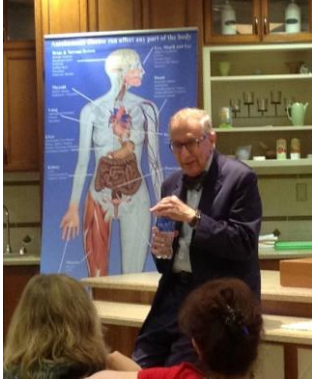


This webinar was recorded on December 13th, 2018 at 6pm EST, featuring guest speaking Dr. Noel Rose and AARDA staff Katie hosting with Laura managing the chat.

Noel R. Rose, M.D., Ph.D.



- ▶ Yale University (B.S.)
- ▶ University of Pennsylvania (A.M. and Ph.D.)
- ▶ State University of New York (SUNY) at Buffalo (M.D.),
 - ▶ Distinguished Medical Alumnus in 1994.
- ▶ Doctor “Honoris Causa” in Medicine and Surgery from the University of Calgari, Italy
- ▶ Doctor “Honoris Causa” in Biological Science from the University of Sassari, Italy.



[Katie] Dr. Rose has a very distinguished career in autoimmunology including several degrees from Yale University, the University of Pennsylvania, and the State University of New York. He also has several honorary doctorates.

Noel R. Rose, M.D., Ph.D.

- ▶ Currently with the Department of Pathology at Brigham and Women's Hospital and Harvard Medical School
- ▶ Previously the professor and chair of the Department of Immunology and Infectious Diseases and as Professor of Pathology and director of immunopathology Microbiology and Immunology
- ▶ Founding Director of the Johns Hopkins Center for Autoimmune Disease Research



[Katie] Currently with the Department of Pathology at Brigham and Women's Hospital and at Harvard Medical School, he has previously been the professor in the chair of the department of immunology and infectious diseases and professor of pathology and director of any immunopathology, microbiology, and immunology. He was also the founding director of Johns Hopkins Center for Autoimmune Disease Research.

Noel R. Rose, M.D., Ph.D.



- ▶ Served as autoimmunity expert for the World Health Organization (WHO) and the Institute of Medicine of the National Academy of Sciences
- ▶ Served as Chair of the National Institutes of Health (NIH) Autoimmune Diseases Coordinating Committee
- ▶ Fellow of the American Association for the Advancement of Science, the College of American Pathologists, the American Academy of Microbiology, and the American Academy of Allergy, Asthma, and Immunology, and is an Honorary Member of the American Society for Microbiology



[Katie] His service has included work with the World Health Organization and the Institute of Medicine of the National Academy of Sciences. Chair of the NIH and the Autoimmune Disease Coordinating Committee and then a fellow at the American Association for the Advancement of Science for the College of American Pathologists the American Academy of microbiology and the American Academy of Allergy Asthma and Immunology, and an honorary member of the American Society of microbiology.

Noel R. Rose, M.D., Ph.D.

- ▶ Co-editor of the classic textbook
The Autoimmune Diseases
 - ▶ Now in its 6th edition
- ▶ 880 articles in peer-reviewed journals
- ▶ 22 books edited or co-edited
- ▶ 27 journals to which he has served as an editorial board member



[Katie] Dr. Rose is also a prolific writer including the co-editor of the classic textbook “The Autoimmune Diseases” over a hundred and eighty articles in peer-reviewed journals twenty-two books that he is edited or Co-edited and 27 journals to which he has served as an editorial board member.

What is autoimmunity?

- ▶ Autoimmunity- immune response to normal antigens of the host
- ▶ Autoimmune disease (AD)- disease caused or significantly promoted by autoimmunity



[Dr. Rose] I always like to start by clarifying a few terms. What is autoimmunity by just adding immunity itself because I think these days everybody really knows what autoimmunity it is the body's physiological that is normal system for handling invaders mostly infectious invaders and we know all about that because we know that if we don't have immunity we are very prone to infections. In fact the disease we call AIDS is due to of course the HIV virus but it's not the virus that kills it's the infection that comes with it so we need an immunity all the time to protect us against the many bacterial viruses and so forth there are around us and the number of possible invaders is almost endless and new ones are coming along all the time so there's always a new SIDS or a new age or even things were worried about things coming from Mars things that never existed on earth and yet our immune system can spot them it can recognize them and it can cause the body to develop this protective this physiologic response we call immunity. That's something we've known for a long time but what finally became clear to those of us who have been interested in this phenomenon is how could we have a system that's so smart that it recognizes any organism even new ones that never existed before and not recognize our own bodies not respond to our own bodies, how in the world as the immune system do that well the immune system that reacts with our own bodies is what we've defined on the slide as an immune response to normal antigens, or what the immune system sees the antigens of the host- that's you and me.

So why don't we develop antibodies or an immune response to antigens of ourselves and that puzzled immunologists for many years after immunology became a science in the late 1900s and in fact there were a few rare examples where the body did respond to self and those seemed to be special organs the brain the eye and the testes which were which were Inman illogically separated because it's just advantageous to have them the site of an inflammatory response and so there were those exceptions where in fact the body did react to self but that was it and when I started in this business which I would have to say is about 70 years ago we were all taught in in medical school that's what it is. I mean you have to accept that as dogma we just don't respond to ourselves there's no such thing as autoimmunity

because it would be silly why would you want to respond to your own body well it took us half a century to really begin to understand that and the answer is we do have autoimmunity we do respond to normal antigens of self and you and I do it all the time but it doesn't do us any harm and the reason it doesn't do us any harm is that it is a very carefully regulated physiological system it's very powerful and powerful systems in the body have to be under control have to be regulated carefully all the time.

So autoimmunity is going on in all of us as I speak and we have devices that keep this autoimmunity carefully regulated so it doesn't do any harm but like anything else it can go wrong and it does go wrong and that causes disease and that's what we call autoimmune disease – a pathology that is that's disease autoimmunity is normal in most of us most of the time and that's probably as important a lesson as you can take away from this evenings discussion.

