Journal of Diabetes Science and Technology
Volume 7, Issue 2, March 2013

REVIEW ARTICLE

Continuous Glucose Monitoring: Evidence and Consensus Statement for Clinical Use

Andreas Liebl, M.D.,[1] Helmut R. Henrichs, M.D.,[2] Lutz Heinemann, Ph.D.,[3] Guido Freckmann, M.D.,[4] Eberhard Biermann, M.D.,[5] and Andreas Thomas, Ph.D.,[6] for the Continuous Glucose Monitoring Working Group of the Working Group Diabetes Technology of the German Diabetes Association

Abstract

Continuous glucose monitoring (CGM) is an essential tool for modern diabetes therapy. Randomized controlled studies have provided evidence that hemoglobin A1c (HbA1c) results can be improved in patients with type 1 diabetes with elevated baseline HbA1c when using CGM frequently enough and that the frequency and duration of hypoglycemic events can be reduced in patients with satisfactory baseline HbA1c. The CGM group within the Working Group Diabetes Technology (AGDT) of the German Diabetes Association (DDG) has defined evidence-based indications for the practical use of CGM in this consensus statement related to hypoglycemia (frequent, severe, or nocturnal) or hypoglycemia unawareness, insufficient metabolic control despite use of all possible therapeutic options and patient compliance, pregnancy associated with inadequate blood glucose results, and the need for more than 10 blood glucose measurements per day. Contraindications and defined preconditions for the successful use of CGM should be considered.

J Diabetes Sci Technol 2013;7(2):500–519

Author Affiliations: [1]m&i Specialist Hospital Bad Heilbrunn, Diabetes Center, Department of Internal Medicine, Bad Heilbrunn, Germany; [2]Working Group Diabetes Technology of the German Diabetes Association, Quakenbrück, Germany; [3]Science & Co, Düsseldorf, Germany; [4]Institut für Diabetes-Technologie Forschungs- und Entwicklungsgesellschaft mbH an der Universität Ulm, Ulm, Germany; [5]Städt. Klinikum München GmbH, München-Schwabing Hospital, Munich, Germany; and [6]Medtronic GmbH Germany, Diabetes Division, Meerbusch, Germany

Abbreviations: (AGDT) Working Group Diabetes Technology, (AUC) area under the curve, (CGM) continuous glucose monitoring, (CLSI) Clinical Laboratory and Standards Institute, (CSII) continuous subcutaneous insulin infusion, (HbA1c) hemoglobin A1c, (IIT) intensive insulin therapy, (JDRF) Juvenile Diabetes Research Foundation, (LGS) low-glucose suspend, (MARD) mean absolute relative difference, (RCT) randomized controlled trial, (SaP) sensor-augmented pump, (SMBG) self-monitoring of blood glucose

Keywords: clinical evidence of indications for continuous glucose monitoring, conditions for continuous glucose monitoring use, consensus, continuous glucose monitoring

Corresponding Author: Andreas Liebl, M.D., m&i-Fachklinik Bad Heilbrunn, Diabetes Center, Department of Internal Medicine, Wörnerweg 30, 83670 Bad Heilbrunn, Germany; email address *andreas.liebl@fachklinik-bad-heilbrunn.de*