GLP-1 receptor agonist utilization and associated outcomes in a health plan population with unrestricted access

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THE OHIO STATE UNIVERSITY HEALTH PLAN

Background

- In 2018 an estimated 34.5% of the US adult population had prediabetes while an additional 13% had diabetes. Type 2 diabetes mellitus (T2DM) accounts for 90-95% of all diabetes cases.[1]
- Glucagon-like peptide-1 receptor agonists (GLP-1 RA) are effective medications used in the management of T2DM.
- Guidelines from the American Diabetes Association (ADA) and the American Association of Clinical Endocrinologists / American College of Endocrinology (AACE/ACE) recommend a trial of metformin prior to initiating a GLP-1 RA.[2,3]
- GLP-1 RA have been shown to reduce A1c by 0.6-1.8% and body weight by 1-3kg.[4]

Objectives

- Evaluate if GLP-1 RA are being prescribed in accordance with evidence-based guidelines.
- Assess the adherence rates, using proportion of days covered (PDC), associated with GLP-1 RA use.
- Analyze the health outcomes associated with GLP-1 RA use.

Methods

- Members who were a new start on a GLP-1 RA 1/1/17 – 6/30/20 were identified. A new start was defined as having no claims for a GLP-1 RA for 12 months prior to their first claim.
- An index date was created for each member on the fill date of their first GLP-1 RA. Members had to be continuously enrolled for 12 months before and 6 months after their assigned index date to be included.
- A look back period of 365 days was used to assess: T2DM diagnosis (Dx) code (E11), prior fill of metformin, and baseline biometric data including A1c and body mass index (BMI).
- Baseline BMI values were compared to the presence or absence of an overweight/obesity Dx code (E66).
- A look forward period of 180 days was used to assess adherence using PDC. A PDC score ≥80% was considered adherent.
- Members who filled multiple GLP-1 RA were excluded from PDC calculations.
- A look forward period of 90-270 days was used to assess changes in A1c and BMI from baseline.
- If multiple A1c and/or BMI values were recorded during the look back or forward periods, the value associated with the date closer to the index date was used for assessment.
- The A1c and BMI evaluations excluded members who were missing biometric data in the designated periods or filled multiple GLP-1 RA.
- Members that had ≥1 type 1 diabetes mellitus Dx code (E10) were excluded from the study.

