Real world evidence of the new antidiabetic medications(GLP1-RA and SGLT2-i): A retrospective cohort study

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Introduction & Background: GLP1 Receptor Agonists and SGLT2 Inhibitors are effective in reducing A1c level, blood pressure, and weight in patients with type 2 diabetes (T2DM)[1][2]. However, side effects including nausea, vomiting, and diarrhoea were reported with GLP1-RA[3], urinary tract infections, and genital symptoms associated with SGLT2-I[4]. It is essential to conduct multiple real-world studies, in various populations, to determine the effectiveness and side effects of GLP1-RA and SGLT2-I among T2DM patients. This study aims to evaluate the effectiveness of both GLP1-RA and SGLT2-I, compared to other standard treatments, in lowering HbA1c, blood pressure, and BMI in patients with type 2 diabetes in the UAE; and to detect the side effects associated with both medications.

Methods: In this retrospective cohort study, from January 2020 to January 2022, medical records of all T2DM patients registered in the diabetic clinics at University Hospital of Sharjah(UHS) were reviewed and only patients who met the study's eligibility criteria were selected. Male and female patients who were above 18 years old and were on anti-diabetic medications for at least 3 months with no discontinuation were eligible to be included. Patients who had irregular follow-ups, were newly diagnosed with T2DM within the past year, or were non-diabetic obese were excluded from the study sample. Patients' demographics, physical (weight), and biochemical data were collected at baseline, three, six, twelve, and eighteen months. Patients were categorized into two groups: those who were on GLP1-RA and SGLT2-I and those who were on standard treatments. Mann Whitney U test and Chi-square test were used to conduct inferential statistics. SPSS 28 was used to conduct data analysis and the level of significance was set at 5%.

Results: This study involved 100 patients with type 2 diabetes, with a mean age of 60 years (SD: 12.6), 44% were female and 56% were male. Patients on standard treatment showed no reduction in BMI over 3, 6, 12, and 18 months of follow-up. While patients on new medications, including GLP1-RA and SGLT2-I, showed clinically significant weight loss up to 1.5kg/m^2. The average reduction in A1c in patients on standard treatment was 0.9%, whereas the average reduction in patients on new regimen treatment was 1.5%. Both medication groups, however, showed no improvement in their blood pressure. In patients receiving older regimens, hypoglycaemia is the most common side effect with 7% of the patients, while SGLT2-I inhibitors were associated with UTIs and genital itching with 4% of the patients. In addition, one patient stopped Liraglutide after experiencing severe diarrhoea.

Discussion: In this study a comparison of SGLT2-I and GLP1-RA with other standard treatments has demonstrated their efficacy in reducing A1c and BMI. Side effects of these medications can lead to the discontinuation of the medication. However, no improvements were observed in blood pressure between two groups.

Conclusion: SGLT2-I and GLP1-RA have been widely prescribed in UHS endocrine clinics. Both medications have been noted and preferred for reducing weight and A1c. A low percentage of patients experienced side effects that led to discontinuation. Patients' baseline characteristics and lack of adherence may also be important factors to consider.

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