

*This is a radio interview with Ken Sell, M.D., scientific director of the National Institute of Allergy and Infectious Diseases, National Institutes of Health (NIH), and Co-Chairman of the NIH Working Group appointed to assist in the investigation of AIDS. The date is January 12, 1982. The interviewer is Ms. Gerri Blumberg of the NIH Office of the Director, Office of Communications, Audiovisual Broadcast Services.*

Blumberg: Dr. Kenneth Sell is a physician at the National Institute of Allergy and Infectious Diseases at the National Institutes of Health, and he is Co-Chairman of the NIH Working Group which has been appointed to assist in the investigation of a new disease which has recently seen widespread occurrence. It's called acquired immunodeficiency syndrome—A-I-D-S, or AIDS. Approximately one-third of the victims of AIDS contract a rare form of skin cancer called Kaposi's sarcoma. Dr. Sell, this appears to be a complicated medical problem which is apparently linked to a breakdown in the immune system. Briefly, could you explain just what a normal immune system should do?

Sell: The immune system is that portion of your body which provides antibodies or cells which help protect you from infections that you face in everyday life—getting over a cold, or recovering from pneumonia, is accomplished by immune cells or antibodies which protect you and fight the invading organism. A failure of this system makes you susceptible to infection, and in the case of AIDS, makes you susceptible to all sorts of complications, one of which is Kaposi's sarcoma.

Blumberg: What actually is the immune system? What is it made up of?

Sell: The immune system consists of lymph nodes, the spleen, and cells circulating in the blood, each of which has a role to play in fighting off infection. For instance, in the patients with immunodeficiency or AIDS syndrome, a portion of those circulating cells, called lymphocytes, appears to be depleted. There are lymphocytes which are called T-helper lymphocytes. They help us respond against an invading agent. Those T-helper cells are very depressed in patients with the A-I-D-S syndrome.

Blumberg: What causes the body's immune system to break down?

Sell: There are many things which are associated with the breakdown of the immune system. Sometimes we physicians cause it to break down. I mean by this that drugs or chemicals or chemotherapy that we give to treat other diseases sometimes attack the immune system and makes it less effective and makes us more susceptible to infection. There are other diseases which result in the breakdown of the immune system where we don't know the cause. These include diseases such as lupus erythematosus and other autoimmune diseases in which our immune system is affected but the means by which they are affected is unknown.

Blumberg: But, this new syndrome is different?

Sell: This new syndrome is different in several regards. One is that it is a new syndrome. We have not seen this kind of severe immunosuppression in a middle-aged population who otherwise appear to be relatively normal; who have no infections or no drug treatment that might be related to the immunodeficiency; and who have no other explanation for this rather severe, very marked and depressed immune response which is prolonged and never seems to recover.

Blumberg: I've heard AIDS called an epidemic. About how many cases of AIDS have been reported?

Sell: Over 600 patients have now been reported as having this disease, and the disease is called an epidemic because it's occurring at a slightly increased frequency in recent weeks.

Blumberg: And is there a specific geographical pattern to the occurrences?

Sell: Initially most of the cases were located in three major cities, Los Angeles, San Francisco, and New York, with New York providing more than half of all the cases. New York is still the center of this disease, but now it's been seen in many of our major cities throughout the country, and the geographic pattern is quickly spreading.

Blumberg: I've read reports that 75 percent of AIDS patients are homosexual or bisexual males. Can you determine why they seem to be so susceptible?

Sell: No we can't. It is interesting, however, that initially all of the patients that were identified were homosexual. And as we follow the occurrence of the disease throughout the country, an increasing percentage of the patients are non-homosexuals. Groups other than homosexuals have now been identified. Those who use drugs by the intravenous route have been shown to have an increased incidence of this disease, even though it's known that they're not homosexual. And two other groups have been identified: one, a group of Haitian refugees--not recent refugees, but refugees that have been in this country for some period of years; and there is also a small number of hemophiliac patients. I believe there are four that have been identified.

Blumberg: Do you ever see any women patients?

Sell: Yes. There are a small number of women who apparently have this same syndrome, and that number seems to be increasing slowly with passage of time as well.

Blumberg: Is there any pre-existing condition that all of them seem to have?

Sell: Well, this is an important point to consider. There are very few things that seem to tie all of these groups together, with one possible exception. That is, they all seem to have suffered from one form of infection, hepatitis. Most of them have evidence of either now having, or having had in the past, hepatitis B infection. I would like to add very quickly that we do not think that this syndrome is due to hepatitis virus infection. However, this does seem to be a common link between the groups and perhaps is associated with another cause, perhaps another virus that might spread in a similar way in these populations and cause this severe depression of the immune system and then the subsequent complications which are so devastating in these patients.

Blumberg: Is there a particular name that you give to all of these infections?

Sell: The infections that occur in immunosuppressed individuals are usually called opportunistic infections. They're infections that wouldn't occur in us normally even though we came in contact with the agents that caused the infection. But when we are suppressed and our immune system isn't functioning properly, then these agents can cause limited, and sometimes very severe, disease, often in these patients leading to death.

Blumberg: When the immune system breaks down in one of these infections, does it ever repair itself?

Sell: In this new syndrome, the A-I-D-S syndrome, we have seen that this severe immune suppression is apparently irreversible; that is, of the cases thus far diagnosed, a high percentage have already died and the others seem to be progressing towards death with no remission of their immune deficiency. So, in that case, we would have to say that the immune state is irreversible. However, I should add, again, that this is a new syndrome. And there may be cases that have a less severe form of this disease as yet unrecognized.