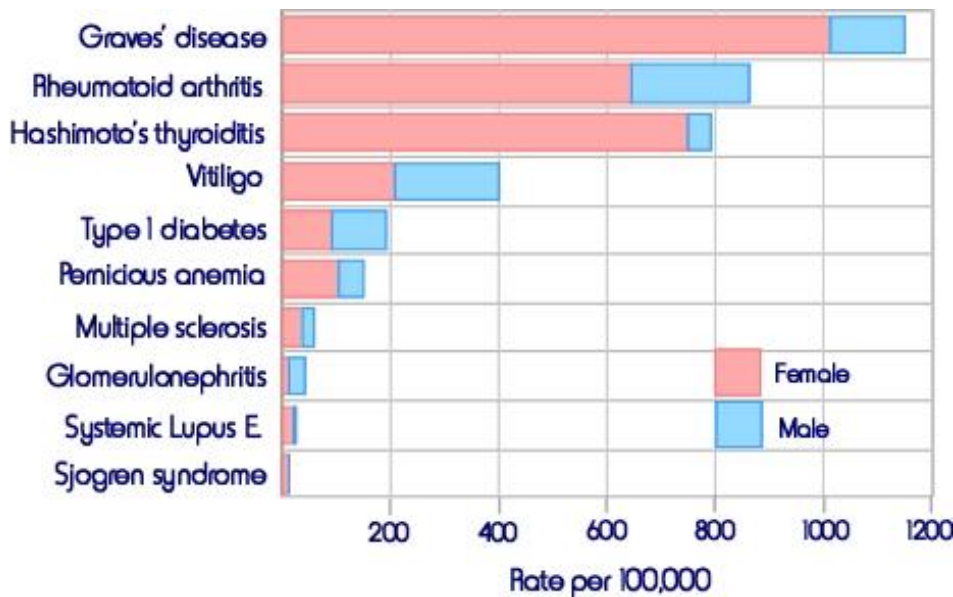
Autoimmune disease, the basics

- ▶ More than 100 diseases affecting every organ system
- ▶ Most require life long treatment
- ▶ Many people experience difficulties in getting diagnosed
- ▶ They impact women at a far greater rate



[Dr. Rose] First of all we know now what we didn't suspect 70 years ago that there are many diseases that are caused by autoimmunity there are many autoimmune diseases they are all quite different because they occur in different parts of the body different organ systems are involved and the disease itself presents dependent on the organ system in which they develop so they can be clinically quite different and that's a message that again I hope you'll take home with you that the autoimmune diseases while they all are caused by this out-of-control pathogenic autoimmunity are all clinically very different respond very differently because they occur in different parts of the body.

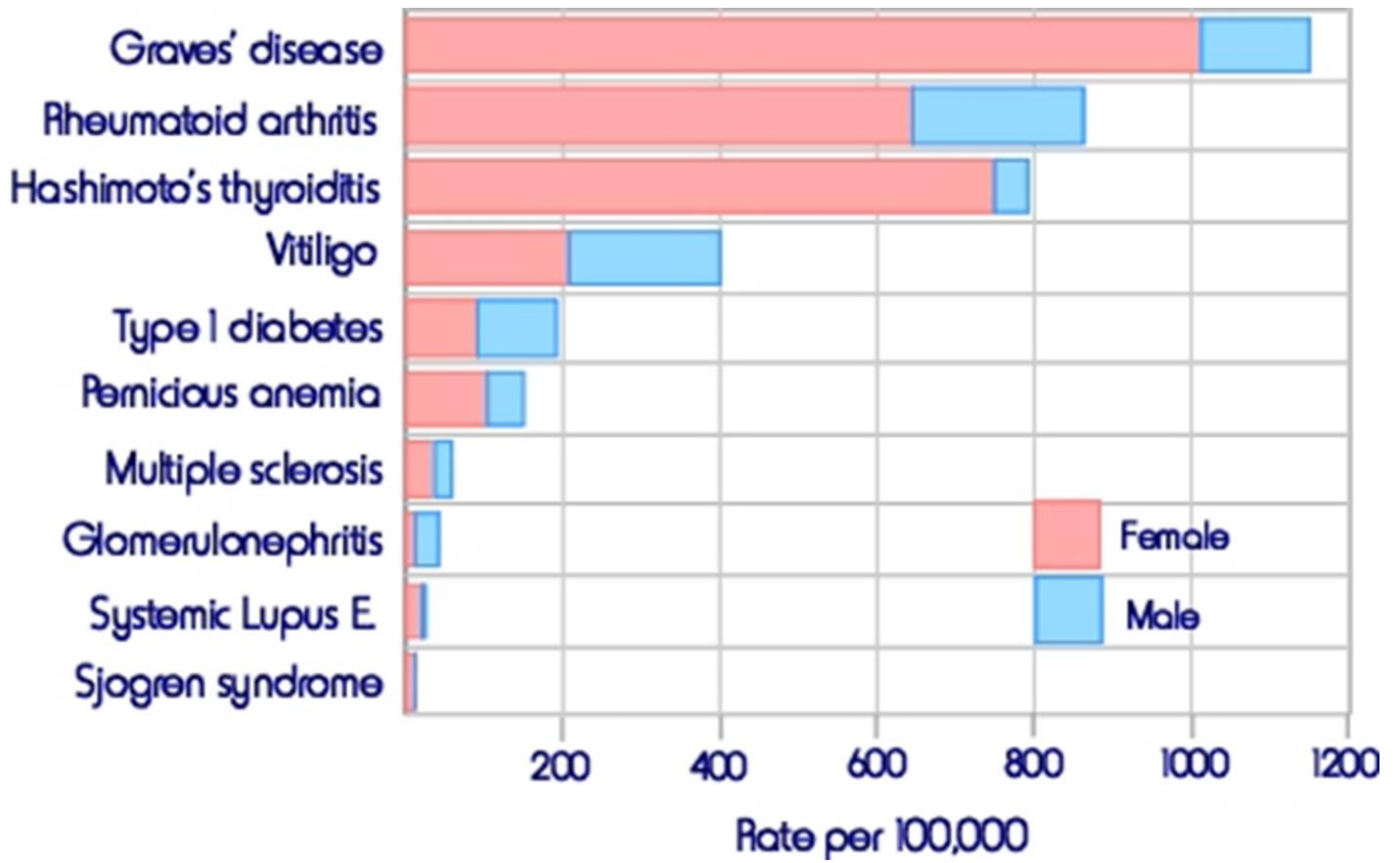
Prevalence of the top 10 AD in the US



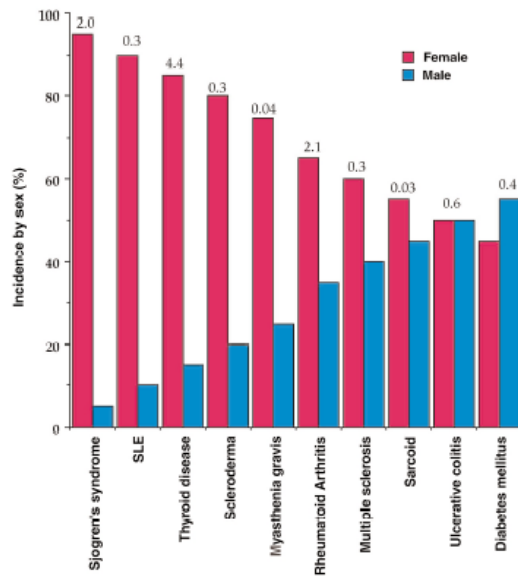
[Dr. Rose] There are many different diseases many of them you'll recognize they're become famous now but something you may not and there's a bit of a moral there. You'll see that the first three diseases on the top there one is called Graves' disease the second is rheumatoid arthritis the third disease there is called Hashimoto's thyroiditis there are they're up in the order of a thousand four hundred thousand which is the way that doctors talk about a disease that's fairly common and in fact the first and third Graves' disease and autoimmune thyroiditis are both diseases of the thyroid gland that are really twins in a way or non-identical twins and put together they are by far the most common autoimmune diseases. We have rheumatoid arthritis, which is unfortunately also very common. So three of the diseases are quite common the other lesson that we take from this slide is that the other diseases are rare and individually they are easily overlooked and have been overlooked for many years and it's only if we look at the autoimmune diseases collectively that we realize what a huge problem there is.

