left nephrectomy for hypernephroma. He was well until early in 1960 when a mass was found in the left side of the abdomen which was progressively growing. At the same time, he had hemoptoic sputum. The x-ray examination of the chest showed multiple lung metastases. Five weeks before coming under our care, a very marked edema of the left leg with very severe pain in the back and leg appeared. He came under our care especially for the unbearable pain. According to the analyses, a treatment with heptanol, butanol and glycerol was instituted. The pain disappeared in 2-3 days and has not returned in the two months which have elapsed since then. The edema of the leg also disappeared. The tumor which, at the time of administration, was occupying the entire space between the ribs and the ileac crust, was seen to become first much softer, and progressively to reduce its dimension. Actually two months after the treatment was started, the patient is leading a normal life with the tumor decreasing progressively.

We want to emphasize that benefits, often impressive even in terminal cases, have been obtained only by following the above rules. Treatment guided closely by changes observed in the patterns indicated by analyses appears to be the condition *sine qua non* for the attainment of good results.

The results obtained and especially their high proportion, even in far advanced cases, permits a fair judgement of the place of the present form of application of this method in the fight against cancer. Based on these results, we are fully entitled to consider it, not only a highly beneficial treatment which can be offered now for this disease, but even a major step nearer to the solution of the problem of the therapy of cancer.