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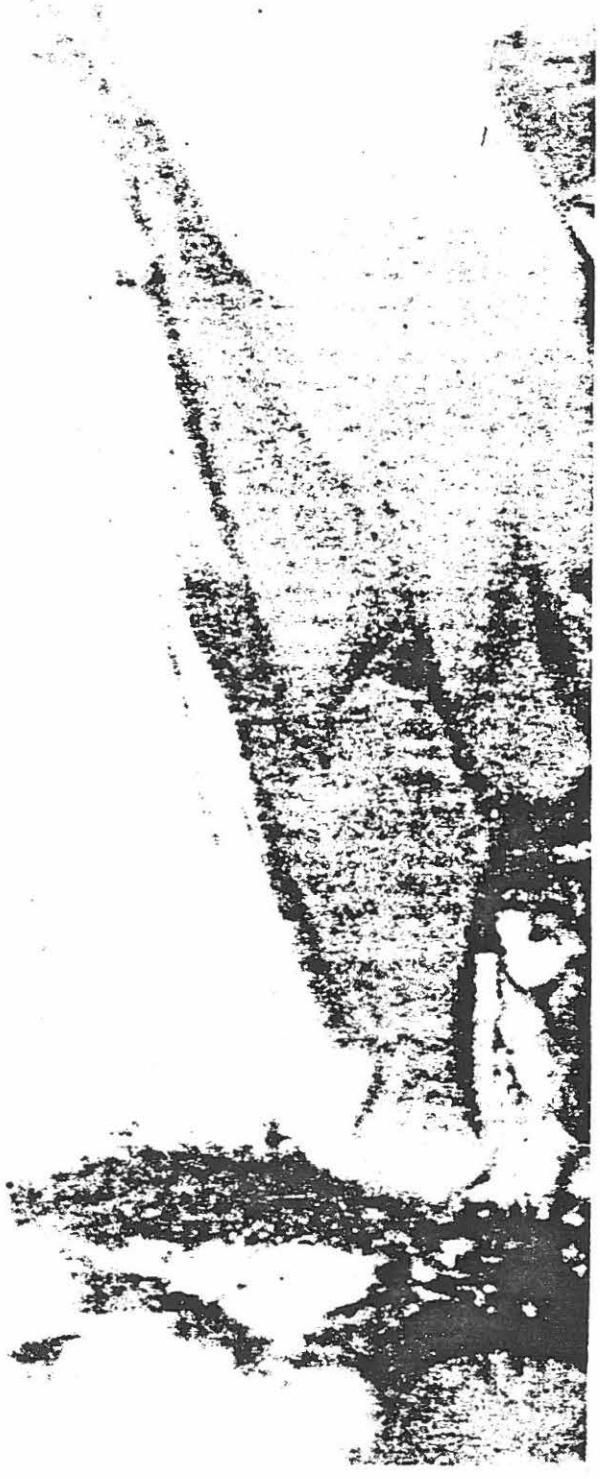
# SUPPRESSION OF NEW CANCER THERAPIES: DR. JOSEPH GOLD AND HYDRAZINE SULFATE

BY GARY NULL WITH ANNE PITRONE

Reprinted from **PENTHOUSE**

JANUARY 1980

*This hydrazine sulfate crystal was photographed at a magnification of 250X with an optical microscope.*



Photograph by Phillip A. Harrington

There is substantial evidence that hydrazine sulfate is an effective, inexpensive anticancer agent. Then why is it on the American Cancer Society's Unproven Methods List?

# SUPPRESSION OF NEW CANCER THERAPIES: DR. JOSEPH GOLD AND HYDRAZINE SULFATE

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The young woman in the doctor's waiting room shook slightly; her emaciated hands constantly darted to the back of her head to check the knot of her kerchief. The kerchief served to conceal the fact that most of her auburn hair had fallen out. The look of desperation and confusion in her eyes expressed a pain that consumed her whole body. Most of the people in the small waiting room hoped that the doctor could help her. They didn't know that it was the doctor himself who had put the woman in such a pitiable condition. She was just one more patient undergoing chemotherapy for cancer.

The toxic side effects of chemotherapy are well documented. The patient literally wastes away, his body under attack by both the cancerous growth and the cytotoxic chemical agents used to kill the growth. The blood cell count drops dangerously low and the entire immunological defense system is practically destroyed. At times major body organs permanently cease normal functions. The damage often is irreversible; many times the patient cannot recover even if the cancer vanishes completely.

