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Project #8

Investigation of Tirzepatide treatment in Non-alcoholic fatty liver disease in an in vitro cell model

Description

Non-alcoholic fatty liver disease (NAFLD), defined as an abnormal accumulation of lipids in the liver, is the leading cause of chronic liver disease in developed countries and the most common reason for liver transplantation. NAFLD currently has no approved pharmacotherapy. Until now, the only intervention proven to be significantly beneficial for NAFLD patients has been weight loss. Losing 5% of one's body weight improves abnormal liver tests and reduces liver fat, whereas losing 7 to 10% of one's body weight appears to reduce inflammation and injury to liver cells and may even reverse some fibrosis damage. Unfortunately, most people find it difficult to lose the weight they need to improve NAFLD and much more challenging to keep it off. Hence, there is an urgent need for novel therapeutic approaches to improve NAFLD independently of weight loss. The US Food and Drug Administration recently approved Mounjaro (tripeptide) injection, as an addition to diet and exercise, to improve blood sugar control in adults with type 2 diabetes. Tirzepatide was more effective than other diabetes treatments when it came to lowering blood sugar levels in clinical trials. This new and novel medication for the treatment of T2D, a dual GIP/GLP-1RA, was approved by the FDA only one week after guidelines were published, and ongoing clinical trials demonstrate promising results not only for T2D but also for body weight and steatosis. As the metabolism field is moving forward very fast and as several molecules in development will most likely demonstrate benefits in NAFLD treatment in the foreseeable future, guidelines will need to be frequently updated.
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