

IF PEOPLE ARE SCREENED FOR RISK FACTORS AT A YOUNG AGE AND PROPER TREATMENT GIVEN, WE CAN DRAMATICALLY LOWER THEIR LIKELIHOOD OF DEVELOPING DIABETES AND HEART DISEASE



Milan Gupta

The Canadian Cardiovascular Research Network founder, in conversation with **Ajit Jain**

The death rate among South Asians due to heart disease and strokes is between 50 to 100 percent higher, almost double, as compared to White Canadians. Dr Milan Gupta, cardiologist, Brampton Civic Hospital and founder, Canadian Cardiovascular Research Network, says South Asians are at a higher risk largely because of genetic reasons and a sedentary lifestyle.

What has your research revealed?

Published data has shown that among all the major ethnic groups in Ontario, South Asians have the highest rates of diabetes, heart attacks and strokes. We know that type 2 diabetes and heart disease are largely preventable. So, if people are screened for risk factors — high blood pressure, obesity, and a mild sugar abnormality — at a young age and if proper treatment is given, we can dramatically lower the likelihood of their developing diabetes and heart disease.

The issue with heart disease is that the risk begins at a very early age. We actually have studies, which show that South Asian babies, even at the time of birth, have more belly fat than white babies and that fat is the worse type of fat. Belly fat, whether in babies or adults, is more likely to lead to diabetes and heart disease.

What could be the reason for this?

A lot of it is genetic. Dr Sonia Anand (*McMaster University*) and I have received a huge grant from the federal governments of Canada and India. We started a study about a year ago in collaboration with investigators from Bangalore. As part of the South Asian Birth Cohorts (START) program, we have created three cohorts of 1,000 mothers — 500 from Brampton, 250 each from Bangalore and nearby villages.

We follow these mothers' pregnancies and at the time of their deliveries take blood from the umbilical cords of babies' and then keep a track of the newborns and the moms for the first three years.

The purpose of this study is to get a better understanding of the environmental and genetic causes of infant obesity in South Asian babies, get some clues as to how early obesity starts and what are its causes.

It is a long-term study. It will take about two years to recruit 1,000 pregnant women. If we get additional funding we will be following the moms and babies for five years or may be even longer. So, we won't have any definitive answers for another 4-5 years.

How are you trying to reach out to South Asian families here?

We are actually relying very heavily on our South Asian physician colleagues in Brampton and now we are extending it to Mississauga as well. We are working with Credit Valley, Brampton Civic and the Trillium hospitals. Our family physicians and obstetricians have been very supportive and are referring pregnant women to us.

We have also tried to get the message out through temples and gurdwaras, etc. We would love to hear from South Asian women who are pregnant, as long as they are able to deliver at one of the three hospitals — Brampton Civic, Credit Valley or Trillium.

Any other program?

Sonia Anand and I won one of the research grant competitions. Dr Zubin Punthakee, a pediatric endocrinologist, also won a grant. Through that grant we are doing a study called 'Rich Legacy' of school children, again to understand the causes of obesity in older South Asian children. For this study we are assembling cohorts in grades 2-3, and grades 8-9, in Brampton and in India.

We have also partnered with the Peel Board of Education.

We are going into schools and screening South Asian children, getting them and their parents involved. We talk to parents and find out about their household environment, food and exercise.

In this study also you are trying to find out about diabetes and blood pressure?

They are just children. So diabetes or blood pressure are not that common. What we are trying to understand is whether a South Asian child, by this age, has abdominal obesity or not.

Could you define abdominal obesity?

Abdominal obesity is ideally defined by the measurement of the waist and circumference. The World Health Organization and the International Diabetes Federation have put out guidelines.

In a South Asian adult man, the waist circumference should be less than 90 centimeters and in a woman it should be less than 80 centimeters. That's the simplest way of measuring obesity but then there are more complex ways.

In children abdominal obesity is not based on any single number. It is based on growth just as we measure height and weight. So we take the measurements and then we apply them to growth charts and from that we can determine if they have a bigger waist circumference at that age.

Do you also have research programs for adults?

Dr Subodh Verma, co-director, CCRN, and I started an interesting study called Practice about eight years ago. As part of this study we enrolled South Asians and White Canadians with documented heart diseases. Of the 800 people already enrolled about 40 percent of them are South Asians, and 50-60 percent White Canadians.

All these patients are being treated to guideline recommendations, blood pressure, sugar, cholesterol, etc. We follow them annually to determine if proper treatment is given to both groups, is there any difference in long-term outcome.

We published our findings a couple of years ago. Our number is still very small. We need thousands of people for our study.

What we showed five years ago was that, with the same level of blood pressure, sugar and cholesterol, South Asians were prone to more heart attacks and strokes than the White population.

How do you explain that?

We don't have definitive answers, but we believe there are mechanistic issues. Just because the cholesterol in a South Asian man is the same as a White Caucasian man, doesn't necessarily mean that the level of risk from the cholesterol level is the same.

It may be that the risk in a South Asian starts at a lower level of cholesterol or a lower level of diabetes or a lower level of blood pressure than in the other population. But that's just a theory, as it hasn't been proved.

How do you ensure that these people come to the institute?

It is not easy. We encourage them to come for a research visit. At least 60-70 percent do and others don't. For those who are unwilling or unable to come back, we mail a requisition for blood tests. We talk to them over the phone and discuss their medication, and understand how they are doing.

We would like others around Toronto and across Canada, to do a similar study with us. The problem is there's no money and no funding. The federal government should support our study but the sad part is there's no mechanism to get funding for a program like this.

Do you have any preventive programs?

The South Asian Risk Assessment Clinic started two years ago. As part of the program, family physicians refer South Asians who have so far no heart disease but have risk factors.

We bring them into the CCRN clinic and speak to them in the language of their choice. We have staff and dieticians who understand South Asian culture and cuisines. We do a very comprehensive risk assessment and certain types of blood tests that are not done in routine clinical practice. We modify risk assessment based on ethnicity and treat risk factors.

We do culturally appropriate counseling. For example if you tell a 75-year old Punjabi woman, who came to Canada five years ago, that she should eat fish to improve her cholesterol level, that's useless counseling because she's not going to eat fish. We teach them how to exercise in their own communities.

During the last two years, we evaluated about 600-700 patients. We are uncovering a lot of risk factors that are being treating in an effort to prevent heart diseases. Patients are making progress. It is good news but as on everything, progress on weight loss and controlling abdominal obesity, increasing physical activities, that progress is slow. It is even slower in our community than in many other communities. There are challenges.