After surgery and radiation were found to be ineffective treatments for most cancers, chemotherapy emerged as the great hope of the 1950s and 1960s. Unfortunately the use of these "wonder drugs" put the cancer patient in an even more dangerous and painful condition. Today, 20 years later, chemotherapy has not improved the low remission rate that exists with conventional therapies; it remains between 7 and 8 percent. In addition, it is estimated that as many as 25 percent of cancer patients treated with chemotherapy will develop additional cancer as a result of the treatment.

Thus, the development of new anticancer substances is a vital

Hydrazine sulfate is available in forms not intended and not safe for human consumption, and use of such forms or use of the drug other than as directed by a qualified physician can be highly toxic. Medicinal use of the drug should be pursued only as directed by a qualified physician.—The Editors

issue among many cancer researchers. Such a substance may already have been found: hydrazine sulfate. At least one prominent researcher has called it the "single most effective anticancer agent available." For the past ten years, hydrazine sulfate has been the subject of a heated debate among the nation's largest cancer research institutions. The debate centers around two main issues: (1) the unique function of hydrazine sulfate, and (2) how effective it is in performing that function.

Hydrazine sulfate is unique in that it does not work directly on tumors. Its value is in reversing the process, in cancer patients, of cachexia, or wasting away, which is the actual cause of death in over 50 percent of cancer cases. Dr. Joseph Gold of the Syracuse Cancer Research Institute first proposed hydrazine sulfate as a solution for cachexia in 1969. Dr. Gold's theory was that cachexia, although related to tumor growth, was a disease independent of cancer itself, and that the emaciation of patients in the final stages of cancer was caused by a vicious cycle in which the tumor drained the body of energy. If a drug could interrupt this cycle, the tumor would stop feeding off the body itself and the body could remain in as healthy a state as possible to conquer the disease.

How have Dr. Gold's theories held up? The results of many cancer studies on hydrazine sulfate in both the United States and the Soviet Union have been mixed. For instance, a recent four-year study in the Soviet Union, involving 225 terminally ill cancer patients, found hydrazine sulfate to improve effectively the overall condition of the patient in over 65 percent of the cases, while a pilot study at Sloan-Kettering Institute in 1973 showed no positive results in 29 cancer patients. The majority of the studies, however, support Dr. Gold's theory that hydrazine sulfate can significantly halt the energy-grabbing process of cancer.

What is preventing the widespread use of hydrazine sulfate? Certainly not its expense. "Hydrazine sulfate is a mass-produced substance, a very common chemical manufactured industrially by the carload," Dr. Gold explained. "A researcher could buy a pound jar of hydrazine sulfate for five to eight dollars, and that pound jar will contain anywhere from fifty to a hundred thousand doses."

Toxic side effects are not a roadblock for hydrazine sulfate. Tests by Dr. Gold and independent researchers at the Soviet Union's Petrov Institute in over 173 patients showed that the most frequent side effects, in less than 10 percent of the cases, were nausea and vomiting. As soon as the dosage was lowered, these side effects disappeared. There was no evidence of organ damage or damage to the immunological defense system that usually occurs with conventional chemotherapy. In fact, these studies indicated that hydrazine sulfate improved appetite and increased strength and well-being in the patients. It also decreased, and in some cases eliminated, pain, fever, and hemoptysis (coughing up blood). Most important, it decreased the size of the tumor in 6 percent of the cases studied and stabilized tumors in more than 15 percent of the patients.

The chief reason why hydrazine sulfate is not being widely used is that it is on the American Cancer Society's Unproven Methods List. It was placed there in 1976 based on the largely negative results of a Sloan-Kettering Institute pilot study. According to Dr. Manuel Ochoa, chief researcher in the study, "In over 30 patients with various types of cancer, there was no evidence of objective response." The Sloan-Kettering study also reported toxic side effects other than the usual nausea, with "major neurologic toxicity . . . observed in half the patients." These included paresthesia, lethargy, pain, confusion, depression, headache, vertigo, and others. Dr. Ochoa did mention that four patients had acquired a stimulated appetite and one patient had a decrease in pain, but these changes lasted "only a few weeks."

> One prominent researcher has called hydrazine sulfate the "single most effective anticancer agent available."