Results

Figure 1. Diagnosis of T2DM and/or Overweight/Obesity

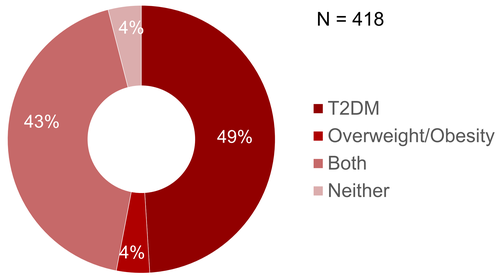


Figure 2. Diagnosis of Overweight/Obesity vs. BMI

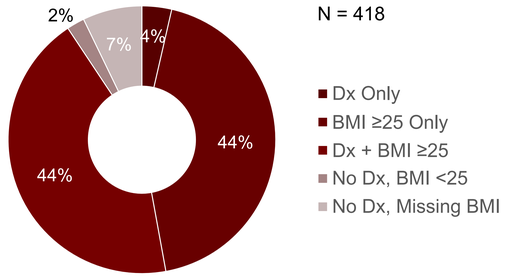


Figure 3. Prior Metformin Use

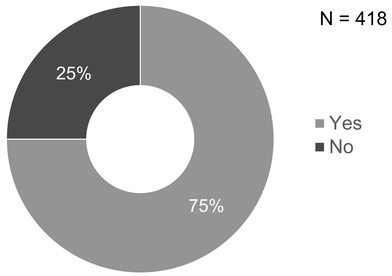


Figure 4. GLP-1 RA Adherence

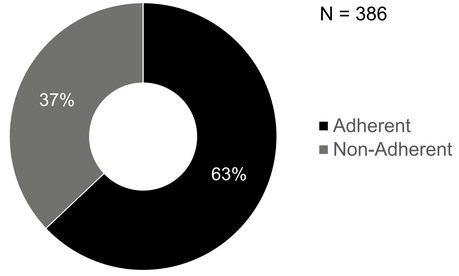
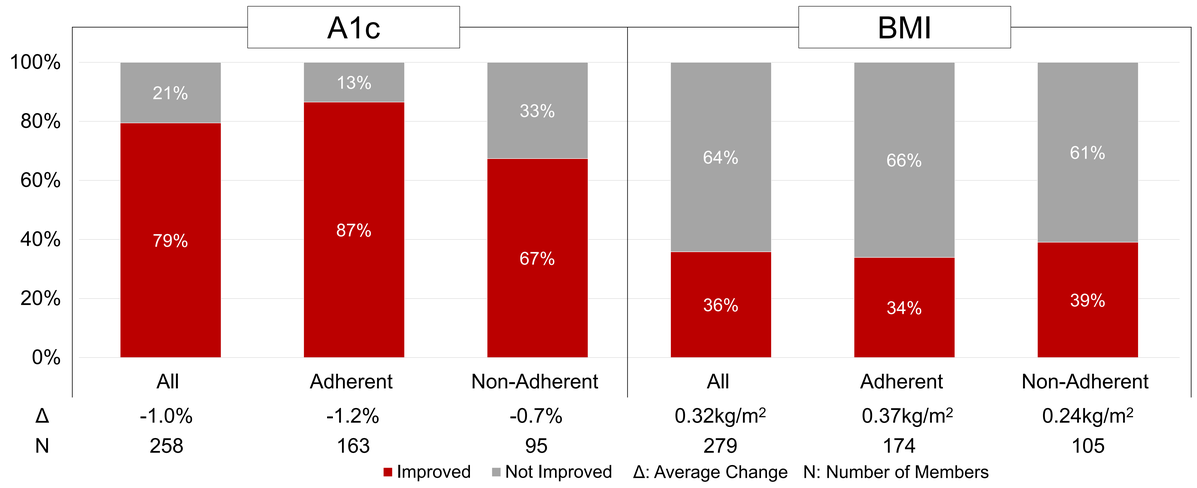


Figure 5. Health Outcomes Associated with GLP-1 RA Use



Discussion

- Providers appropriately prescribed GLP-1 RA per ADA and AACE/ACE guidelines, as supported by 92% of members having a T2DM diagnosis code.[2,3]
- Providers may have underdiagnosed overweight/obesity as 44% of members had a BMI ≥25kg/m^2 without a corresponding diagnosis code. This discrepancy may be due to provider hesitation of diagnosing overweight or obese patients.
- The majority of members (75%) had a trial of metformin prior to initiating a GLP1-RA, in accordance with ADA and AACE/ACE guidelines.[2,3]
- Over half of members (63%) were classified as adherent (PDC ≥80%) to their GLP-1 RA. The typical adherence rate for a medication is influenced by many factors, including dosing regimens and adverse effects. Further research is required to compare adherence rates between GLP-1 RA.
- GLP-1 RA use was associated with an improvement in A1c (-1.0%) at 90-270 days. Despite this, there was a net gain in BMI (0.32 kg/m^2) over the same time period, which is inconsistent with the weight loss effects found in a prior meta-analysis of GLP-1 RA.[5]
- Adherence to GLP-1 RA led to a larger improvement in A1c (-1.2%) compared to non-adherence (-0.7%). However, there was a net gain in BMI for both adherent (0.37kg/m^2) and non-adherent (0.24kg/m^2) members. A1c and BMI changes could be affected by the large range for the look back period of 0-365 days and follow up period of 90-270 days.

Limitations

- Members who were taking concomitant T2DM medications from other classes were included. The impact of these medications was not assessed and may have contributed to health outcomes.
- Diagnosis of overweight/obesity was determined using the general Dx code (E66) and not Dx codes for specific BMI values (Z68).

Conclusions

- The majority of GLP-1 RA were prescribed in accordance with ADA and AACE/ACE guidelines.
- A slight majority of members were adherent to GLP-1 RA.
- Adherence to GLP-1 RA led to a greater reduction in A1c but did not improve overall BMI.

References

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