There are about 20 million people in the United States or maybe a bit more than that who have an autoimmune disease a few of them are rare diseases but those like rheumatoid arthritis are fairly common. Although if it's your disease that's the disease you are interested in, but all of the autoimmune disease has come under the heading of rare and believe me in our society and government support for rare diseases don't get very far. One of the lessons I hope will take away is that it's much better of us let's stay united. If we think of the autoimmune diseases together it's a big problem if we think of them only individually it's not such a big problem. Not that we shouldn't think of your own disease and that's obviously the first thing on your mind but open up your mind a little bit to the thought that we need to think of other members of the autoimmune disease family.

The other point that comes out as you'll notice the bars are most cases are sort of a washed out orange color I guess it is and then a blue at the end and of course the blue are the males and the decadent orange color there are the females most of the diseases occur much more in women than in men.



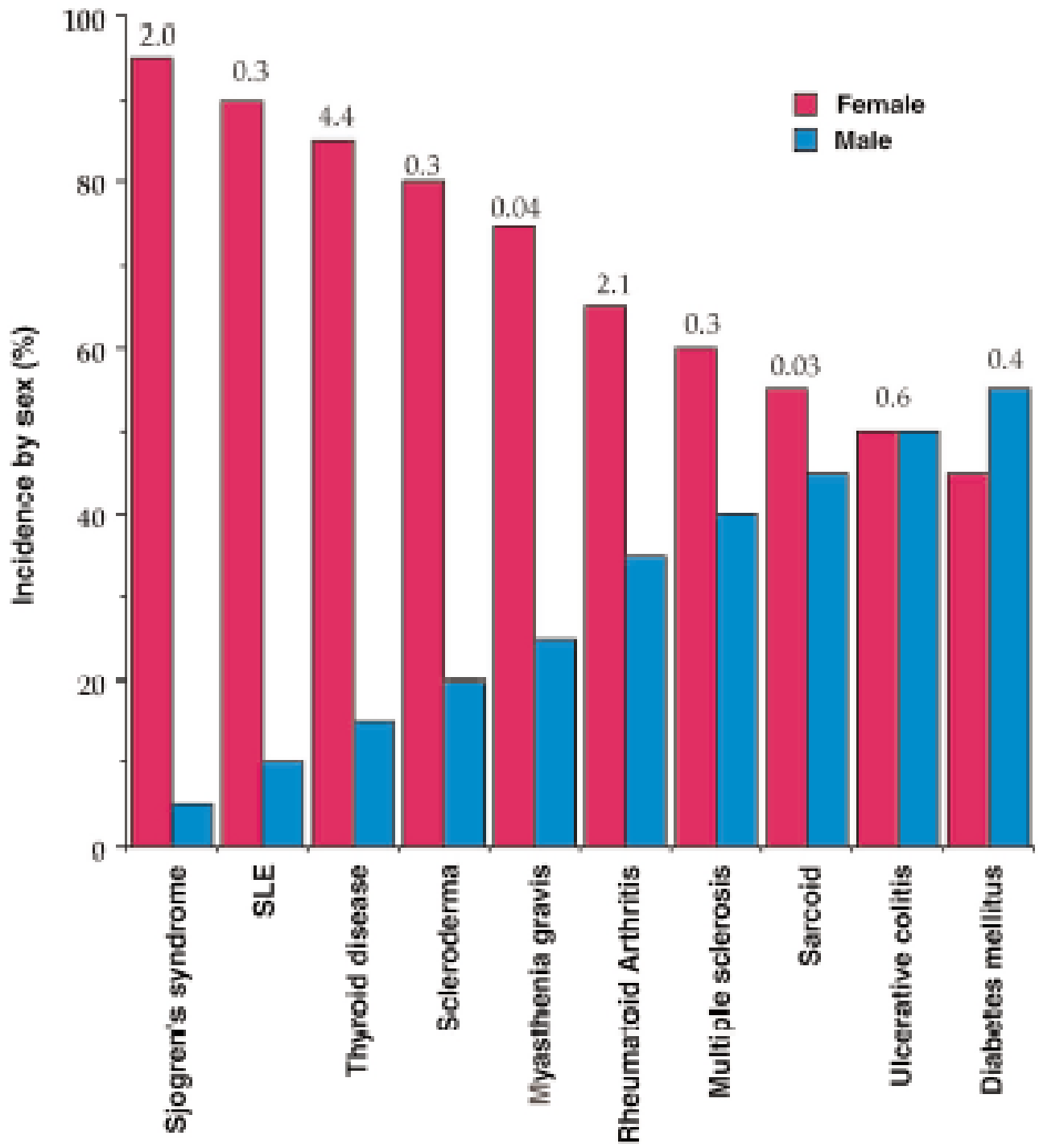
Distribution of common AD in the USA by sex



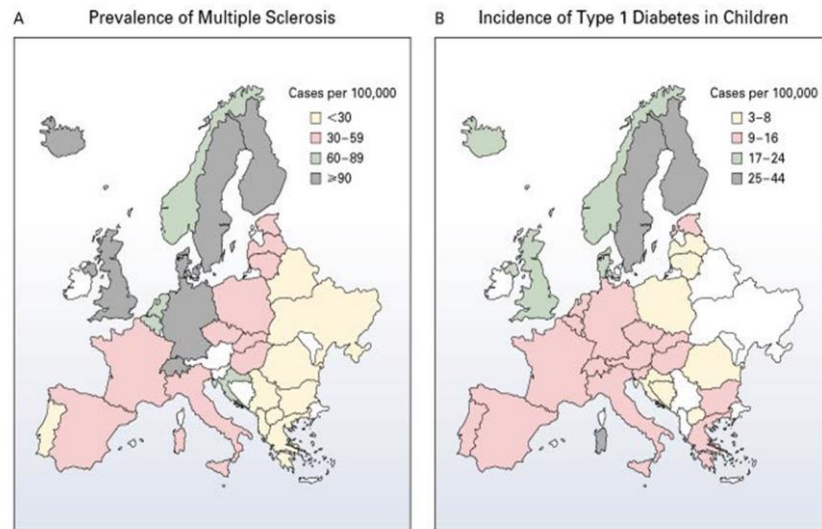
[Dr. Rose] Something that you really want to know quickly when you're studying disease and that is that there is clearly a difference between males and females. On the left you have diseases you probably can't read them little hard for me to read them Sjogren's syndrome and SLE is lupus and thyroid disease these are disease mainly of women but then there are diseases that are much less of bias, some that are pretty equal, and you even have a few over there at the end which are more common in males.

