Published on *Diabetes Center at UCSF* (http://www.diabetes.ucsf.edu)

Where is the Cure?

Aug 22, 2005

An editorial by Dr. Stephen Gitelman: I am often asked the question, ?Where is the cure for diabetes?? As a pediatrician, I think the ultimate cure for diabetes will be prevention. Why can?t we prevent someone from getting diabetes in the first place? To answer that, we need to first determine if we can predict who is going to get type 1 diabetes.

It turns out that type 1 diabetes occurs in about 1 in 300 people in the general population, but if you already have someone in your family with diabetes, like a brother or sister, then the risk jumps about 10-fold, to a 1 in 20 risk of getting diabetes. This is why researchers have been focusing prevention efforts on families in which someone already has type 1 diabetes.

From past studies, researchers have shown that we now have the ability to predict who will get type 1 diabetes, in some cases as long as 10-20 years before it happens. We use 3 different pieces of information for prediction. First, we look at the immune system. This is done from a simple blood test, measuring up to 4 different antibodies that might be made against the insulin-producing beta cells. If no abnormality is found, then your risk of developing diabetes in the near future is very low. However, if there is any abnormality found in the antibody profile, then additional tests are necessary to further define your possible risk. The next step is to look at specific genes, especially those in a region called the HLA locus, to determine if your body might react against itself. This reaction is called auto-immunity, and is what happens when your body attacks your beta cells. Finally, we test your metabolism. This is done by giving you a sugar drink, in what is called an oral glucose tolerance test. As you might predict, the closer one is to developing diabetes, the less insulin the body can make, and the higher blood sugars might go during the test. We can now use the results from these different tests to determine your overall risk for developing diabetes over the next 5 years?less than 25% risk, 25-50% chance, or over a 50% chance.

You might wonder why you would even want to know this information, if we cannot stop

someone from developing diabetes. There are 3 answers to this important question. First, these tests will tell you about your risk well before your blood sugar might become elevated, and if diabetes is going to happen, then we learn about it extremely early in the course. I know that many of you are already concerned about the possibility of diabetes in your other children, and sometimes test them whenever they drink a little more, or urinate more frequently. However, a high glucose on the glucometer or glucose in the urine is usually found much later than on the research tests. The advantage of knowing the diagnosis as soon as possible is that it can prevent your child from getting sick at the initial diagnosis, such as from diabetic ketoacidosis, and requiring an extended hospitalization. The second advantage of an early diagnosis is that the sooner doctors make the diagnosis, the sooner your child will start on insulin treatment. Studies show that early treatment with insulin, and keeping sugars in the near normal range, might help prolong the time that your body is capable of still making some of its own insulin?the phase that we call the honeymoon.

Finally, the third reason to know about your potential risk for diabetes is that researchers are busy working on ways to stop someone at risk from progressing on to actually develop diabetes. If you are found to be at risk for diabetes, you might be able to participate in research studies with new medicines to determine if diabetes can be prevented. The ultimate goal is to be able to screen and predict who is at risk for diabetes, and then have an efficient way to turn off the disease process, before diabetes ever happens!

Source URL: http://www.diabetes.ucsf.edu/news/where-cure