

THE BIG LITTLE NEWSLETTER FOR THE STUDY ON THE PREVENTION OF CARDIOVASCULAR DISEASE AND TYPE 2 DIABETES IN CHILDREN AND ADOLESCENTS

Our collaborator: Khady Ka

In this issue



The following text is provided by Khady Ka, Ph.D. in Dental Sciences. She is a member of the research team in oral health of Dr. Belinda Nicolau. Here are some findings that emerged from the analyzes of data from the QUALITY study.

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What your gums say....

The general term for gum disease is periodontal disease. The early stage is called gingivitis and is characterized by red swollen gums that bleed easily. The advanced stage is called periodontitis and involves gingival tissue destruction, bone loss and may lead to tooth loss. All periodontitis are preceded by gingivitis, but not all gingivitis evolve into periodontitis. Gingival inflammation is a key clinical sign of both stages of periodontal disease.

How do you describe gingival inflammation?

Gingival inflammation is the attempt of the gum tissue to fight harmful agents. It is a natural response of the immune system against any agent that attacks the integrity of the gums.



How gingival inflammation is evaluated for the QUALITY study?

In QUALITY study, gingival inflammation is evaluated by measuring the concentration of an inflammatory marker named tumor necrosis factor-alpha in the fluid circulating between the gum and the teeth (gingival crevicular fluid).

What is metabolic syndrome?

Metabolic syndrome is defined as the presence, in the same individual, of at least 3 of the following health conditions: abdominal obesity, hypertension, high blood glucose level, high triglycerides and low high density lipoprotein cholesterol.

How these 2 conditions (inflammation and metabolic syndrome) are associated in children?

Our findings showed that boys who have metabolic syndrome also tend to have higher level of gingival inflammation.

Does this differ by age, gender, or other factors?

Our results suggest a sex difference in the association between metabolic syndrome and gingival inflammation. While, among boys, we observed that those with metabolic syndrome are more likely to have gingival inflammation, the presence of metabolic syndrome did not affect the level of gingival inflammation among girls.



What your gums say... more

What are the consequences of gum's inflammation?

When the inflammation in the gums persists and becomes chronic, it may lead to an abnormal response of the immune system to infection. The gum becomes red, swollen, and bleeds easily. This process, if not resolved, may cause advanced gum disease with gingival tissue destruction, bone loss and ultimately tooth loss.

What are the consequences of the metabolic syndrome?

People with metabolic syndrome are 5 times more at risk to have type 2 diabetes and 3 times more at risk to have a heart attack or stroke compared to people without the syndrome.

Do you know if the inflammation of the gums happens before the metabolic syndrome or is it the opposite?

With our current analyses, we cannot confirm which of metabolic syndrome or gingival inflammation comes first. This is because the association was examined at one time. Subsequent analyses of follow-up data will help us to answer this question.



Let's talk about prevention



What can be done to prevent inflammation of the gums?

Maintaining a good oral hygiene as well as having a healthy diet and being physically active may help preventing gingival inflammation.

How often should I visit the dentist?

According to the Canadian Dental Association, oral health examinations are an important part of maintaining healthy teeth and gums. The frequency should be determined in consultation with the dentist. Some people need more frequent examinations than others.

How often should I use dental floss?

The Canadian Dental Association recommends flossing at least once a day to help removing plaque and bacteria from the areas between your teeth where the toothbrush can't reach.

How long does it take for a cavity to develop?

There is no defined time for the development of a cavity. This depends on the individual susceptibility, the diet, the quantity and quality of the oral bacteria as well as on the oral hygiene practices and exposure to fluoride.

Did you know that...

Another project is grafted to the QUALITY study! Indeed, the participants who will come to Visit 3 in the coming months will take part in a complementary component that has been recently funded by the Canadian Institutes of Health Research. This part of the QUALITY study will be conducted by Dr. Michael Zappitelli in collaboration with the current team of QUALITY. It aims to better understand hypertension in adolescents. More details will be given to participants shortly when they will be invited to this portion of the study.

Congratulations to the research team who has worked extremely hard to get the first place in this scientific competition.

Interview with Dr. Mélanie Henderson



Dr. Mélanie Henderson is the investigator in charge of the QUALITY cohort. She took it over upon the death of Dr. Marie Lambert. Dr. Mélanie Henderson is known for her dynamism and determination. We interviewed her to learn more about her ideas for research.

What is your specialty as a physician?

Pediatric endocrinologist - Specialist in hormonal problems, the endocrinologist takes care of patients with diabetes, obesity, and growth and puberty disorders, etc.

What is your motivation to be a researcher in addition to being a physician at the CHU Sainte-Justine?

Research allows us to advance the science, better understand the risk factors for disease, and possibly better treat our patients. These are my patients and their health problems that motivate my research projects, allowing me to ask the right questions and get the answers with the objective to improve their well-being.

What brought you to the QUALITY study?

I am part of the team since the beginning of the QUALITY study. I was a student when I got involved, working with Dr. Marie Lambert. QUALITY is a project that I had to heart right away, as my research interests are particularly related to the risk factors for obesity, type 2 diabetes and cardiovascular disease in children. My involvement has increased over the years and I am currently the investigator responsible for this project since the death of Dr. Lambert. This project is extraordinary, with 40 researchers, research assistants and students, all dedicated to the research and the health of children at risk of cardiovascular disease. It is a strong, united and inspiring team!

Which percentage of your time is devoted to research?

I spend about 80% of my time to research.

Which are the topics that you plan to investigate with the data collected from the participants and their families?

The topics are numerous!

With my expertise, I will investigate the causes of abnormalities in glucose (sugar) and lipids (fats) in these young people, with a particular emphasis on the impact of lifestyle on these metabolic problems. I am very interested in understanding how physical activity, physical fitness, physical inactivity, sleep, and eating habits influence the metabolism and how we can develop prevention strategies that are effective in children.

How important is the synergy that characterizes the QUALITY research team?

Researchers in the QUALITY team form a strong team, visionary and united. We work together to enrich our projects and improve the health of vulnerable children with cardiovascular disease. Our team is characterized by its collaborative spirit, generosity, perseverance, and dynamism. The success of this project comes from the synergy of this wonderful team, and I count myself lucky to be surrounded by people as brilliant!

What are your hopes related to this research?

I sincerely believe that this project will inform us about the genesis or origin of cardiovascular disease in children, and thus help us in the development of effective preventive strategies in infancy. We already know that the changes of atherosclerosis are installed in children in blood vessels. Given the obesity epidemic that we see among our youth in Canada, it is essential that we increase our knowledge of risk factors for cardiovascular disease to develop preventive strategies promoting a better metabolic health in children.

A new laboratory for the evaluation of aerobic capacity!

Some of you have already had the opportunity to visit our new exercise laboratory. Indeed, at Visit 3, we use a new bike and a new analysis system for cardiovascular evaluation. In addition, heart rate profile is now measured by a heart rate monitor instead of electrodes, making the test more comfortable. The laboratory is located in a building adjacent to the CHU Sainte-Justine. For those whose visit is coming, here is an overview of the equipment.

A mask that is more easily installed.



A pulse oximeter.



A heart rate monitor.

A dynamometer for testing grip strength.



Do you remember walking test in the corridor?

To reach us

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Funding agencies



One that will give hot the bike!

Affiliations of QUALITY researchers



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