Why did the Sloan-Kettering study differ from over ten positive animal and human studies that had been completed before the report as well as from the dozen or more positive studies (including the Soviet ones) that had been conducted since then? Indeed, why did the ACS choose the Sloan-Kettering study as the only published report upon which it based its 1976 negative ruling? It was obvious that much was hanging on the outcome of the Sloan-Kettering study, but in the beginning the Sloan-Kettering Institute could not have been cited for lack of interest. Despite its own animal studies conducted in the early 1970s, which showed very little positive response, Sloan-Kettering's initial response was quite enthusiastic.

"We were less impressed with the animal studies than we were with the concept of hydrazine sulfate," Dr. Ochoa said. "Dr. Gold's approach was rather interesting because he goes back to an old observation based on the energy of tumors. It was clearly different from most of the 'alternative suggestions.' And we thought it would be worthwhile to look at patients. Here was a concept that at least superficially could have exerted a net beneficial effect by a mechanism other than the usual toxic approaches. Dr. Gold presented something that had a rationale and also had some data to go along with it, and since we had nothing else that I would call a cure in the Department of Chemotherapy, we tested."

Indeed, many researchers are looking for a "cure" or the "magic silver bullet." This attitude may have caused hydrazine sulfate's downfall; in other words, either hydrazine sulfate was going to perform on every level of objective and subjective response for the Sloan-Kettering researchers or it was going to be no good at all. Unfortunately, hydrazine sulfate cannot be measured by objective results, such as tumor shrinkage. Its value can be measured only by the more subjective responses, such as an increased appetite and well-being. Such responses often evade classical scientific measuring.

Sloan-Kettering tested hydrazine sulfate in a classically scientific way. Starting with very low doses and working up to much higher ones, the Sloan-Kettering team of researchers did not, according to Dr. Gold, follow his prescribed dosage levels. It was these levels that were reported to have had a beneficial effect on many cancer patients. According to Dr. Gold's "Information Sheet for Physicians," the dosage of 60 mg, once a day for the first four days, twice a day for the next four days, and three times a day thereafter, had improved the health of cancer patients. The Sloan-Kettering study, however, started out with one mg per day, two mg per day, and then three mg per day, and continued as such (for the first patient in the study). This, according to Dr. Ochoa, was to "check for toxicity." However, subsequent patients were started on 35 mg/m² and were given single large doses of up to 120–160 mg later on in the study.

Dr. Ochoa explained: "In the absence of objective tumor response, our approach was to escalate the dosage until we saw some toxicity. We did see toxicity and then had to pull back. And even at the doses where we did see toxicity, we failed to see any tumor response. This is a classical way to conduct a test for any chemotherapeutic agent."

Why was Sloan-Kettering conducting a classical chemotherapy study on a chemical that is not a classical chemotherapy agent—one that is known to act differently than a usual chemotherapy drug acts? Hydrazine sulfate is in fact the only agent known to act, not on the tumor, but on the body itself. Dr. Ochoa himself indicated that hydrazine sulfate was an unusual and different concept. Why then was it being tested in an experiment designed for an antitumor agent?

Dr. Ochoa did say that the researchers were looking for "both subjective and objective responses," but he could "not answer directly" when asked if the hydrazine sulfate dosage levels were escalated when patients were actually achieving some kind of subjective response. If in fact the dosage levels had been escalated, according to Dr. Gold, the positive subjective results would have been "wiped out."

Could patients' subjective responses, such as appetite stimulation, have been suddenly halted by an increase in the hydrazine sulfate dosage? Would a dosage at a particular level have kept the positive subjective responses going for a longer period of time? Could this have been the reason why patients in the Sloan-Kettering study had responses that lasted "only a few weeks"? Dr. Ochoa says, "It's a real possibility. But the appropriate thing to do then is to scientifically put together a group of patients in different subsets and treat them with different dosages to measure the effects at various optimum and suboptimum dosage levels."

Dr. Gold is amazed that hydrazine sulfate, a noncytotoxin, would be measured in terms of cytotoxic criteria. (Regular chemotherapy agents actually kill cells and therefore are known as cytotoxins.) "I'm appalled and amazed that in the oncological community people would get this mixed up. They're saying, 'Well, why shouldn't we judge this on cytotoxic criteria because those are the only criteria we have?' Would you believe that there are no such things in the scientific world today as indices of subjective improvement? Want to know why? Because there are no such drugs that produce subjective improvement only. Hydrazine sulfate is the first one. As far back as 1975, the Soviets indicated in their first article that there would have to be new indices set up to test for subjective improvement only. But this just hasn't happened. Consequently, American institutions say that there is no evidence that hydrazine sulfate has positive responses because they're looking at cytotoxic criteria only, e.g., tumor regression. They're totally ignoring the high scores that hydrazine's been getting in subjective criteria."