If you look at this, it tells you something very important and that is that this difference is not due to a single factor it's not just one thing that separates all the boys from the girls there are multiple factors involved. This is a rather complex phenomenon and one which is very interesting but very important because looking at autoimmune diseases collectively as we're doing this evening they are more much more common in women than in men almost 80% women overall although again there are exceptions. There's a very close interaction between the immune system which is one of our regulatory systems of the body and the endocrine system which is another regulatory system and it's these two acting together that determine who's most likely who's at greatest risk to develop an autoimmune disease so that for example autoimmune diseases in general can occur in any age. These diseases range from early childhood right through the extremes of age but predominantly most of the autoimmune diseases are diseases of young women in the childbearing years women in the years when society places the greatest demands on women, they're starting their families, starting their careers.

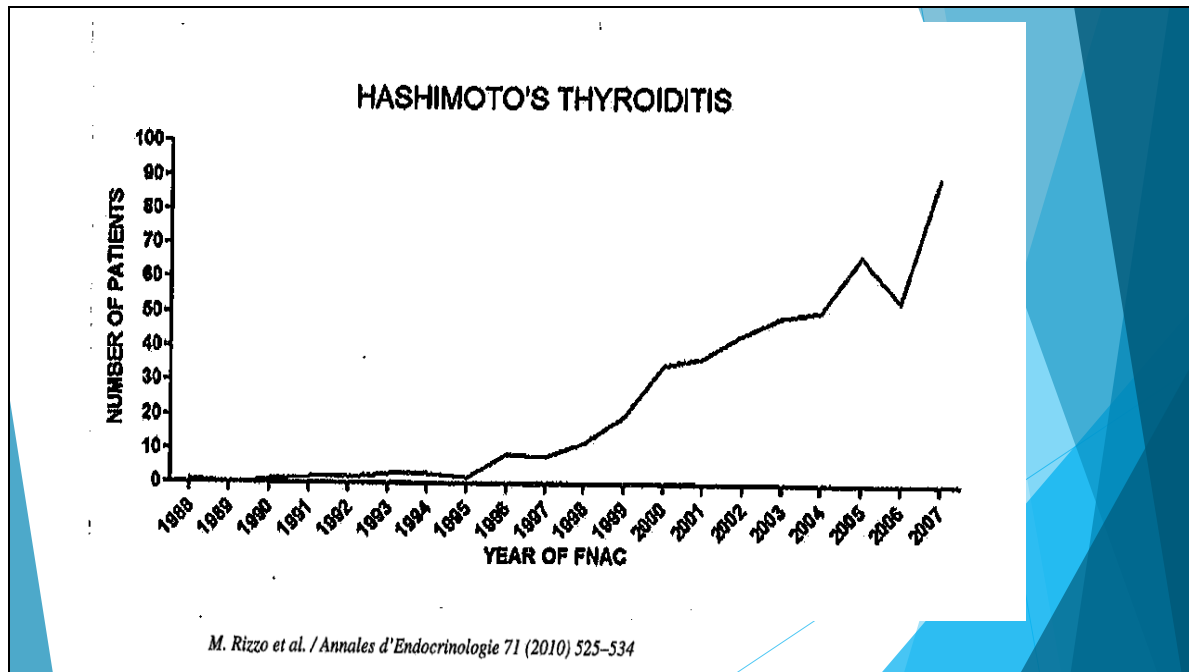
Autoimmune diseases are not just a disease of the patient they are a disease of the entire family everybody in the family is affected by an autoimmune disease and that's another reason why we must pay attention to them.



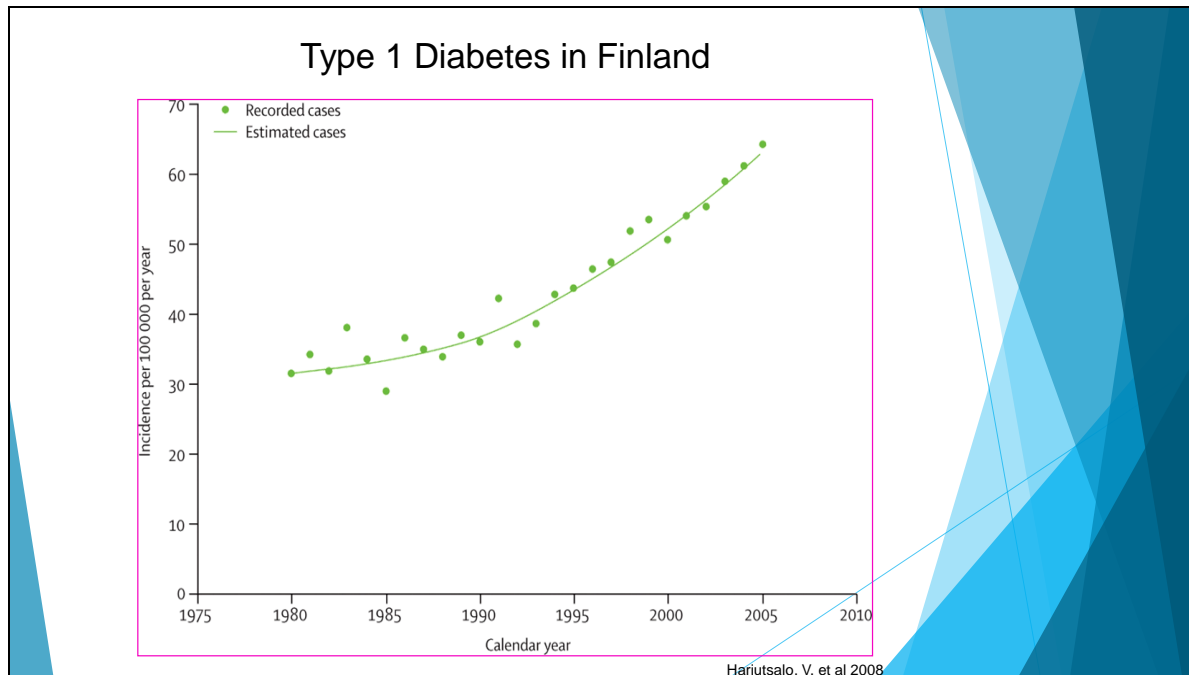
Most AD are more common in Temperate Climates



