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Cannabis-Derived Drug Shows Promise in Treating Type 2 Diabetes

GW Pharmaceuticals is testing one of the 60 chemical compounds found in marijuana, THCv, which may slow the progression of type 2 diabetes.

Written by Sandy Calhoun Rice | Published on July 23, 2013

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London-based company GW Pharmaceuticals has filed a patent for the use of a chemical found in marijuana plants called tetrahydrocannabivarin (THCV). In a mid-stage human trial, THCV showed promise in preserving islet cells in the pancreas that produce insulin. Patients diagnosed with type 2 diabetes have about 50 percent fewer islet cells than their healthy peers.

The experimental drug candidate, called GWP42004, interacts with brain receptors like a key fitting into a lock, according to company spokesperson Mark Rogerson.

“Blocking the action of [cannabinoid] receptors may result in decreased motivation to eat, lower cholesterol and insulin levels, and increased glucose uptake,” Rogerson told Healthline. The drug may also help control excess liver fat, another sign of type 2 diabetes.

People with type 2 diabetes produce insulin, but there’s either not enough or the insulin can’t get into patients’ cells. This causes blood sugar levels to rise, resulting in damage to the pancreas, kidneys, and liver.

Exercise and dietary changes that result in significant weight loss have been shown to slow the onset of type 2 diabetes. However, there are no drugs available now that can slow progression of the disease.

Eventually, drugs and lifestyle changes fail and patients must take insulin by injection. If approved, GWP42004 may be used in combination with common drugs like metformin to lower blood sugar levels and keep patients off insulin for longer.

The financial incentives to develop effective treatments for diabetes are huge. Worldwide, more than 370 million people have the disease, according to the International Diabetes Federation, and in 2012, more than \$471 billion was spent on healthcare for diabetics.

When Will the Drug Be Available?

It’s still early in the game for GWP42004. The failure of the cannabis-derived obesity drug Acomplia in 2008 may raise the bar for getting similar drugs approved by the Food and Drug Administration (FDA), according to company sources. Acomplia was pulled from the market because of side effects that included depression and suicide.

GW researchers have now completed a Phase 2a trial on 35 patients with type 2 diabetes. “GWP42004 showed evidence of anti-diabetic effects, including the preservation of beta cell function and evidence across a number of endpoints suggesting an increase in insulin sensitivity,” said Rogerson.

Industry experts say FDA approval of the drug may be years away, but GW Pharmaceuticals is staying on track. Rogerson says the company plans a larger Phase 2 trial for later this year to determine the ideal dose of GWP42004 for diabetic patients.

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