Diabetes Technology and Cystic Fibrosis: Patient Information

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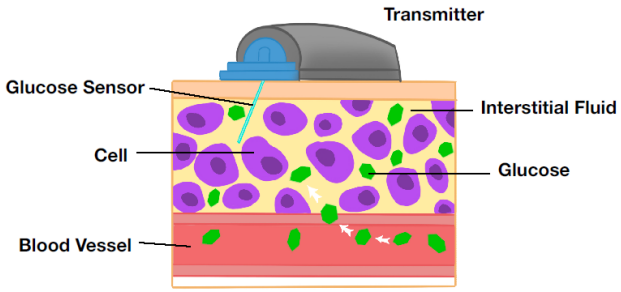
Introduction:

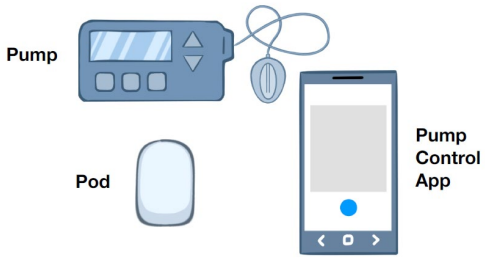
Cystic fibrosis-related diabetes (CFRD) occurs in up to 20 percent of adolescents and 50 percent of adults with Cystic Fibrosis (CF). Careful management of blood sugar levels in CFRD is important for lung function and overall CF health. Treatment of CFRD requires frequent and cumbersome blood sugar testing and insulin administration, but fortunately, there are many technologies available that can help you manage your diabetes.

What is a Continuous Glucose Monitor (CGM)?



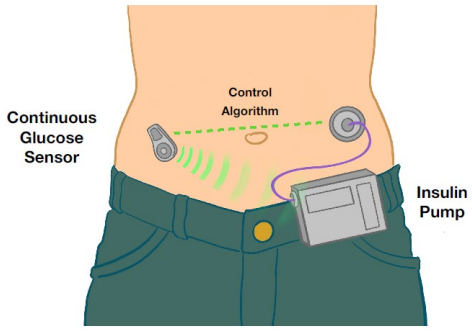
Tracking patterns of glucose values (sugar levels) can help you to better understand the effects of foods, exercise, medications, and insulin. This can be accomplished with fingerstick blood glucose monitoring, but many people find a CGM to be a more convenient, informative option. CGM is a small, waterproof technology that is worn on the abdomen or extremities for 7-14 days. It is a device worn on the skin that is connected to a sensor. The sensor sits just under the skin and measures glucose values every 1-5 minutes throughout the day without the need for fingerstick checks. These glucose values are sent to a receiver or smart phone so that you can see the current glucose level and whether it is rising, falling or staying steady. CGM users also have the option to set alerts to help them better recognize and manage both high and low blood glucose levels.

What is an Insulin Pump?



Insulin can be delivered under the skin using either injections or pump therapy. An insulin pump contains rapid-acting insulin and delivers it through a small piece of plastic tubing inserted just under the skin. Every 2-3 days the user needs to refill the insulin and change the tubing. Insulins pumps come in two basic types- tubeless pumps that are attached directly to the skin (B) and tubed pumps (A) that allow the user greater flexibility in where to place the pump. As compared to injections, pump therapy may have advantages for some people. For those eating frequent meals, pressing a few buttons on the pump to deliver insulin can replace an injection. People with digestive issues or those using G-tube feeds may benefit from insulin delivery over prolonged periods to better match food absorption. Finally, insulin pumps are programed with insulin settings, including carbohydrate ratios, correction factors, and target glucose values, that automatically calculate insulin doses when a glucose value and the amount of carbohydrates to be eaten are entered into the pump.

What happens when a CGM and an insulin pump communicate? Automated Insulin Delivery



Some of the latest insulin pumps use a feature called automated insulin delivery. These systems use glucose values from a CGM to automatically increase or decrease insulin delivery in an effort to keep glucose values in target range. These devices may help to improve glucose control and make life easier, but they do require the user to wear two devices.

Talking to Your CF Health Care Team:

There are many different CGMs, insulin pumps, and automated insulin delivery systems currently available and the technology is continuously improving. Talk to your CF care team to learn more about these devices and whether they might be a good fit for you!

For More Information:

https://diabeteswise.org/#/

https://www.cff.org/sites/default/files/2022-05/CFRD-Manual-2015.pdf

https://www.endocrine.org/patient-engagement/endocrine-library/diabetes-technology