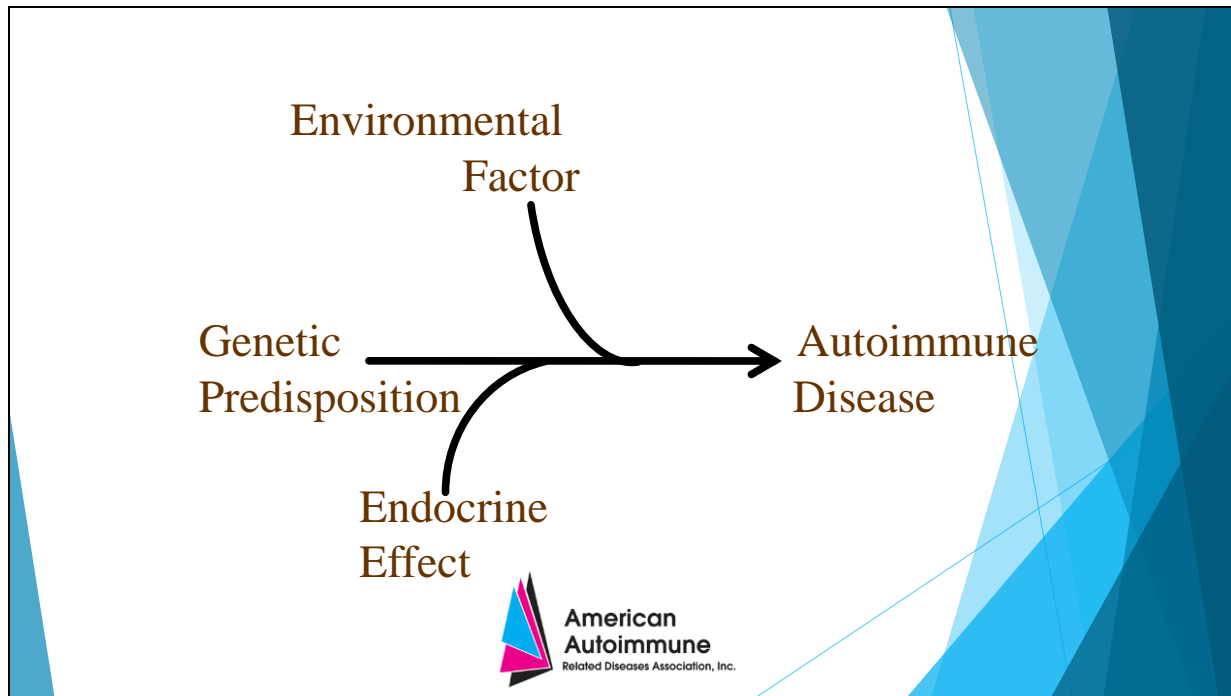
[Dr. Rose] It's important where you live, autoimmune diseases in general are diseases of the temperate climates they're more common in northern Europe in the Scandinavian countries- Britain, Iceland, than they are in southern Europe. That gives us a lot of information, too much information because you can say well there's probably a genetic component. Indeed, we'll discuss that in a moment. That's certainly true but there are probably equally important environmental exposures. The amount of sunlight you get, things of that sort which play a role in autoimmune disease, so who gets an autoimmune disease who actually is most likely to develop is dependent on to some extent on your sex and on where you were growing up. By the way, if you move (up to a certain age) you take on the disease of susceptibility of the new place and then beyond the age of 12 you keep your old one. It tells you that this is a disease which in many cases start in childhood but isn't expressed later life.



[Dr. Rose] This graph addresses a question that we've wondered about in this field for many years. We're seeing more and more autoimmune disease now. The first thing it should tell us is we're more aware of autoimmune disease. Where we are looking for it much more, we understand it much more. Patients are aware of it, they read about it, and so there is the ascertainment of disease and what we see in this case, thyroid disease is going up in the world. Now we know that, we can ascertain it's a real increase and this actually one type of study which has been going on for many years in which we look at a group of people of a city really where the population is quite a stable and we can begin to record the number of cases over time starting in 1988 and going up just to a decade ago.



[Dr. Rose] There's a real increase so this is a disease of the thyroid this is the autoimmune form of type diabetes and this is a test done in a different way most of the good studies on epidemiology of autoimmune disease of the studies of this sort are done in Scandinavia one because there's a lot of autoimmune disease in Scandinavia as we said before Finland and Sweden but also they have a single health system and they track everybody as we say from the womb to the tomb, so that's another independent way of going that autoimmune diseases are really increasing. We have a big problem, we have lots of patients with lots of diseases most of which are considered rare diseases now very much neglected for that reason but are increasing and in fact this curve actually shows they're increasing at an increased rate.



[Dr. Rose] The causative tree of autoimmune disease, how does it occur? There are really three, say streams, that make it into the river that we call autoimmune disease. There on the right there are three things. First of all, as we sort of hinted before there is a genetic predisposition that if you inherit something from your parents and your grandparents and your great-grandparents which makes you more likely put you at greater risk of developing an autoimmune disease.

Thanks to the human genome project we know a great deal now about the genes that gather in certain people and that make them more susceptible more likely to develop an autoimmune disease and even the type of autoimmune disease they may develop. The interesting thing is that there is a predominant type of gene. It's rather interesting kind of gene, it's the one that we know about because it's important in preventing transplantation of tissues like skin or kidney from one person to another. That's called a transplantation antigen and that's a big one so that makes up the biggest amount of risk, and if you know somebody's genotype that is the type of history means they're on the transplantation part of the genome, the gene family, then you have a predictor of what autoimmune disease it's not enough accepting rare instances but it's a big help.

Almost all of the other genes are small contributors, so you have one big one and then you have lots of genes which contribute a small amount of susceptibility and the more of those little tiny genes you get by bad luck the more likely you are to develop an autoimmune disease and even to some extent the type of autoimmune disease. The interesting thing is that many of these little genes that contribute to the susceptibility to autoimmune disease are well known to a monologist because we already knew they were immunoregulatory genes they are genes that are involved in the process of regulating the immune response something we mentioned a little earlier so that's part of the susceptibility.

