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RELATIONSHIP BETWEEN CARDIAC AUTONOMIC NEUROPATHY AND PLASMA HOMOCYSTEINE LEVEL IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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INTRODUCTION

Cardiac Autonomic Neuropathy is one of the diabetic complications that can lead to silent myocardial infarction, arrhythmia, and sudden death. Hyperhomocysteinemia was associated with macro- and microvascular complications of diabetes mellitus, including cardiac autonomic neuropathy.

METHODOLOGY

The study aimed to investigate the relationship between cardiac autonomic neuropathy and plasma homocysteine levels in patients with type 2 diabetes mellitus. Ninety-six patients with type 2 diabetes mellitus were included in this cross-sectional analytical study. Plasma homocysteine was measured by Cobas C311 analyzer. Diagnosis of cardiac autonomic neuropathy was based on Ewing's test and categorized into early CAN, severe CAN, and patients without CAN by using Bellavere's scoring system.

RESULTS

Among the patients, the majority (71.9%) did not have cardiac autonomic neuropathy (score <2). In those with cardiac autonomic neuropathy, early autonomic neuropathy (scores 2-4) was found among 24% of patients. Severe autonomic neuropathy (scores 5-10) was noted among 4.1% of patients. The mean \pm SD level of plasma homocysteine was 14.08 ± 5.29 $\mu\text{mol/L}$. The range was from 4.24 to 28.21 $\mu\text{mol/L}$.

The mean \pm SD level of plasma homocysteine level of patients without CAN was 11.84 ± 3.59 $\mu\text{mol/L}$. Among patients with CAN, the mean \pm SD level of plasma homocysteine level of patients with early CAN was 19.88 ± 4.76 $\mu\text{mol/L}$ while that of patients with severe CAN was 19.42 ± 4.13 $\mu\text{mol/L}$.

Post hoc comparison using the Tukey HSD test indicated that the mean values of plasma homocysteine levels for early CAN and severe CAN patients were significantly different from the mean values of plasma homocysteine levels for patients without CAN, with $p < 0.001$ and 0.001 respectively.

In this study, older patients were more likely to develop CAN. CAN was detected more frequently among male patients. Smoking status, hypertension, and HbA1c level were not associated with CAN. Patients suffering from DM for more than 5 years were 2.75 times more likely to have CAN than patients with DM for less than 5 years. This finding was statistically significant with $p = 0.034$.

CONCLUSION

In this study, there was a relationship between cardiac autonomic neuropathy and plasma homocysteine level in patients with type 2 diabetes mellitus. To reduce the cardiovascular complication of cardiac autonomic neuropathy, early CAN diagnosis is useful to establish an adequate therapeutical strategy for glycaemic control and personalized treatment.

KEYWORDS

cardiac autonomic neuropathy, homocysteine, type 2 diabetes

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FULL TABLET AND HALF TABLET EMPAGLIFLOZIN PRESCRIPTION DEMOGRAPHIC AND GLYCEMIC CONTROL: A SINGLE CENTRE EXPERIENCE

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INTRODUCTION

Sodium-glucose co-transporter 2 (SGLT2) inhibitors prescription has been given greater emphasis in recent years, and it has been adopted as a first-line or second-line treatment in major international guidelines. In the public practice of the Ministry of Health hospital, the main SGLT2 inhibitor prescribed is empagliflozin. However, the prescription is still limited by cost despite efforts to increase prescription. The practice of prescribing half tablet empagliflozin (12.5 mg) has yet to be recommended but has been widely practiced in many centres in Malaysia. There is no evidence advising for or against this practice. Hospital Sultan Haji Ahmad Shah (HoSHAS), a tertiary hospital in Central Pahang, has initiated a prescription of half a tablet of empagliflozin (12.5 mg) in 2019. An assessment of this empagliflozin prescription pattern and its effects on glycaemic control is essential to inform future prescription direction.

METHODOLOGY

This cross-sectional study was conducted in HoSHAS, a tertiary hospital in Temerloh, Pahang, Malaysia, in March 2023. All patients on treatment were included in the study. Electronic medical records were reviewed for patient demographic data and glycemic control at initiation, and the latest follow-up data were collected. The study aimed to determine the demographic profile of patients on empagliflozin and the difference in glycemic control between full-tablet empagliflozin (25 mg) and half-tablet empagliflozin (12.5 mg) in this cohort.

RESULTS

There were 167 patients on empagliflozin, which reflected a three-fold increase compared to 2021. The majority of patients (83%) were on half-tablet empagliflozin. The median age of patients was 54 (IQR: 44-63). Most were male (62.9%) and of Malay ethnicity (76.6%). In this cohort, 21.6% had a prior myocardial infarction, 10.8% with congestive heart failure, 22.2% with obesity, 73.7% with hypertension, and 46.7% with dyslipidemia. 23.4% of patients had diabetic retinopathy, while 19.2% had incident nephropathy. 57.5% and 38.9% of patients on empagliflozin were on concomitant insulin therapy and sulphonylurea, respectively. At the latest follow-up, 51.5% of patients had HbA1c below 8.5% with a mean HbA1c of 8.65 (SD = 1.9). There was no statistical difference in mean HbA1c reduction from initiation to latest follow up in the group on full-tablet and half-tablet empagliflozin 1.48% vs - 1.65%, $p > 0.05$.

CONCLUSION

The use of SGLT2 inhibitors must be maximized further to provide cardio-renal and metabolic benefits to high-risk type 2 diabetes patients while balancing costs. This study demonstrated that the prescription of whole or half tablets did not cause differences in glycemic control. Therefore, such practice can be adopted, but further studies on the long-term effects of the dose on cardio-renal and metabolic outcomes need to be explored.

KEYWORDS

empagliflozin, type 2 diabetes, HbA1c

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HEMIBALLISMUS: A RARE PRESENTATION OF UNCONTROLLED DIABETES MELLITUS TYPE 2

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CASE

Diabetic striatopathy is a rare acute movement disorder with a prevalence of 1 in 100,000. This is characterized by sudden, non-purposeful jerking movements secondary to non-ketotic hyperglycemia.

We report a case of an 80-year-old female with type 2 diabetes who came in due to right-sided hemiballismus with behavioral changes. Initial blood glucose was elevated with normal serum ketones. Glycated hemoglobin (HbA1c) was 13.7%, consistent with poorly controlled diabetes mellitus. On evaluation, T1-weighted hyperintensity signals involving the left lentiform nucleus were seen on magnetic resonance imaging, which was suggestive of diabetic striatopathy. She was given insulin therapy for glucose control and supportive medical management for the neurologic symptoms. Symptom relief was achieved on the third hospital day after good glycemic control was attained.

Proper identification and diagnosis are essential in managing diabetic striatopathy, with adequate glycemic control as the most effective therapeutic management.

KEYWORDS

type 2 diabetes, uncontrolled diabetes, hemiballismus, diabetic striatopathy, elderly