Again, the "silver bullet" syndrome does not allow that hydrazine sulfate may be excellent for use in combination with other treatments, or even that it may only be able to help a cancer patient live a more normal life. This "cure-all-or-nothing-at-all" attitude has discouraged further research on hydrazine sulfate.

But many people believe that hydrazine sulfate deserves further study. Dr. Saul Schepartz, deputy director of the Division of Cancer Treatment at the National Cancer Institute, calls the Sloan-Kettering research "a very limited study, certainly not one on which one could draw conclusions. I would not call it a definitive study by any means." Dr. Dean Burk has also called for more studies to be done on hydrazine. But Dr. Gold has used much stronger terms—he's actually called the Sloan-Kettering study "invalid."

In a 1975 letter of protest to Dr. Ochoa, Dr. Gold stated, "It was agreed that this project [your study] was to be a joint effort between our two institutes. . . . Failure to adhere to an agreed-upon protocol by underdosing, failure to adhere to an agreed-upon protocol by overdosing, failure to maintain objectivity in a new study by forming expressed opinions even before the study is two weeks old, weaken the results of any study, if not invalidate them completely."

Despite Dr. Gold's protests, the study was completed and readied for publication in *Cancer Chemotherapy Reports*. It's not hard to imagine Dr. Gold's shock and consternation when he read in a prepublication copy of the article that "the protocol for the trial of hydrazine sulfate was developed in cooperation with Dr. Gold based on the experience he has reported." Dr. Gold immediately contacted attorneys, who demanded that all references to "enjoying his cooperation" and "following his protocols" be deleted. Dr. Gold now believes that these changes were made because Sloan-Kettering Institute realized that it had made gross misrepresentations.

> The American Cancer Society based its decision to place hydrazine sulfate on its Unproven Methods List on a flawed study by the Sloan-Kettering Institute.

Dr. Irwin Krakoff, then chairman of the Department of Chemotherapy at Sloan-Kettering and a coauthor of the hydrazine sulfate study, disagrees. "The protocols were followed as were set. There were a lot of phone calls, discussions, and recriminations, and rather than get into arguing about whether or not Gold participated—it wasn't relevant—I simply deleted any reference to his name."

Fortunately for Dr. Gold, other studies were being tabulated at the time of the negative Sloan-Kettering report. One such study was performed by Calbiochem, a California pharmaceutical firm that provided hydrazine sulfate to interested doctors in the United States under an investigational new drug (IND) status. Using hydrazine sulfate only on terminally ill patients, the doctors then sent back their observations, which were analyzed by Dr. Gold and put into a report that appeared in *Oncology* in October 1975. The results showed that there was objective improvement in 17 percent of all cases and a 70 percent improvement in such subjective responses as increased appetite, weight gain, strength, and control of pain.

Another important study came from Russia's highly distinguished Petrov Research Institute of Oncology in Leningrad. In a 1976 study of 95 terminal cancer patients who had not responded to any other treatment, Soviet researchers reported that "the administration of hydrazine sulfate produced a 41 percent objective response [tumor regression and stabilization] and a 55 percent subjective response [improvement in general status and appetite, 'vigor enhancement,' and reduction or disappearance of pain]."

The Sloan-Kettering research study was finally published in the November/December edition of *Cancer Chemotherapy Reports*, and it sparked a heated debate. In the July 1976 issue of *Cancer Treatment Reports*, Dr. Gold responded in a scathing letter that showed that Sloan-Kettering had failed to include pertinent data and had treated less than half the patients in the study adequately.

"The study stated that 29 of 32 patients had received adequate treatment," wrote Dr. Gold. "But in fact out of 29 patients in reality only 13 were treated for 28 days, a length of time considered adequate for eliciting a beneficial response. [Four of 29 received treatment for less than 14 days, 12 for only 14 to 28 days, and 13 for 28 days.]" This was first reported to Gold by David Rorvik, fellow of the Alicia Patterson Foundation.