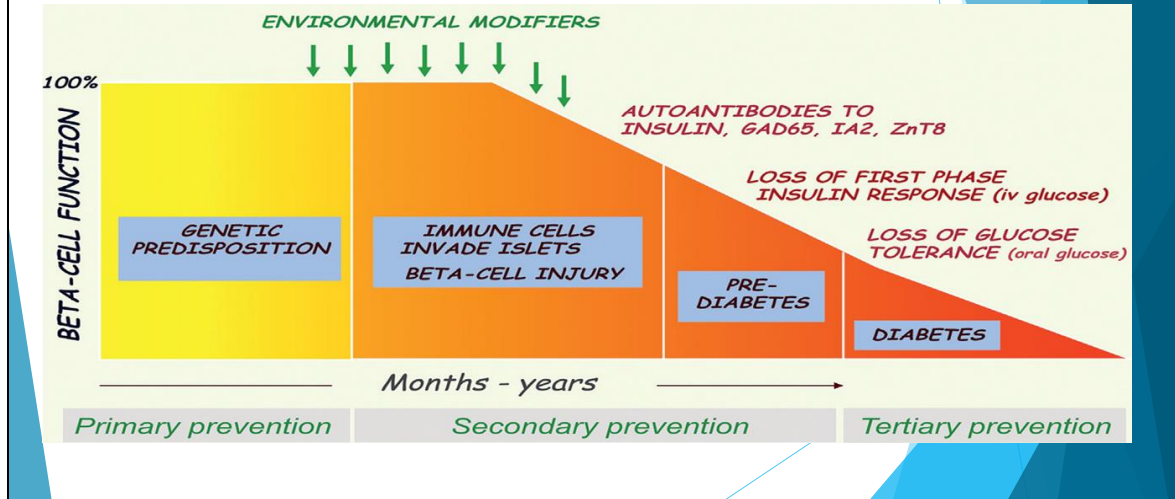
If you look over the number of autoimmune diseases, you see that that makes up something in the order of a third of the risk. It's quite variable it goes from maybe five percent of the risk to forty five percent of the risk but it's usually a little less than half of the risk and we know that from animal studies but we know that from humans because we compare the susceptibility of autoimmune or immunochemical currents in the same family where there are identical twins versus non identical twins and we easily see that there's much more in the identical twins that is the same genes. That on identical twins who differ even though they're twins they're as different as brothers and sisters so that's a big part of the story and that's an important part of the story which we'll come back to in a moment.

The second thing there is the endocrine effect and we know about that because of what we were saying previously about the difference between males and females now that's an area a very active study we would we would know a lot more if we understood that but that's probably involved in in gene expression it probably is determined by enzymes that we know are important in expression of genes so called epigenetic traits and they make up an unknown part of this but as you can see the effect on females versus males is a very real one a very important one and we obviously need to learn much more about this, but that means looking at two regulatory systems at the same time, so it's hard to study.

The third factor the third stream that makes up this river we call autoimmune disease is environmental and that's the majority of it. Here we have the least knowledge because it's very difficult to study in humans in order to study it you really have to have groups of people usually large groups of people who are very similar to each other but differ in an environmental exposure and that's so not so easy to do so we will do things like study patients who are receiving a drug and we'll know that the same drug may cause an autoimmune disease which an autoimmune heart disease in one patient but not another patient, so there's a gene that's responsible for the heart disease susceptibility and some people. We have some factors of that sort we have some food exposures, so it could be an intake of sorts. It could be exposures to toxic materials, it could be just a large number of things, but one thing that that we do know at least in a few cases with solid information is infection. So, one of the what are the many environmental factors that we need to be interested in autoimmune disease and that could trigger an autoimmune disease in a genetically susceptible person is infection.

That having been said, that tells us that's really important in our lives and this is a somewhat complicated story, but I think it can be understood very simply and that is the process at least for most autoimmune diseases is a long-term process.

Toward the Future: Predictive Biomarkers



[Dr. Rose] It goes as you see at the bottom in months or even years it probably starts in early childhood, starts obviously with the genetic predisposition which is already there and may involve an infection during childhood, an exposure during childhood, something that could happen in Sweden but not in Italy or maybe the amount of Sun the child gets vitamin D. There's a fruitful area of investigation but there are warning signs and I mentioned one of them and that is these genes that tell us something and if we know that, and we can put that together with the earliest signs that an autoimmune process is underway which we can see by the production of antibodies. Then we might know that we are at an early stage of autoimmune autoimmunity getting out of control and going over the boundaries to autoimmune disease. Then we get a pre-state and finally the clinical disease and this diagram could be used for virtually any autoimmune disease on the list so we think at the moment that many of the autoimmune diseases anyway have a long past history and that's important to us because that gives us the opportunity to do what we really want to do in this disease and that is as you see at the bottom primary prevention.

The Train of Autoimmunity...

- ▶ The major research goal for us today is to understand that all of these diseases, diverse as they are in their anatomical location and in their clinical manifestation, are related because they have the same etiology; they are all caused by the train of autoimmunity.
- ▶ To develop effective treatments, we need to treat the cause of the disease, not the symptoms.
- ▶ The symptoms are late; the symptoms are at the end of the train of events. We need to get on the train at the very beginning.



[Dr. Rose] The major goal for all of us today is to understand that all of these autoimmune diseases diverse as they are in their anatomical location. Their clinical manifestation is related because they have the same ideology that is the same cause. They are all caused by the train of autoimmunity. The train of events that we call autoimmunity going from harmless autoimmunity to pathogenic autoimmune disease. In order to develop treatments and more important, perhaps in order to develop prevention or preventive interventions, we need to treat the cause of the disease not just the symptoms.

We like to use the example if you have downed trees in your lawn it's nice to cut them down whenever you see them but it's better to go down and snip out the roots. We want to get to the roots of autoimmune disease, the symptoms are late when you have the disease symptomatology that's really too late to do a lot so we end up treating the disease ameliorating the symptoms but we don't cure an autoimmune disease and we certainly have very rare examples where we can we can get enough information and enough knowledge to prevent the disease, so we need to get on the train at the very early beginning.

Summary

- ▶ AD is a large and growing problem in the US.
- ▶ AD can affect any site in the body.
- ▶ Common mechanisms
 - ▶ genetic predisposition
 - ▶ environmental triggers
- ▶ Autoimmunity is present before autoimmune disease is apparent.

[Dr. Rose] Autoimmune disease is large and it's a growing popular problem in the United States. A lot of immune disease is a problem because it can occur virtually in any site of the body almost any system has its autoimmune disease 1 or 2 or 3 or 4 there are diseases which share their basic mechanisms basically genetics, serenity, and environment but they're clinically very different treated by different doctors in different ways and earn much separated in the way they are researched and supported. I think that lesson we need to learn from all of this that takes priority, is that autoimmune disease is present in at least as many forms of autoimmune disease before the disease is clinically recognized.



[AARDA] Please note that we cannot give out medical advice or recommendations. For those question please see your own physician so that they can properly advise you with your own unique needs taken into consideration. However, don't hesitate to reach out to us with your questions, we will do our best to help you in whatever way we can. Just email aarda@aarda.org

[Katie] What do you see as the biggest obstacles to treatments or cures for autoimmune diseases?

