ORIGINAL RESEARCH

Self-Monitoring of Blood Glucose: What Are Healthcare Professionals Recommending?

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ABSTRACT

OBJECTIVE: The clinical benefit and cost-effectiveness of self-monitoring of blood glucose (SMBG) in adults with type 2 diabetes not using insulin has been questioned. The objective of this study was to gain insight into healthcare professionals' recommendations, practices and beliefs with respect to SMBG in well-controlled adults (glycated hemoglobin ≤7.0%) with type 2 diabetes not using insulin.

METHODS: Interviews were conducted with diabetes educators, pharmacists and family physicians in 3 district health authorities in Nova Scotia, Canada. Audiotaped interviews were transcribed and analyzed using a thematic analysis approach.

RESULTS: All participants recommended SMBG for persons in this population. Recommendations varied both within and between professional groups and were noted to be highly individual. SMBG results were perceived to be valuable for both patients and healthcare professionals. Participants identified clinical practice guidelines as a trustworthy source of information about SMBG in this population.

CONCLUSION: Guidelines cite a lack of substantial evidence for SMBG in this population. Customized SMBG practices are important, but so are clarity and consistency in guideline recommendations. Reducing the use of SMBG in patient populations where it is unlikely to be beneficial will allow reallocation of resources to interventions with proven benefit.

KEYWORDS: blood glucose control, self-monitoring of blood glucose, type 2 diabetes

RÉSUMÉ

OBJECTIF : Les avantages cliniques et le rapport coût-efficacité de l'autosurveillance de la glycémie chez les adultes atteints de diabète de type 2 non insulinotraités ont été remis en question. L'objectif de cette étude était de déterminer quelles étaient les recommandations, pratiques et croyances des professionnels de la santé en matière d'autosurveillance de la glycémie chez les adultes dont le diabète de type 2 est bien maîtrisé (taux d'hémoglobine glycosylée ≤ 7,0 %) et qui ne sont pas insulinotraités.

MÉTHODES : Des éducateurs spécialisés en diabète, des pharmaciens et des médecins de famille de trois autorités sanitaires de district de la Nouvelle-Écosse, au Canada, ont été interviewés. Les entrevues enregistrées ont été transcrites et analysées selon une démarche thématique.

RÉSULTATS : Tous les participants recommandaient l'autosurveillance de la glycémie dans cette population. Les recommandations variaient au sein des groupes professionnels et d'un groupe à l'autre, et on a remarqué qu'elles étaient très individuelles. Les résultats de l'autosurveillance de la glycémie étaient considérés comme utiles tant pour les patients que pour les professionnels de la santé. Les participants ont mentionné que les lignes directrices de pratique clinique étaient une source de renseignements fiable sur l'autosurveillance de la glycémie dans cette population.

CONCLUSION : Selon les lignes directrices, on manque de données substantielles sur l'autosurveillance de la glycémie dans cette population. L'individualisation des pratiques d'autosurveillance de la glycémie est importante, mais la clarté et l'uniformité des recommandations des lignes directrices le sont aussi. En réduisant le recours à l'autosurveillance de la glycémie dans les populations pour lesquelles elle est peu susceptible d'être utile, on pourra affecter les ressources à des interventions dont les avantages sont démontrés.

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MOTS CLÉS : contrôle de la glycémie, autosurveillance de la glycémie, diabète de type 2

INTRODUCTION

Self-monitoring of blood glucose (SMBG) is a common practice, regardless of diabetes type (type 1, type 2 or gestational diabetes), treatment (insulin, oral antihyperglycemic agent [OAA] or lifestyle only) or severity. It is assumed that performing SMBG will result in improved health outcomes. However, in an environment of fiscal restraint and evidenced-informed healthcare policy decisions, practices that have not been rigorously assessed require justification.

