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SAFE AND PRAGMATIC USE OF SODIUM-GLUCOSE CO-TRANSPORTER 2 (SGLT 2) INHIBITORS: MEDICATION COUNSELLING

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INTRODUCTION

Diabetes management is a complex process and optimal therapeutic outcomes are achieved with patient-centered multi-disciplinary care (1). This includes non-pharmacological and pharmacological interventions and also the counselling. Diabetes counselling is a vast concept, which covers many aspects of diabetes care, including medication counselling, and this is distinct from diabetes education (2).

MEDICATION AND COUNSELLING

Medication counselling is essential to ensure the correct usage of medical products and this is especially true in the treatment of chronic disease such as diabetes (3). Medication counselling includes the information delivered related to the possible benefits, the effects and side effect, the need for precautions and monitoring during that particular drug therapy. This is possible through a process of informed and shared decision making. In diabetes, some topics of counselling are common to all classes of glucose-lowering drugs, while some are unique to specific classes or molecules (4).

SODIUM GLUCOSE COTRANSPORTER-2 (SGLT2) INHIBITORS

Sodium-glucose cotransporter-2 (SGLT2) inhibitors are a new class of glucose-lowering drugs, which have recently been introduced in South Asia. Canagliflozin (100 and 300 mg), dapagliflozin (5 and 10 mg) and empagliflozin (10 and 25 mg) are some of the SGLT2 inhibitors available in South Asian countries. These drugs have a unique mechanism of action and reduce plasma glucose by enhancing glycosuria. Their mode of action creates the potential for benefits and side effects this class of drugs. This highlights the importance of appropriate use of SGLT2 inhibitors and the class-specific medication counselling (5).

CLASS SPECIFIC COUNSELLING

Table 1 lists the various issues that are discussed with the patient while considering prescription of SGLT2 inhibitors. A fair description of the expected benefits and possible side effects, anticipated level of glucose lowering, weight loss, blood pressure control, metabolic effects, and improvement in vascular outcomes of the drug are mainly considered.

WARNING SYMPTOMS AND PREVENTION

SGLT2 inhibitor related counselling also covers discussion about the expected increase in urinary output, the occurrence of glycosuria, and increased risk of genital mycotic infections (6). If relevant, SGLT 2 inhibitor related medication counselling should extend to identification, prevention and management of possible adverse events. Mycotic infections, identified by pruritic genital lesions in both men and

Table 1: Medication Counselling
Explain potential benefits
Degree of glycaemic control
Degree of weight lowering
Degree of BP lowering
Explain expected effects
Increased urine output~350 mL
Explain possible side-effects
Genital tract infections
Urinary tract infections
Volume depletion
Drug-drug interactions
Explain caveats
Disregard urine sugar reports
Explain mode of administration
Once daily at same time every day
Before first meal (CANA) or at any time (DAPA, EMPA)
But preferably during day time
Explain means of prevention of AE
Fluid intake
Perineal hygiene
Anti-fungal therapy
Vitamin D
Explain follow-up
Clinical
Laboratory
Explain warning signals
Breathlessness
Abdominal pain
Nausea/vomiting
Alteration of sensorium

women, can be avoided by maintaining perineal hygiene (6). Volume depletion can be prevented by ensuring adequate fluid intake, avoiding concomitant use of loop diuretics and reassessing use of other diuretics (5).

The warning signals for diabetic ketoacidosis (DKA), including symptoms such as breathlessness, abdominal pain and altered sensorium must be explained to patients and their caregivers. This is especially important when SGLT2 inhibitors are prescribed in "high risk" situations, where DKA has been known to occur. These include fluid/carbohydrate restriction, acute mdical/surgical illness, and insulinopenic diabetes (7).

POSOLOGY

The cost, mode, frequency and timing of administration of the drug, as well as possible drug-drug interactions should be shared with patients prior to prescription. While canagliflozin should be taken before the first meal of the day, dapagliflozin and empagliflozin may be administered at any time, at the same time of the day. All drugs are administered as a single daily dose (8). During a period of fasting, such as Ramadan, it is prudent to advise to take the drug with iftar (i.e., at the time of breaking the fast).

DRUG INTERACTIONS

Significant drug-drug interactions must be noted by the physicians while initiating SGLT2 inhibitor therapy. The patient should be instructed to report any change in concomitant medication, even if advised by other physicians. It is noteworthy that there are few relevant drug interactions with SGLT2 inhibitor therapy.

SUMMARY

Understanding of the basic and clinical pharmacology of SGLT2 inhibitors, coupled with an appreciation of the patient's lifestyle, needs and priorities allow for the appropriate use of these drugs. Their utility is optimized if medication counselling is done as described above. This sharing of information, if done through a patient-centered dialogue (9), prevents avoidable adverse events, minimizes side effects, and maximizes therapeutic gain.

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