[Dr. Rose] The biggest obstacle, and again there's it can't make perfectly general statements that every autoimmune disease a little different from every other one but nevertheless it's certainly the predominance of that biggest obstacle we have, is that we don't treat the disease before the train wreck occurs. So, when we see a patient, the patient sick I mean good patients ill. Patients in good health don't come in to see their doctor or certainly don't ask about an autoimmune disease and by that time the damage is irreversible, and we're left with treating the symptoms of the disease and we've gotten pretty good at that. I mean I have to tell you that in these years in the years since the 50s when this field came about, diseases like lupus was a fatal disease. I was told a patient who had lupus she would live five years. Now, patients can live a long life with many autoimmune diseases, but the disease is almost always still there or only there are only rare exceptions, for autoimmune diseases seem to disappear so by and large it's a lifelong disease we're treating the symptoms of the disease but we do not cure the disease.



[Katie] What do you envision as a cure for autoimmune disease? Something like an effective treatment for continuous remission, preventive measures, disease-specific measures, what are your general thoughts on what a cure would look like?

[Dr. Rose] It's sort of all of the above I guess in this case what we really need is we need two things. We need a reliable prediction, a reliable way of knowing that someone is on the train or even just waiting at the station for the train, and so at a very early stage when it should be easy to reverse the disease and in fact in experimental animals we can do that so we know that this can really predict someone with a fair degree of certainty that the disease is going to occur. But that may be as long as 20 years later, but we need something else, particularly if we're talking about treating diseases in the early years of life, and that is we need. What I call a benign intervention, we need a way of treating a healthy child because the child coming to the office is in good health but in which we have a strong enough indication from the genetics from the known exposures from whatever other data we can put together. It has to be an intervention that by itself is not going to do more harm than good because we don't we don't treat healthy people unless we have very sure knowledge that the advantage is much greater than the risk so those are the two things we're looking for-much better prediction at an earlier age and a benign intervention. Then I think the way forward is going to be to use a benign intervention.

Another problem we have in autoimmune disease is that we assume that the disease itself is due to an immune response to something in the body to an antigen in the body. Remember that from the first couple of slides, and if we want to prevent the disease in animals what we try to do is find the antigen and administer the antigen in a way that will curb the immune response and for that we need to know the antigen. Well strangely enough after all these years there aren't very many autoimmune diseases where we actually know the substance in the host in the in the patient which is the cause of the damaging model beyond response so that's another requirement that has to be on the list.



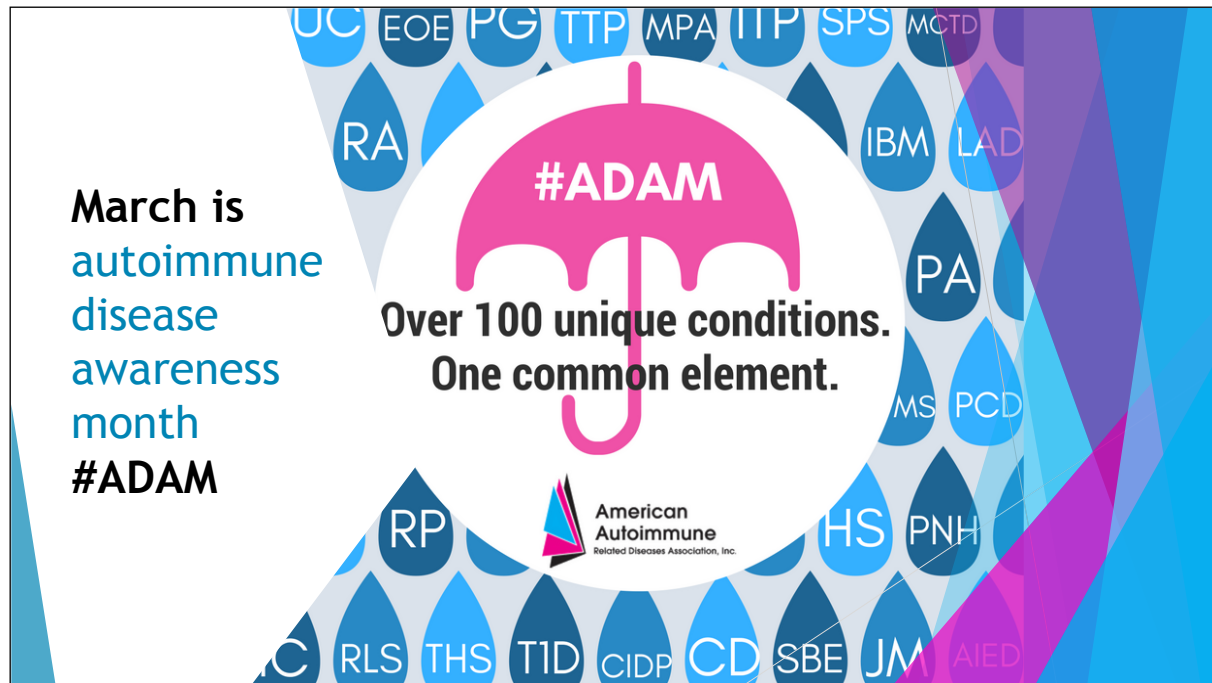
[Katie] We've gotten a few people requesting and having an interest in hearing more about recent research results. So, is there anything out there that's you know of that's new and exciting?

[Dr. Rose] Well that takes me right to where I was because that's I think one of the areas where the research is going right now, a big area of research is to know precisely what it is in the body that is the target of the autoimmune response of the damaging autoimmune response. Now, again those are things you can do in animals but doing them in humans turns out to be very different. We just don't have very many good examples where that's possible, then the other thing we need to do and we are doing a little better is, if we know what the antigen is, the other thing we'd like to know is what part of the immune system is going haywire which is what is the part of the system which is out of control and can we intervene and control the disease. That way that is without having to know the exact antigen but at least know what the important pathologic mechanism is, and interesting enough that part of the research is going on at great rate at the moment, which is an interest in cancer immunology. What do I mean by that? Well, if you think about it cancer is the other side of the coin from autoimmune disease in autoimmune disease the patient is producing an immune response to himself or herself to one's own body. In cancer the disease is progressing because the patient is not producing an immune response and oncology in the past decade work has made enormous strides in developing treatments based on circumventing the various ways the immune system has to keep itself under control and to allow the immune system to act on tumors which are predominantly self or very close to self very similar to self so immunologists have been interested in for a long time the cancer doctors call these checkpoints and are now starting them in great with great vigor and with great success.

