ABSTRACT

Objective: To identify recent data describing the long-term risk of complications in patients with type 1 diabetes mellitus (T1DM) and their association with glycosylated haemoglobin (HbA1c) and other risk factors, and to select complications and related data for inclusion in a new cost utility model for T1DM.

Methods: A systematic review was performed. The following electronic databases were searched: 1 January 2003 to 27 July 2011: MEDLINE, MEDLINE In-Process, EMBASE, Cumulative Index Library, including the Health Technology Assessment (HTA) database. Relevant clinical guidelines and HTA documentation were also searched.

Results: A total of 4,684 titles were screened; 281 reports of 72 unique studies were included for qualitative synthesis. Multiple reports were identified for several large studies, including the Diabetes Control and Complications Trial and the Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) follow-up study, the Epidemiology of Diabetic Complications (EDIC) study, the Finnish Diabetes Nephropathy (FineData) study, the Wisconsin Epidemiologic Study of Diabetic Retinopathy, the Epidemiology and Prevention of Diabetes in Europe (EUPHIDIA) type 1 diabetes study, and several other large observational studies. The majority of the T1DM complications in adults and 20 in children and adolescents. Complications were identified for inclusion in the cost utility model where there was evidence for a statistical association between T1DM and HbA1c, levels and an impact on mortality, costs, and health-related quality of life. The following complications were selected: cardiovascular disease, peripheral neuropathy, renal disease, retinopathy, cataract, hyperglycaemia, and other birth outcomes.

Conclusion: Since 2003, 281 reports of 72 studies (including many large, observational studies) have been published. These reports have substantially increased the available evidence describing complications in patients with T1DM. The DCCT/EDIC studies uniquely provide long-term follow-up (now more than 25 years) of patients managed using strategies that best represent contemporary T1DM management.

OBJECTIVES

To identify recent data describing the long-term risk of complications in patients with type 1 diabetes mellitus (T1DM) and their association with glycosylated haemoglobin (HbA1c) and other risk factors, and to select complications and related data for inclusion in a new cost utility model for T1DM.

METHODS

A systematic review was performed to a pre-specified protocol. Searches were performed of MEDLINE, MEDLINE In-Process, EMBASE, and the Cumulative Index Library, including the Health Technology Assessment (HTA) database. Two reviewers independently assessed the risk of bias and quality of the included reports on a pre-specified rating scale. If two or more reports were available for a study, the risk of bias and quality were rated for each report. The preferred approach for the review was to include all relevant reports. All publications reporting data for patients with T1DM separately were included. Multiple reports were identified for several large studies, including the Diabetes Control and Complications Trial and the Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) follow-up study, the Epidemiology of Diabetic Complications (EDIC) study, the Finnish Diabetes Nephropathy (FineData) study, the Wisconsin Epidemiologic Study of Diabetic Retinopathy, the Epidemiology and Prevention of Diabetes in Europe (EUPHIDIA) type 1 diabetes study, and several other large observational studies. The majority of the T1DM complications in adults and 20 in children and adolescents. Complications were identified for inclusion in the cost utility model where there was evidence for a statistical association between T1DM and HbA1c, levels and an impact on mortality, costs, and health-related quality of life. The following complications were selected: cardiovascular disease, peripheral neuropathy, renal disease, retinopathy, cataract, hyperglycaemia, and other birth outcomes.

CONCLUSIONS

Since 2003, 281 reports of 72 studies (including many large, observational studies) have been published. These reports have substantially increased the available evidence describing complications in patients with T1DM. The DCCT/EDIC studies uniquely provide long-term follow-up (now more than 25 years) of patients managed using strategies that best represent contemporary T1DM management.