

Can Weight Loss Drugs Help Immune Cells Fight Cancer?

GLP-1 analog medications improved the functionality of cancer-fighting natural killer cells.

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A class of popular weight loss drugs can boost the metabolism and function of natural killer (NK) cells, which may improve their ability to combat cancer and viral infections, according to a small study [published in the journal Obesity](#).

“We are finally reaching the point where medical treatments for the disease of obesity are being shown to prevent the complications of having obesity,” study coauthor Donal O’Shea, MD, of University College Dublin, said in a [press release](#). “The current findings represent very positive news for people living with obesity on GLP-1 therapy and suggest the benefits of this family of treatments may extend to a reduction in cancer risk.”

Glucagon-like peptide-1 (GLP-1) analogs, originally developed to treat diabetes, are gaining prominence as a treatment for obesity. GLP-1, a hormone produced in the intestines, stimulates insulin production, slows emptying of the stomach and regulates appetite. Semaglutide, which was already marketed as Ozempic for diabetes, received [a new Food and Drug Administration indication](#) for weight management in 2021, with the brand name Wegovy. It is also being developed as a treatment for fatty liver disease. Tirzepatide (Mounjaro), [approved last year for diabetes](#), is also being considered for a weight loss indication.

Obesity has been linked to [at least 13 types of cancer](#), and studies have shown that people with overweight or obesity and diabetes [can reduce their cancer risk by losing weight](#). But GLP-1 analogs may have a more direct effect on cancer, the new study shows.

People with obesity are known to have defective NK cells with decreased capacity to produce cytokines. [Altered NK cell activity](#) might contribute to the many health problems seen in people with obesity, including increased cancer risk, the researchers noted as background.

O’Shea, Conor de Barra, a PhD student at Maynooth University, and colleagues, investigated whether a long-acting GLP-1 analog could restore NK cell functionality in people with obesity. In this study, 20 study participants with confirmed defective NK cells, received 0.25 milligram injections of semaglutide once weekly for six months. Nine of the 20 participants experienced clinically significant weight loss.

The researchers used flow cytometry, cytotoxicity assays and other tools to assess NK cell metabolism and function. They saw no change in the number of circulating in NK cells after six months of treatment.

However, people treated with semaglutide showed improved NK cell metabolism and function, including stepped up production of cytokines, including interferon-gamma, and expression of granzyme B, an enzyme that destroys tumor cells and virus-infected cells. In laboratory experiments, NK cells from treated patients were better able to kill cancer cells. What's more, the improvement in NK cell function was independent of weight loss—even people who did not lose much weight still benefited.

“The restoration, by GLP-1 therapy, of NK cell functionality in people with obesity may be contributing to the overall benefits being seen with this class of medication,” the study authors concluded.

“People with obesity can develop a variety of health problems like type 2 diabetes, sleep apnea and cancer. These can have very negative impacts on their quality of life,” de Barra said. “This research and other promising findings on improvements in cardiovascular health after GLP-1 therapy indicate potential benefits in addition to weight-loss.”

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