Introduction

Diabetes Mellitus is a chronic metabolic disorder with significant morbidity and mortality and relevant socio-economic burden to healthcare systems.

The International Diabetes Federation (IDF) estimates that in 2019, 8.5% of the world’s population had diabetes (1). Five years earlier, diabetes mellitus (DM) and its complications were considered the most common medical condition requiring healthcare treatment in diabetic patients (2). Diabetes is usually diagnosed during childhood and youth (3).

In Brazil, the fourth country with the highest number of people with diabetes in the world (1), the IDF estimated that in 2019, there were approximately 11.8 million people with diabetes, 20 and 79 years living with diabetes, and forecast to increase to 19.2 million people by 2035 (3).

According to IDF, Diabetes Mellitus was accountable for ~1% of global healthcare expenses globally; in 2013, about USD 568 billion dollars, and is expected to increase to USD 7,230 billion by 2035. DM prevalence is expected to increase from 8.3% to 9.3% between 2013 and 2035 (1).

Insulin degludec (IDeg) is an ultra-long acting basal analogue with a predictable action profile and lower risk of nocturnal hypoglycemia, compared with insulin glargine U100 (IGlar) (4). A 26-week, flexible, treat-to-target non-inferiority trial with fixed dosing of IDeg/IGlar in T1DM patients demonstrated non-inferiority and its results shows improvement in glycemic control (5).

The model does not incorporate QALY measures to assess impact of clinical variables, such as hypoglycemic events and one-daily dosing, in patient adherence and quality of life. The model does not assess the impact of clinical variables, such as hypoglycemic events and one-daily dosing, in patient adherence and quality of life. Sensitivity analysis assesses the impact of fast-acting insulin analogues in annual treatment costs.

Clinical and Economic Inputs

Baseline and bolus insulin dosing rates were both derived from a meta-analysis of randomized clinical trials (6). The model was developed with data from a pooled analysis of several observational studies and prospective studies (7). The model was developed with data from a pooled analysis of several observational studies and prospective studies (2).

Sensitivity Analysis

Sensitivity analysis demonstrates that some variables have potential impact on the annual treatment costs (i.e., dose reduction in bolus insulin and increase of needles used for IDeg injection, respectively). As fast-acting insulin analogues are not currently available in Brazil in a basal-bolus regimen, we consider a non-severe hypoglycemic event requires one medical visit and 1 SMBG test/day for monitoring basal insulin injections, in both treatment groups. The model does not incorporate QALY measures to assess impact of clinical variables, such as hypoglycemic events and one-daily dosing, in patient adherence and quality of life. Sensitivity analysis assesses the impact of fast-acting insulin analogues in annual treatment costs.

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