Closed-Loop Glucose Control:
Psychological and Behavioral Considerations

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Abstract

Since 2000, the diabetes community has witnessed tremendous technological advances that have revolutionized diabetes management. Currently, closed-loop glucose control (CLC) systems, which link continuous subcutaneous insulin infusion and continuous glucose monitoring, are the newest, cutting edge technology aimed at reducing glycemic variability and improving daily management of diabetes. Although advances in knowledge and technology in the treatment of diabetes have improved exponentially, adherence to diabetes regimens remains complex and often difficult to predict. Human factors, such as patient perceptions and behavioral self-regulation, are central to adherence to prescribed regimens, as well as to adoption and utilization of diabetes technology, and they will continue to be crucial as diabetes management evolves. Thus, the aims of this article are three-fold: (1) to review psychological and behavioral factors that have influenced adoption and utilization of past technologies, (2) to examine three theoretical frameworks that may help in conceptualizing relevant patient factors in diabetes management, and (3) to propose patient-selection factors that will likely affect future CLC systems.

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