Blumberg: How does Kaposi's sarcoma fit into the picture? Is that considered one of the infections?

Sell: It's not known directly, of course, if Kaposi's sarcoma or any other cancer in man is an infection. However, it appears to occur in these patients much like the other infections occur, and most of us feel that it is the result of the immunosuppression and one of the opportunistic complications if not an opportunistic infection following the suppression seen in the AIDS syndrome.

Blumberg: Wasn't this particular kind of cancer formerly considered a very rare form?

Sell: Yes. It was a rare form of cancer and particularly rare in the middle-aged groups that are affected by this disease. It is a skin cancer which had been seen only in the older populations and then with only a small frequency.

Blumberg: You're listening to an interview with Dr. Kenneth Sell, a physician at the National Institute of Allergy and Infectious Diseases. Dr. Sell is Co-Chairman of the NIH Working Group which has been appointed to assist in the investigation of a new disease called acquired immunodeficiency syndrome, or AIDS.

Blumberg: Dr. Sell, is this disease a result of a particular infectious agent, such as a virus or a bacteria?

Sell: We don't know. There are many who feel that we are seeing the results of a new infection in several communities in our country leading to this kind of immunosuppression or destruction of part of our immune system. And, of course, there's much work, much research now going on to look for such new agents. However, there are other theories; there are other mechanisms by which our immune system may be destroyed. And these must not be overlooked as well: environmental factors and various other kinds of factors related to what we eat or what we ingest or the chemicals that we may come in contact with.

Blumberg: Doctor, you mentioned that many of these patients have had hepatitis at some time in their life. Does this mean that all hepatitis patients should worry about developing AIDS?

Sell: No. While each of these patients involved, the 600 or more who have already been identified, apparently have had hepatitis, many thousands of others have had hepatitis in this country and have had it treated successfully and recovered successfully. Certainly, hepatitis is a serious disease, but the number that would be related to this syndrome would be very small. And that relationship is completely unknown. So, that hepatitis itself would not be a cause for worrying as regards the AIDS syndrome.

Blumberg: Isn't there a form of pneumonia that is one of the most common of these infections?

Sell: Yes. Among the opportunistic infections, there is one that seems to stand out because of the devastating nature of this disease, and that is a disease called Pneumocystis carinii. This is a kind of pneumonia caused by a protozoa. The disease is treatable but in these patients, the disease often is devastating and often leads to death.

Blumberg: What about symptoms? How would they differ, particularly in the case of the pneumonia? How would those symptoms differ from regular pneumonia?

Sell: Well, they wouldn't differ much at all. The symptoms of Pneumocystis, whether they occur in this syndrome or in other syndromes or in simple pneumonia, are very similar: difficulty in breathing, coughing, and, on X-ray, we see the kinds of infiltrates seen in other kinds of pneumonia as well. Although the X-ray patterns are characteristic and often help the physician in diagnosing this particular kind of illness.

Blumberg: How do physicians go about diagnosing this syndrome?

Sell: Well, first we identify a patient who has one of the opportunistic infections. Pneumocystis carinii, remember, is only one of those. There are other agents that cause diarrhea, that cause skin lesions like herpes, that cause all sorts of other symptoms and other disease. Whenever any one of these is seen in a patient, we now look at them very carefully to see if their immune system is functioning and we also try to determine whether they have any of the predisposing factors that would identify them as a member of this AIDS syndrome.

Blumberg: Doctor, what do you do about treatment? Do they respond to anything at all?

Sell: The basic illness, that is, the immunodeficiency, apparently does not respond to any treatment that we currently have available. I should say, of course, that we're trying new methods. We're trying treatment with drugs or biologic agents which help pep up the immune system and allow it to function better. But to date we have no evidence that any of these treatment methods are helping. Of course, with each of the opportunistic infections, there are specific methods for treatment of those infectious agents and we attempt to treat each opportunistic infection as it occurs. Very often, we're successful. And when we are, then the patient lives on. But then, because of the continued immunosuppression, the patient is susceptible to a repeat of that infection; or perhaps an attack by another opportunistic agent.

Blumberg: Is there a research program which deals with the problem of this immunosuppressive deficiency?

Sell: NIH has an extensive internal and external grant research program now under way to deal with this problem. The National Cancer Institute has set aside more than a million dollars specifically to support centers for research in this syndrome. The National Institute of Allergy and Infectious Diseases is supporting basic research on immunoregulation and the function of the immune system, which may lead to an understanding of and discovery of the cause of the immunodeficiency. In

addition, because of the epidemic and the public health problem that's caused by this disease, many physicians and clinical scientists and basic research scientists around the country are spontaneously developing extensive research programs to look into this very serious problem.

Blumberg: As co-Chairman of the NIH Working Group, what do you expect to accomplish to deal with the problem?

Sell: Well, the Working Group really is a body to help exchange information between Institutes and to therefore provide for maximal research output in each of the internal intramural organizations as well as the extramural grant programs of NIH. We would expect that this would lead to better treatment, or, at least, better diagnosis of this disease. But more importantly, perhaps it will give us some insight into the cause of immunodeficiency in general. There are many diseases in which immune deficiency occurs for unknown reasons. And perhaps our basic studies in this syndrome will help many thousands of other people who have other forms of immunodeficiency.

Blumberg: Thank you, Dr. Sell. You've been listening to an interview with Dr. Kenneth Sell, a physician at the National Institute of Allergy and Infectious Diseases at the National Institutes of Health. I'm Gerri Blumberg.

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