Title	**Self-Monitoring of Blood Glucose in Type 2 Diabetes: Systematic Review**
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Aim

To examine whether or not self-monitoring of blood glucose (SMBG) is worthwhile, in terms of glycemic control, hypoglycemia, quality of life (QoL), and cost per quality-adjusted life year (QALY), in people with type 2 diabetes mellitus (T2DM) who were not treated with insulin, or who were on basal insulin in combination with oral agents.

Conclusions and results

The evidence suggested that SMBG is of limited clinical effectiveness in improving glycemic control in people with T2DM on oral agents, or diet alone, and is unlikely to be cost effective. SMBG may lead to improved glycemic control only in the context of appropriate education – both for patients and healthcare professionals – on how to respond to the data in terms of lifestyle and treatment adjustment. Also, SMBG may be more effective if patients are able to self-adjust drug treatment.

The review identified 30 RCTs. Ten trials comparing SMBG with no SMBG showed a statistically significant reduction in HbA1c of 0.21%, which may not be considered clinically significant. A similar, though not statistically significant, difference was shown where SMBG with education was compared to SMBG without education or feedback. RCTs showed no consistent effect on hypoglycemic episodes and no impact on medication changes. Review of cost-effectiveness studies showed that costs of SMBG per annum vary considerably (10 to 259 pounds sterling, GBP). Although some studies assert that SMBG may lead to savings in healthcare costs, which could offset the costs of testing, the best analysis to date (Diabetes Glycemic Education and Monitoring, DiGEM) concluded that SMBG was not cost effective. Qualitative studies revealed a lack of education in how to interpret and use the data from SMBG, and that failure to act on the results was common.

Recommendations

In the authors' opinion, at a time when funds are scarce, the case for investing in blood glucose monitoring in T2DM, in patients who are not treated with insulin, is not proven.

Methods

Methods included a review of systematic reviews published since 1996, systematic review and meta-analyses of randomized controlled trials (RCTs) identified from the reviews and from searches for more recent trials, and review of qualitative and economic studies. See Executive Summary link at www.hta.ac.uk/project/1870.asp.

Further research required

Further research is required on the type of education and feedback that are most helpful, characteristics of patients benefiting most from SMBG, and optimum timing and frequency of SMBG. See Executive Summary link at www.hta.ac.uk/project/1870.asp.

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