The Advancing Technologic Role in the Treatment of Diabetes

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Abstract

Much has changed in the management of diabetes since the days of chemical reactions within urine samples and the use of extracted animal insulin. However, highly technologic and reliable tools such as continuous subcutaneous insulin infusion (CSII) and continuous glucose monitoring (CGM) devices especially utilized together are used in only a fraction of the diabetic population. The development, use, and positive effects of these two technologies are discussed below.
with CGM were more likely to have HgA1c levels fall within age-specific targets and have lower mean levels of blood glucose with no increased risk of hypoglycemia [13]. The most recent study - the DIAMOND study - looked at two groups across 28 weeks using CGM: CGM plus CSII and CGM plus MDI. The use of CSII increased CGM-measured time in the glucose concentration range between 70-180 mg/dL by an average of 83 minutes, or a 6% proportion of the day [14]. While there was no glycemic control improvement reflected by HgA1c levels, there was a reduction in mean glucose concentration and hyperglycemia in the group using CGM plus CSII [14].

The American Association of Clinical Endocrinologists (AACE) along with the American College of Endocrinology (ACE) has gathered on two separate occasions to come to a consensus on the topics of CGM and CSII. Patient selection for CSII includes criteria such as the administration of 4 or more insulin injections and 4 or more self-monitored blood glucose measurements daily, a strong motivation to achieve tighter blood glucose control, and intellectually and physically willing to undergo pump therapy and maintenance [2]. Our patient meets nearly all of these criteria. Also, consensus conference participants unanimously agreed that real-time CGM should be an option to all who are insulin-dependent patients [15]. The next step is for these two technologies to combine into one; while this advancement may seem far from now, it is not out of sight. CGM with the use of CSII is the most current, efficient method for diabetes treatment and should be considered for responsible patients who would like a principal role in the management of their condition.

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