Stress and Blood Glucose

The study measured the everyday effects of acute stressors on blood glucose (BG) levels in a female, 21 years of age, who is a type 1 diabetic. The hypothesis is that type 1 diabetics who are faced with an acute stressor will have an abnormally elevated BG level for a prolonged period of time and that these variables will be positively correlated.

Method

• BG levels were recorded every 15 minutes over a four day period, noting the time and length of each acute stressor.
• These measures were obtained from a continuous glucose monitoring sensor worn by the diabetic.
• Any food that was consumed at or near the time of occurrence was also recorded.

Results

• The results showed that when a stressor occurred after a meal was eaten, BG levels increased to a significantly higher level compared to when food was not consumed after a stressor occurred.
• Overall, BG levels remained elevated for at least 1 hour and would begin to slowly decrease after 1 to 2 hours after the onset of an acute stressor.
• BG levels would remain higher for a longer period of time when the duration of the stressor was carried out longer as well.

Summary

Based on this four day analysis of BG levels in relation to stress, the relationship between acute stressors and elevated BG is clearly shown. Additionally, the effect stress has on BG levels is exasperated in the presence of food. Reducing the reaction to acute stress through behavioral methods may be useful to improve these effects in individuals with type 1 diabetes.