

Can we Cure Type 2 Diabetes Mellitus ? Maybe Yes !...

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The human body contains in its gut a number of bacterial cells 10-100 higher than the number of the cells of the human body itself. The totality of the genome of these foreign cells is called “metagenome” and the totality of the bacteria in the gut is called “microbiota”.

In the last years it was repeatedly shown that the composition of the microbiota can widely differ from one individual to another, collectively from one geographic region to another and, more than this, is statistically different in people who care some non-communicable chronic diseases like diabetes mellitus (DM)

and obesity from people who do not care this illness (1-5).

This raised the hypothesis that the microbiota may influence the moment of the development of the DM, maybe even has a role in the pathophysiology of the diabetes itself and the manipulation of the microbiota can be an important therapeutic tool (1-5). Some “good” and “bad” metabolic products of the gut germs, which for sure influence diabetes or obesity evolution, have been identified (6). Their final action on the guest body is influenced by the type of the barrier the gut opposes to the absorption of the gut germs products (1,4,6) It is shown that gut bacteria metabolic components can favor the development of atherosclerosis and may be an independent cardiovascular risk factor (6).

On the other hand, research in DM pathophysiology makes new steps. Recently, it was shown that in type 2 diabetes beta cells loose in part their identity (7,8) and “dedifferentiate”. This phenomenon leads to the further development of the illness. This raises the possibility of a new therapy of DM by drugs which may contribute to the recovery of the beta-cells identity (7). Another therapeutic tool could be the use of the recently described hormone which increases beta-cell proliferation in a much larger

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degree than previously described substances (8). Are these two potential therapeutic tools influenced by the gut microbiota?

The research hypotheses of all these new findings are numerous and a huge scientific energy seems to be concentrated in the field. The microbiota plays a role in atherogenesis (6). The microbiota influences obesity and diabetes (5). The composition of the gut microbiota (metagenoma) is different in diabetics from non-diabetics (1,2,3). We may raise the hypothesis that the products of the gut bacteria may produce the rise in insulin resistance, which is the very first step in the development of type 2 diabetes.

The role of the gut bacteria in humans is probably much more important than we thought before or even think now. We have to bring into memory the fantastic role of *Helicobacter Pylori* in the development of gastro-duodenal ulcer. This bacteria was considered a normal habitant of human gastrointestinal tract, together with other millions of microorganisms

and ignored for decenies. Ulcer was cured by surgeons with Reichel-Polya, Pean-Billroth I or II or other procedures and in reality not cured at all. Today we give a few days cure of drugs and ... ulcer is forgot by the patient. As well as the name of those surgical procedures, which are ignored by the young physicians and remembered in the medicine history books only.

Gut microbiota plays a role in neurologic diseases or in rheumatology as well. It contributes to the development of diabetes, of obesity, of atherosclerosis. New ways to potentially recover beta cells are described.

Why not to think that diabetes mellitus may be cured, as not far away we found the way to cure ulcer by fighting our common body microbes which chronically live inside us? My be the moment of defeating diabetes is not so far anymore.

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