SMBG has become a foundational aspect of initial and ongoing diabetes education and monitoring. Most clinical practice guidelines endorse SMBG as part of diabetes self-management, enabling patients to adjust their lifestyle and/or treatments to improve glycemic control, while avoiding hypoglycemia (1-3). However, the results of recent clinical trials and evidence-based reviews have questioned the clinical benefits of routine SMBG in individuals with type 2 diabetes who are not using insulin (4-6). In addition to the uncertain benefit of SMBG with respect to health-related outcomes, decreased quality of life and questionable cost-effectiveness have also been cited as reasons to review SMBG recommendations (4,6-9). Diabetes test strips are insured benefits under the Nova Scotia Pharmacare Programs, which provide publicly funded coverage to Nova Scotia residents. Although all residents can enroll in the Pharmacare Program, it is the payer of last resort and therefore provides coverage only after private or other insurer coverage. In the Pharmacare Program, claims for diabetes test strips exceeded $8 million in 2008 (10), with widespread usage in beneficiaries not using insulin (7). Similar studies from the United Kingdom and United States report high SMBG utilization and have demonstrated cost savings following implementation of policies that restrict SMBG testing to specific patient groups (11-14).

Healthcare professionals often refer to clinical practice guidelines as a basis for their recommendations to patients. When the present study was conducted in 2007 and early 2008, the 2003 Canadian Diabetes Association (CDA) clinical practice guidelines were current; they noted that for individuals with type 2 diabetes treated with OAAs or lifestyle modification alone, the optimal frequency of SMBG remained unclear, but suggested there was evidence to support benefit, especially when the information was used to make appropriate, timely treatment adjustments (2). Since general statements are open to interpretation, it is not unreasonable to assume that discrepancies in recommendations for SMBG exist between and among healthcare professionals. As a result, people with type 2 diabetes may not test when appropriate, overreact to results, take unnecessary precautions and fail to benefit from the intended testing regimen.

The goal of our research was to interview a sample of Nova Scotia healthcare professionals (including physicians, pharmacists and diabetes educators) to gain insight into a) the recommendations for SMBG they provided to well-controlled adults with type 2 diabetes who were not using insulin (glycated hemoglobin [A1C] ≤7.0%) and why and how they made these recommendations; b) if and in what ways they used the results of SMBG in this population, including what they did with abnormal results; and c) the perceived value of SMBG for this subset of people with diabetes. We also inquired about trusted sources of information regarding SMBG in this population. This study is intended to inform educational and/or policy interventions aimed at more consistent SMBG recommendations among healthcare professionals.

METHODS

Healthcare professionals most likely to be providing SMBG recommendations to persons with type 2 diabetes were approached for participation: diabetes educators (nurses and dietitians), community-based pharmacists, family physicians and nurse practitioners. An interview guide, containing a core set of questions customized for use with each healthcare professional group, was developed by the project investigators, whose backgrounds include diabetes education, family medicine and pharmacy. Interviewees were asked about their SMBG recommendations to patients managing their diabetes with either diet alone or diet plus OAAs (including differences in approach for persons taking insulin secretagogues vs. non-secretagogues). Interviewees were also asked about how they used patient SMBG records, the advice they give to patients and their trusted sources of information regarding SMBG. Each interview guide was piloted with a member of the appropriate professional group, and refinements were made. A copy of the full interview guide is available on request; a synopsis is provided in Table 1.

Ethics approval was obtained to recruit participants in 3 District Health Authorities in Nova Scotia, Canada. A letter of invitation to participate, signed by the principal investigator, was mailed to family physicians using addresses obtained via the publicly available website of the College of Physicians and Surgeons of Nova Scotia. Physicians who were hospitalists, had a limited or defined practice (e.g. emergency) or were known retirees were excluded. Signed letters of invitation were sent to diabetes educators, community-based pharmacists and nurse practitioners via email from the Diabetes Care Program of Nova Scotia; the Division of Continuing Pharmacy Education, Dalhousie University; and the College of Registered Nurses of Nova Scotia, respectively. The first 7 physicians to respond to the letter were interviewed. The first 7 diabetes educators and