Gold also questioned the methods by which Sloan-Kettering reported weight loss and gain in the patients studied. "Hydrazine sulfate is a drug specifically designed to halt or retard weight loss or cachexia in cancer. If a patient is losing three to seven pounds weekly before hydrazine sulfate therapy and afterward loses no more but does not gain either, this is a significant response. But nowhere in the Sloan-Kettering study could such pertinent data be found."

One would think that a study at best thought to be "a pilot" and at worst called "invalid" would be taken with a grain of salt. Indeed, definite questions of improper dosage levels, inadequate treatment time, and incomplete presentation of data have to this day been left unanswered by the Sloan-Kettering research team. Yet this flawed study was the *only* published work upon which the American Cancer Society based its decision to

place hydrazine sulfate on its Unproven Methods List. Here we can see how much was hanging on the outcome of the Sloan-Kettering study. This effectively closed the doors to grants and further research on hydrazine sulfate by other larger institutions for many years. In 1976 even Dr. Gold's funding was cut off, and he has had to support the Syracuse Cancer Research Institute from private funds.

Why was the ACS so quick to put hydrazine sulfate on its Unproven Methods List? Why has the list not been updated in the light of recent, more positive evidence in hydrazine sulfate's favor? For answers to these questions, we must turn to the politics of 1976, right after the Sloan-Kettering study came out.

There is now evidence that the American Cancer Society was aware of the positive studies supporting the use of hydrazine even before its final report was published in the March/April 1976 issue of *CA—A Cancer Journal for Clinicians*, the official ACS magazine. "After careful study of the literature and other available information," reads the introductory statement, "the American Cancer Society does not have evidence that hydrazine sulfate is of any objective benefit in the treatment of cancer in human beings." The report went on to say that the information was a summary of admissible evidence on hydrazine sulfate "as of February 1976."

Yet Dr. Gold had published his Calbiochem study before February 1976. It showed 70 percent subjective improvement and 17 percent objective positive response. Before February 1976 the Soviets had also published their first study, which showed 55 percent subjective improvement and a whopping 41 percent objective response. Why weren't either of these studies included in the ACS report that was supposedly current "as of February 1976"?

In an interview with David Rorvik, published in the Alicia Patterson Foundation Report DMR-6, *CA*'s executive editor, Dr. Sidney Arje, responded to this paradox by saying that the damaging article had been written eight months earlier—in June 1975—before both Dr. Gold's and the Russian studies had been published. The reason for the June deadline on a March/April article, Dr. Arje explained, was due to a policy that articles published in the "Unproven Methods" column must first be approved by a committee, then the board of directors, then by the ACS legal staff.

If the ACS was so careful about its facts, however, then why did it say that its negative report on hydrazine sulfate was "current as of February 1976"?

If the real deadline for information on hydrazine sulfate was June 1975, conveniently before positive evidence was presented by both Dr. Gold and the Russians, how could the American Cancer Society include the negative Sloan-Kettering study as a basis of its report when in fact the Sloan-Kettering study *was not published until November 1975*?

The ACS unproven-methods article also reported on a negative study completed by Dr. William Regelson of the Medical College of Virginia. But even with their careful checking of facts, the authors somehow didn't discover that Regelson's study had never been published. In fact it had been rejected from *Cancer Treatment Reports* because of its faulty scientific design. (In the Regelson report over half the new patients studied had received hydrazine sulfate in combination with other drugs, thereby making it difficult to judge the effects of hydrazine sulfate alone. Only now, five years later, has the study been accepted for publication in a scientific journal, after the patients receiving combination drugs were removed. Still, no new patients have been added to the study, and results seem inconclusive.)

One must ask, then, what the rationale of the ACS was when it managed to discover Regelson's invalidated, unpublished study but overlooked ten positive studies in both animals and humans that had been conducted by Dr. Gold and the Soviets. The ACS failed to contact Dr. Gold, the principal American researcher on hydrazine sulfate.

> Physicians all over the country are being handed erroneous data. And the one who will ultimately suffer, of course, is the cancer patient.

According to David Rorvik, *CA* editor Dr. Arje finally admitted that "most of the attitude toward the hydrazine problem was resolved in our minds with the Sloan-Kettering experience. We do recognize some deficiencies in the piece . . . maybe we could soften up our position." In fact, Dr. Arje had indicated to the persistent Mr. Rorvik that all distribution of reports on hydrazine would be discontinued pending a revision. Far from "halting distribution" on the article, Dr. Gold informs us that the journal containing the article was distributed to several hundred thousand physicians. The most fundamental damage here is that physicians all over the country are being handed erroneous data. And the one who will ultimately suffer, of course, is the cancer patient.

