

Glibenclamide And Cardiovascular Risk In Diabetic Patients

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ABSTRACT

Glibenclamide (also known as glyburide) is an oral medication used to treat type 2 diabetes. It belongs to a class of drugs called sulfonylureas, which work by stimulating the pancreas to release more insulin, thereby lowering blood glucose levels

Keywords: Glibenclamide, Diabetic Patients, Cardiovascular Risk.

INTRODUCTION

Overview of the treatment involving glibenclamide

Indications:

Type 2 diabetes mellitus: Used to control high blood sugar levels when diet and exercise alone are insufficient.

Adjunctive therapy:

It can be used in combination with other diabetes medications or insulin.

Mechanism of Action:

Glibenclamide works by binding to specific receptors on pancreatic beta cells, which leads to the closure of ATP-sensitive potassium channels. This closure causes the depolarization of the cell membrane, opening voltage-gated calcium channels, and triggering insulin secretion from the pancreas.

Dosage:

Initial dose: Typically, the starting dose is 2.5 to 5 mg once a day, taken with breakfast.

Maintenance dose:

The dose can be adjusted based on blood glucose levels, typically ranging from 2.5 mg to 20 mg per day.

Maximum dose:

The maximum recommended daily dose is usually 20 mg, though it can vary based on individual factors and response.

Administration:

Taken orally, once or twice a day with meals to reduce the risk of hypoglycemia (low blood sugar). The tablet should be swallowed whole and not chewed or crushed.

Side Effects:

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Common side effects: Hypoglycemia (low glucose level), weight gain, nausea, dizziness, or gastrointestinal discomfort.

Serious side effects: Allergic reactions, liver dysfunction, blood disorders like leukopenia or thrombocytopenia, or severe hypoglycemia (especially in elderly patients).

Contraindications:

Allergy: Hypersensitivity to sulfonylureas.

Severe liver or kidney dysfunction: In patients with impaired kidney function, the drug may accumulate and increase the risk of hypoglycemia.

Diabetic ketoacidosis or type 1 diabetes: Not suitable for these conditions, as they typically require insulin therapy.

Precautions:

1. Monitor blood glucose regularly, especially during periods of stress, infection, or surgery.

2. Caution is needed in elderly patients, as they may be more prone to hypoglycemia.

3. Adjust dosage in case of liver or kidney impairment.

4. Alcohol can enhance the hypoglycemic effect, so it should be consumed cautiously.

Drug Interactions:

Increased risk of hypoglycemia: When taken with other medications such as beta-blockers, alcohol, or certain antibiotics (e.g., fluoroquinolones).

Decreased effect: Drugs like corticosteroids, thiazide diuretics, or certain anticonvulsants may reduce the effectiveness of glibenclamide.

Monitoring:

1. Regular blood glucose testing to ensure effective control.

- 2.Periodic monitoring of liver and kidney function, especially in long-term use.
- 3.Watch for signs of hypoglycemia, such as shakiness, sweating, and confusion.

Report:

Glibenclamide (glyburide) is a sulfonylurea used to manage type 2 diabetes by stimulating insulin release. However, in diabetic patients with cardiovascular risk, its use warrants caution due to several concerns:

1. Hypoglycemia Risk: Glibenclamide can cause hypoglycemia, which may trigger harmful cardiovascular responses such as arrhythmias.
2. Weight Gain: It may cause weight gain, worsening cardiovascular risk factors like hypertension and dyslipidemia.
3. Limited Cardiovascular Benefits: Unlike newer diabetes medications (e.g., SGLT2 inhibitors, GLP-1 agonists), glibenclamide does not offer significant cardiovascular protection.
4. Potential Atherosclerosis Effects: There's some evidence suggesting sulfonylureas may not improve atherosclerosis or other cardiovascular outcomes.

Thus, in patients with cardiovascular risk, glibenclamide may not be the optimal choice, and alternatives with proven cardiovascular benefits should be considered.

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