Diagnostic Test for Kawasaki May Be Near Reality

By Bruce Jancin
VAIL, COLO. — By far the greatest Diagnostic Test for Kawasaki May Be Near Reality 28

Pediatric dermatology is one of the last unexplored areas in medicine. Although medical knowledge has expanded vastly over the past century, there are still many diseases and conditions that are not well understood. One example is Kawasaki disease, which is a rare but serious illness that affects young children. Kawasaki disease is characterized by fever, skin rash, conjunctivitis, and other symptoms, and it can lead to long-term complications if not treated promptly. Although there are several diagnostic tests available for Kawasaki disease, none of them are foolproof. Dr. Anderson, a prominent pediatrician, has been working on developing a new diagnostic test for Kawasaki disease. His latest work involves using DNA microarray technology to identify patterns of gene expression that are characteristic of Kawasaki disease. By comparing these patterns to those of healthy individuals, Dr. Anderson hopes to be able to identify a subset of patients who are at higher risk for developing the disease. This could be a game-changing development, as it would allow for earlier diagnosis and more effective treatment. However, more research is needed before this test can be widely adopted. In the meantime, Kawasaki disease patients should continue to be monitored closely and treated promptly to prevent any long-term complications.

VAIL, COLO. — By far the greatest Diagnostic Test for Kawasaki May Be Near Reality 28

Pediatric dermatology is one of the last unexplored areas in medicine. Although medical knowledge has expanded vastly over the past century, there are still many diseases and conditions that are not well understood. One example is Kawasaki disease, which is a rare but serious illness that affects young children. Kawasaki disease is characterized by fever, skin rash, conjunctivitis, and other symptoms, and it can lead to long-term complications if not treated promptly. Although there are several diagnostic tests available for Kawasaki disease, none of them are foolproof. Dr. Anderson, a prominent pediatrician, has been working on developing a new diagnostic test for Kawasaki disease. His latest work involves using DNA microarray technology to identify patterns of gene expression that are characteristic of Kawasaki disease. By comparing these patterns to those of healthy individuals, Dr. Anderson hopes to be able to identify a subset of patients who are at higher risk for developing the disease. This could be a game-changing development, as it would allow for earlier diagnosis and more effective treatment. However, more research is needed before this test can be widely adopted. In the meantime, Kawasaki disease patients should continue to be monitored closely and treated promptly to prevent any long-term complications. Just like patients who meet the original diagnostic criteria, and they too respond to intravenous immunoglobulin. But familiarity with the revised guidelines isn’t all that great outside the centers of expertise in Kawasaki disease, and the lack of a diagnostic test results in delays in diagnosis and treatment, which can have critical long-term impact. “I suspect that once we get a diagnostic test, we’re going to quadruple the number of patients. We’re going to have patients we never dreamed had Kawasaki disease who turn out to have very mild forms of it. That’s been seen in many other diseases once a diagnostic test was available,” Dr. Anderson observed. Strong evidence suggesting that genetic predisposition plays a role in the development of Kawasaki disease comes from Japan, where the disease incidence is 10- to 15-fold higher than in white populations. Japanese studies indicate that within 1 year after a first case occurs in a family, the incidence of Kawasaki disease in a sibling is 2.1%. Moreover, Kawasaki disease is twice as common in children whose parents had the disease. Investigators at Stanford (Calif.) University are pursuing the genetic connection using DNA microarray technology to examine patterns of gene expression in whole blood from patients with acute and convalescent Kawasaki disease. They demonstrated that gene expression patterns in patients with Kawasaki disease had increased expression of clusters of genes associated with platelet and neutrophil activation, including genes coding for cell adhesion, innate immunity, and B-cell activation, whereas interferon-gamma was turned off. They also reported that gene clusters that were turned on in Kawasaki disease were by and large turned off in adeno- virus infection, whereas those that were turned off in Kawasaki disease were turned on in adenosine infection. Whole-blood samples from patients with group A streptococcal infection showed a gene expression profile somewhat similar to that of Kawasaki disease, whereas samples from patients with systemic drug reactions were more akin to the adenosine infection profile. When blinded evaluators were asked to use a set of 38 gene transcripts to categorize 23 Kawasaki disease patients and 8 with adenovirus infections, they got the diagnosis right in 21 of 23 Kawasaki disease patients and in 7 of 8 with adenovirus infection. Dis 2006; 24:66.

This is the most promising lead to date in the effort to develop a diagnostic test for Kawasaki disease, in Dr. Ander- son’s view.