Today the American Cancer Society is distributing the same Unproven Methods List report on hydrazine sulfate—with one interesting revision. The date has been changed from February 1976 to December 1975, an obvious attempt to cover up the fact that positive results were ignored when the report first came out. But even this change didn't take place until sometime in July or August of 1979. We requested copies of the Unproven Methods List and received, on July 3, 1979, a copy of the article dated February 1976. However, when a lawyer who had heard Dr. Gold present his story about hydrazine sulfate on the July 3 installment of Gary Null's "Natural Living" radio show (WBAI—New York City) requested his own copy of the ACS Unproven Methods List report, he received a copy dated December 1975.

These last-minute changes only fuel the suspicions of a concerned public that the actions of the ACS in condemning hydrazine sulfate were unjust and based on distorted facts. One wonders just how many other "Unproven Methods"—nontoxic ones especially—were placed on this list in the same manner. Isn't it time that this blacklist be abolished so that certain methods of cancer treatment can receive proper scientific testing?

It is a testament to the power of hydrazine sulfate that, despite the ACS report, physicians from all over the country are requesting it for testing on their terminally ill patients. Dr. Gold estimates that over 2,000 doctors are now using hydrazine sulfate therapy on about 10,000 cancer patients. But since the ACS report was published, even more remarkable evidence has become available.

Continuing studies by Dr. M. Gershanovich *et al.* at the Petrov Research Institute in Leningrad have resulted in a large-scale, highly conclusive study published just this year. This intensive report was based on four full years of research conducted on over 225 terminally ill cancer patients who had been considered unsalvageable by conventional therapy. These patients had been through every known therapy and had less than a 1 percent chance of survival. Cases included Hodgkin's disease; breast, gastric, colon, rectal, ovarian, cervical, and uterine cancers; hypernephroma; melanoma; angiosarcoma; pancreatic cancer; bladder cancer; and others. The only treatment was hydrazine sulfate, taken orally in gelatin capsules for periods of six weeks with one-month interruptions.

After four years of study, a total of 147 patients—*65 percent of all cases*—had shown a positive subjective improvement. This was reduction of fever, normalization of laboratory findings, an improvement in general status and appetite, and, most important, reduction or elimination of pain.

In addition, 32 percent of the patients reached a stabilized condition; i.e., their cancers did not grow or progress once hydrazine sulfate treatment had begun. Another 12 percent actually showed

tumor regression as a result of the treatment: these were the patients that orthodox medicine had given up for dead.

The study should have made worldwide news. The Russians were part of a bilateral agreement on health exchanges made in the early 1970s between Nixon and Brezhnev. Dr. Gershanovich is widely regarded as one of the most highly respected cancer chemotherapy researchers in his country. The meetings were organized by the National Cancer Institute one week prior to the American Association for Cancer Research annual convention so that there might be further exchange.

But Gershanovich and his colleagues were actually denied a spot on the program at the AACR convention in May of this year. Although their abstract was accepted for publication in *The Proceedings of the AACR*, the Soviet scientists were prevented from presenting in person their results at the largest meeting of cancer researchers in the world. Why? The program chairman, Dr. Bayard Clarkson of the Sloan-Kettering Research Institute, said that the abstract as presented by Gershanovich did not receive a high enough rating from the review committee to merit presentation. (We were informed that approximately 68 percent of abstracts accepted for publication are allowed to be presented.)

In an attempt to make up for lack of public exposure, the National Cancer Institute offered to organize seminars at the National Institute of Health in Maryland, where Gershanovich was already meeting with American researchers under the bilateral U.S.–U.S.S.R. health-exchange agreement. Here Dr. Gershanovich was allowed to present his findings to interested members of the NIH community about a week prior to the AACR meetings. But Dr. Gold maintains that it would have been much better had the Russians presented their paper at the AACR convention. "In that way," said Dr. Gold, "hundreds of physicians from all over the country and the world would have heard this and had a chance to question Dr. Gershanovich."

Why did the program committee of the American Association for Cancer Research put a lid on the Gershanovich study, possibly the most definitive report on hydrazine sulfate yet? Dr. Gold seems to think that it's an aftereffect of the ACS ruling on hydrazine sulfate; the situation may have been embarrassing.

