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Interplay between glucose lowering drugs and the intestinal gut microbiota: What is currently known and future directions [Interactions entre les traitements du diabète et le microbiote intestinal: état des connaissances et perspectives]

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Abstract

Type 2 diabetes (T2D) management starts with modifications of food patterns and dietary intake with an increase in physical activity, two parameters known to differentially modulate the intestinal gut microbiota. As a second step, if the glycemic target is not achieved, metformin is the first line of treatment. If hyperglycemia persists, several other glucose lowering drugs can be added. To date, the literature has accumulated evidence from murine models as well as from human studies that these drugs modulate the intestinal gut microbiota. Furthermore, for patients with T2D and severe obesity, bariatric surgery is a new therapeutic option that improves glycemic control and modifies the composition of the intestinal microbiota. A few pilot studies have even displayed some microbial signatures of T2D remission after bariatric surgery. Finally, several new therapeutic approaches (next generation probiotics, fecal microbiota transfer), tested in patients with obesity and the metabolic syndrome, improve insulin resistance. These treatments are new therapeutic perspectives that should now be tested in patients with T2D. This review details how all the above treatment options modulate the intestinal gut microbiota and their links with improved glucose control. © 2022 Elsevier Masson SAS

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Bariatric surgery; Fecal microbiota transfer; Glucose lowering drugs; Microbiota; Type 2 diabetes

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