The Nobel Prize is exactly for this kind of work and on putting these two fields together is really moving the whole field of autoimmune disease forward at a great rate I must say that and deservedly, so cancer gets a lot more disease money research money than autoimmune disease that those members of Congress. There are several types of cancers which not too many years ago were considered recalcitrant to treatment now can be treated and possibly cured and to be able to say that about cancers is pretty rare so we're seeing a huge step forward and cancer immunology and autoimmunity is the is the other side of a coin and I think that's beginning to move on or is moving on more rapidly as the as the knowledge how the immune system is normally regulated comes to the surface. So, I think that's another area of research that's very important

The third one by the way is his environment and I wish we had more opportunity to do that that's the kind of research which is so expensive that the government only can do most of that because it's research depending on large numbers of peoples stories studying them over long periods of time so that's probably the third part that's not progressing as it as it should. I've been very much interested in the one and the one environmental thing in autoimmune disease that we know is important is infection, and we were interested particularly because that's the one disease, one autoimmune disease which has been on has been almost eliminated in Western countries because we know now that the disease we call rheumatoid fever are more particularly of the rheumatic heart disease is an autoimmune response which is generated by exposure to a strep infection a beta hemolytic streptococcal approach infections in youngsters. If we can recognize these people who are susceptible because they are genetically susceptible, and prevent repeated strep infections with appropriate antibiotic treatment, they won't develop rheumatic fever that is another important approach what we think is a very practical one where if we could find that there is an infection hidden somewhere in the fact that many factors that contribute to autoimmune disease and is an important factor, and could treat the infection then maybe we could prevent the autoimmune disease that way well that's great news.





[Katie] Can you talk more about the connection of autoimmune disease within families?

[Dr. Rose] A very important topic on which we've learned a great deal but have a great deal more to learn so as I indicated we know that the risk of developing an autoimmune disease depends on multiple genes. It's not most of them aren't due to a single gene or even a couple of genes, but probably due to 20 or 30 different genes contributing where would you find that where would that occur. Well it's most likely that you would be sharing a lot of these genes with members of your family. Now, I'm excluding the big one this transplantation gene because we can test for that and we can match people on that, but the real question is what about all these other genes most of which contribute small amounts, and that's difficult to study because you need to look at a lot of individuals. But we start with members of a family knowing that they're more likely to share many of these genes and so that's an important area of research and it turns out that co-occurrence of autoimmune disease is quite striking. It's quite interesting and one of the early things that clinicians began to notice. They found that if they have a patient with thyroid disease for example this is a good example the chance of there of another member of the family mother or father or uncle and grandmother having thyroid diseases is quite high and so if you look at an individual you just take large numbers of individuals and say what is the risk that I will develop an autoimmune disease. If I have a family history, it's about 20% is pretty high so there is a real risk if you have one autoimmune disease of developing a second and nowadays that's very important information because it means that you should be looking for it. It doesn't mean that you should be doing something about it. You don't create a disease until we get the kind of information we need, you don't treat a disease because before you're diagnosed with the disease, but you should be on the lookout for it. Particularly in members of the family. So, if you have a family history of autoimmune disease that an added risk and one that a patient should be aware of especially the young members of the family, the children should be aware.

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[Katie] Is there a percentage of individuals who have one autoimmune disease who get a second? Do we know that prevalence rate?

[Dr. Rose] Yeah, that's we're saying, that if you have one autoimmune disease you also have a greater risk of another autoimmune disease, they call that clustering. And there's clustering with other members of the family but there's also clustering within the same individual. If you have one of the 100 diseases, you have a significant risk of a second disease and interestingly there are there are affinities within the autoimmune disease family. So, if you have autoimmune thyroid disease you have a greater disease of affecting the islet cells the insulin producing cells. You will often find a young person with an older person with both of those diseases or sometimes a third endocrine disease going on at the same time. They tend to be little diseases within the broad the field, within the broad field of autoimmune diseases, that tend to cluster. The short answer to the question is that yes one autoimmune disease puts you at risk for a second or even a third that's something against a patient should be aware of and the doctor should be looking for.


Visit www.aarda.org

- ▶ We have patient and prescription resources
- ▶ Information, tips, statistics and more about autoimmune disease
- ▶ ARNet- the patient powered research network
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[Katie] Does medical training exist specifically for autoimmunology?


[Dr. Rose] Good question it's a little difficult, there is there is no such thing in our medical system as an autoimmunologist. We don't have people who we have only very rare people who make their living studying autoimmune disease because diseases are treated by specialists in each field and each disease is different, and they have to be treated by a specialist. We don't have anybody who is who is just concentrating on autoimmune disease and that's something that has been very interested in all these years whereas a patient who has more than one autoimmune disease going on, and they have been very active and trying to see if there is a type of organization that could look at patients with different kinds of autoimmune disease, and treat them together because too many patients have to go from one type of doctor, to another type of doctor, to another type of doctor, and certainly far from ideal but unfortunately we don't have a type of position recognized specialty in medicine for autoimmune diseases broadly at least not yet.



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If you have any questions, or recommendations for future webinars, please contact aarda@aarda.org with “webinar” in the subject line

[Katie] What is the research like regarding diet and nutrition in relation to autoimmune disease?

[Dr. Rose] There are two parts to that answer as usual. One is that the immune system is a physiological system and like all physiological systems it needs to be well-fed. Well-fed means that it gets a good balanced diet. The predominant autoimmune disease treatment, a dietary treatment for autoimmune disease, is a good balanced diet of the type the Department of Agriculture puts out. So, you could do no better than look at their very good literature see that lots of fruits, vegetables, and maybe a little less red meat, and so on. All the things that I think our mothers are teaching us are true for autoimmune disease. So, for most autoimmune diseases, that's the case there are a few instances where there is a dietary factor that's involved in the autoimmune disease, and gluten is the villain in this case that's received a lot of attention because that causes a type of inflammatory information called celiac disease. For patients who were diagnosed with celiac disease gluten-free diet is a very effective way of treating the disease. Interestingly the diet which is now available quite widely in supermarkets is also used by many people other types of disease who don't have celiac disease and they seem to get a benefit from it too, but at least I don't know why and I'm not sure that anybody really understands that. But there are just a few instances where there's a dietary factor that does actually play a causative role in the disease and as we can identify those and get rid of them. Those patients who are genetically predisposed to the disease we can either mitigate the disease or maybe permanently get rid of the disease.



*Thank you
Dr. Rose*

[Katie] I want to take a second to Thank You Dr. Rose for everything you've one for AARDA he's been with AARDA since the very beginning, and for everything he's done in his own career field in research and getting the word out about autoimmune diseases and all the complexities that go along with them

Please don't hesitate to email us with any other questions, feedback, input, or suggestions we are listening! With that I will wish you a good evening.

[Dr. Rose] I wish good health to all and Happy Holidays