Association between Diabetes-related Complications and Healthcare Resource Use and Costs in a Large Medicare Advantage Population

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Background

Much of the excess burden of care associated with type 2 diabetes mellitus (T2DM) is thought to be linked to complications, especially among the elderly.1 Individuals diagnosed with T2DM are at risk for a range of complications, which can be debilitating and costly.2 The Diabetes Complications Severity Index (DCSI) is a method of quantifying the severity of diabetes-related complications using medical and laboratory claims.3 It comprises 7 categories of diabetes-related complications: cardiovascular complications, nephropathy, retinopathy, peripheral vascular disease, stroke, neuropathy, and metabolic complications.4 The present study utilized a recent implementation of the DCSI, which demonstrated that a modified version of the index, omitting lab data, could be used to explain concurrent medical costs in a managed care population.3

Methods

This study was a retrospective cohort analysis of medical, pharmacy, and dental claims for a large managed care organization (MCO) with a membership of more than 9 million members. The study population consisted of managed fee-for-service (FFS) Medicare Advantage (MAV) patients aged 18 – 89, who had claims with primary ICD-9 CM diagnosis codes for T2DM. Healthcare resource utilization (HRU) and costs associated with diabetes-related complications: cardiovascular complications, nephropathy, retinopathy, peripheral vascular disease, stroke, neuropathy, and metabolic complications were measured. The cohort was divided into 6 subgroups based on DCSI scores of 0 (no complications) through 5+ (score of five or more).4

Results

There was an increase in the prevalence of complications with increasing age and male gender (Table 1). An complications increased, the percentage of Black and Hispanic members rose relative to that of Whites (Table 1). The prevalence of depression and hypoglycemia, common comorbidities of T2DM, was higher among members with higher DCSI scores; in the reference group with a DCSI score of 0, depression was common (Figure 1). Biguanides (metformin) and sulfonylureas (not shown) were most of these costs were medical, and the relative increase in medical costs associated with increased DCSI score was much higher than was seen in pharmacy costs (Tables 3 and 4).

Discussion/ Conclusions

The findings are descriptive; but they suggest that T2DM complications pose an excess burden on HRU and costs. That the DCSI is a useful tool for predicting direct healthcare costs and HRU, and for identifying at-risk patient groups to whom preventive therapies and interventions can be targeted. The findings confirm these findings. Preventing or delaying the use of these services can play an important role in driving down costs in the diabetic population. Future studies are needed to build upon and confirm these findings.

Limitations

• Lack of certain information in the claims database (e.g. health behaviors and indirect costs); potential errors in claims, and limited generalizability, as data are from Humana members.

• DCSI scores of 5 and above were collapsed for all analyses.

References