"Concerning our own work," said Dr. Gold, "how does it look when the NCI is giving out nine hundred sixty million dollars a year in grants and contracts, and the ACS is giving out maybe five percent of that, and a small organization such as the Syracuse Cancer Research Institute with a relatively small—even tiny—budget comes up with something major in cancer? How does it look if an institute with a budget of one hundred fifty to two hundred thousand dollars a year brings forth something that can treat all cancer patients? That's a hard thing to swallow. We're an outsider."

Throughout medical history many important advances have come from outsiders, such as Galileo, Semmelweis, Pasteur, Fleming, and others, whose ideas were considered to be scandalous by the establishment. Later the value of their theories was realized, but the period between discovery and acceptance is often a long one. It is often the case that people suffer and die while the medical establishment is slow to accept positive new evidence. Today over 400,000 people die each year from cancer in the United States alone, and it is estimated that this year one in four Americans will get cancer. In an attempt to cut short the period between discovery and acceptance of hydrazine sulfate—which is now in its tenth year of controversy—Dr. Gold has made unusual attempts to contact and work with both the National Cancer Institute and the American Cancer Society. His major concern is to remove the stigma of the "Unproven Methods List" from the drug so that more research will come about.

> It's time that the Unproven Methods blacklist be abolished so that certain methods of cancer treatment can receive proper scientific testing.

Dr. Gold has been in direct contact with Dr. Frank Rauscher, executive vice-president for research at the American Cancer Society. The two men have known each other since Rauscher was director of the NCI a few years ago, and over the years they have developed a working relationship. Still, Dr. Rauscher has told Dr. Gold that he "could not guarantee" that a proposal on hydrazine sulfate would go through. But he has encouraged Dr. Gold to submit a research grant proposal for hydrazine to the ACS. Dr. Gold refuses to do so until the ACS "stops its defamatory-type actions on hydrazine sulfate."

"I communicated to them by letter," said Dr. Gold in a recent interview, "that until the ACS literally 'cleans up its act' on hydrazine sulfate, I couldn't in good faith submit such a proposal. I thought good faith was the leavener of all business transactions. There's no point to my having good faith when the ACS still distributes loaded information."

Although the situation with the ACS on hydrazine sulfate is at a stalemate, the National Cancer Institute seems to have a guarded, but slightly more open, attitude. Dr. Saul Schepartz of the NCI says, "Hydrazine is a rather controversial drug, but we don't care about its prior history. If there's good scientific reasons for testing it, we will. Based on the data that the Russians have presented, however, we are not initiating studies. . . . But we're willing to support grant applications having to do with hydrazine if they receive proper priority from the Grant Review Committee. The general area of research on cachexia is definitely one that we are interested in."

Right now the most important research on hydrazine is obviously not being conducted at the larger research institutes, but by doctors all over the country who have been treating their terminally ill patients with this drug. Dr. Gold maintains that he's now receiving individual case reports on hydrazine sulfate from many large U.S. hospitals despite the official foot-dragging. "Two years ago we'd never get a letter from these kinds of doctors," says Dr. Gold. "Respected oncologists were our worst enemies. Now they're calling as fast as they can."

Dr. Gold cited a recent letter from a doctor in a large eastern hospital that is well known for its cancer work: "Here is a preliminary report on a patient I've been following who has documented extensive intraabdominal pancreatic malignancy. I began him on hydrazine sulfate on May 15, 1979, and have continued him to date, a period of one month. After approximately one week . . . he had some decrease in severe abdominal pain and thereafter further pain improvement as well. Overall, during this month, there has been a remarkable stabilization of his condition. And whereas until we began the hydrazine he was steadily deteriorating with progressive pain and weight loss, he has . . . . improved in both these regards during this period. . . . The degree of abdominal mass has not increased during this period.

"You've got to remember that this was a very terminal malignancy," commented Dr. Gold, "but it has been turned around, and the cancer just stopped growing. The bottom line in our fight to have hydrazine sulfate implemented on a large scale is, of course, the cancer patient himself, who in such political confrontation . . . is getting the short end of the stick."

We can only hope that the pioneering spirit of Dr. Gold and those other intrepid researchers will survive the ten-year-long battle for implementation of hydrazine sulfate. Perhaps in the next decade, cancer patients will have a painless, effective way to control their disease—with a more well-informed and open attitude on hydrazine sulfate. But this can happen only when politics yields to the wisdom of science.