

GLILUPI MR TABLET 60 MG

Gliclazide Modified Release Tablets

1 NAME OF THE MEDICINAL PRODUCT

Glilupi MR Tablet 60 mg

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each modified-release tablet contains 60 mg of gliclazide.

For the full list of excipients, see section 6.1.

3 Description of the appearance of the product

White to off-white oval shape, uncoated tablets with breakline on both the surface and debossed '60' on one side of the break line on one surface.

4 PHARMACEUTICAL FORM

Modified release (MR) Tablets

5 CLINICAL PARTICULARS

5.1 Therapeutic indications

Gliclazide modified release tablets are indicated for the treatment of type II diabetes in association with dietary measures and with physical exercise when these measures alone are inadequate to control blood glucose.

During controlled clinical trials in patients with type II diabetes, a modified release formulation of gliclazide (30mg - 120mg), taken as a single daily dose, was shown to be effective long term in controlling blood glucose levels, based on monitoring of HbA1c.

5.2 Posology and method of administration

Posology

The daily dose of Gliclazide 60 mg MR Tablets may vary from one half to 2 tablets per day, i.e., from 30 to 120 mg taken orally in a single intake at breakfast time.

It is recommended to swallow the dose without crushing or chewing.

If a dose is forgotten, there must be no increase in the dose taken the next day.

These products should be taken with food because there is an increased risk of hypoglycaemia if a meal is taken late, if an inadequate amount of food is consumed or if the food is low in carbohydrate. It is recommended that the medication be taken at breakfast time.

As with any hypoglycaemic agent, the dose should be adjusted according to the individual patient's metabolic response (blood glucose, HbA1c).

Initial dose

The recommended starting dose is 30 mg daily (half a tablet of Gliclazide 60 mg MR Tablets).

If blood glucose is effectively controlled, this dose may be used for maintenance treatment.

If blood glucose is not adequately controlled, the dose may be increased to 60, 90 or 120 mg daily, in successive steps.

The interval between each dose increment should be at least 1 month except in patients whose blood glucose has not reduced after two weeks of treatment. In such cases, the dose may be increased at the end of the second week of treatment.

The maximum recommended daily dose is 120 mg.

Switching from another oral antidiabetic agent to Gliclazide 60 mg MR Tablets: Gliclazide 60 mg MR Tablets can be used to replace other oral antidiabetic agents.

The dosage and the half-life of the previous antidiabetic agent should be taken into account when switching to Gliclazide 60 mg MR Tablets.

A transitional period is generally necessary. A starting dose of 30 mg should be used and this should be adjusted to suit the patient's blood glucose response, as described above.

If a patient is switched from a hypoglycaemic sulphonylurea with a prolonged half-life, he/she should be carefully monitored (for one to two weeks) in order to avoid hypoglycaemia due to possible residual effects of the previous therapy.

Combination treatment with other antidiabetic agents:

Gliclazide 60 mg MR Tablets can be given in combination with biguanides, alpha glucosidase inhibitors or insulin.

In patients not adequately controlled with gliclazide, concomitant insulin therapy can be initiated under close medical supervision.

Special Populations

Older people (over 65 years of age)

The efficacy and tolerance of the modified release formulation of gliclazide (30mg - 120mg) has been confirmed in clinical trials in subjects over 65 years who were given the same dosage regimen as the general population. The dosage is therefore identical to that recommended for adults under the age of 65 years.

Patients with renal impairment

The efficacy and tolerance of the modified release formulation of gliclazide (30mg - 120mg) has been confirmed in clinical trials of subjects with mild to moderate renal failure (creatinine clearance of between 15 and 30 mL/min) who were given the same dosage regimen as the general population. No dosage adjustment is therefore required in subjects with impaired renal function.

Patients at risk of hypoglycaemia

There is an increased risk of hypoglycaemia in the following circumstances:

- undernourished or malnourished patients,
- patients with severe or poorly compensated endocrine disorders (hypopituitarism, hypothyroidism, adrenal insufficiency),
- withdrawal of prolonged and/or high dose corticosteroid therapy,
- patients with severe vascular disease (severe coronary heart disease, severe carotid impairment, diffuse vascular disease)

It is recommended that treatment be systematically initiated with a minimal dose of 30mg/day.

Pediatric population

As per the information reported in literature, the safety and efficacy of gliclazide in children and adolescents have not been established. There are no data or clinical studies in children.

Method of Administration

Oral use.

5.3 Contraindications

This medicine is contra-indicated in case of:

- Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.
- Hypersensitivity to sulphonylurea or sulphonamides,
 - Type 1 diabetes,
 - diabetic pre-coma and coma, diabetic ketoacidosis,
- Severe renal or hepatic insufficiency: in these cases, the use of insulin is recommended
- Treatment with miconazole,
- Pregnancy and Lactation

5.4 Special warnings and precautions for use

Hypoglycaemia

This treatment should be prescribed only if the patient is likely to have a regular food intake (including breakfast). It is important to have a regular carbohydrate intake due to the increased risk of hypoglycaemia if a meal is delayed, an inadequate amount of food is consumed or if the food is low in carbohydrate. Hypoglycaemia is more likely to occur during low-calorie diets, following prolonged or strenuous exercise, following alcohol intake or during treatment with a combination of hypoglycaemic agents.

Hypoglycaemia may occur following administration of sulphonylurea. Some cases may be severe and prolonged. This may involve hospitalisation and glucose infusion may need to be continued for several days.

Careful selection of patients and of the dose used, as well as provision of adequate information to the patient are necessary to reduce hypoglycaemic episodes.

Hypoglycaemia may be difficult to recognise in elderly patients and those receiving beta-blockers.

Factors which increase the risk of hypoglycaemia:

- patient refuses or (particularly in elderly subjects) is unable to cooperate
- poor general health, malnutrition, irregular mealtimes, skipping meals, periods of fasting or dietary changes
- imbalance between physical exercise and carbohydrate intake
- renal insufficiency
- severe hepatic insufficiency
- overdose of gliclazide
- certain endocrine disorders: thyroid disorders, hypopituitarism and adrenal insufficiency
- concomitant administration of certain other medicinal products.

Renal and hepatic insufficiency: The pharmacokinetics and/or pharmacodynamics of gliclazide may be altered in patients with hepatic insufficiency or severe renal failure. Hepatic insufficiency may also reduce the capacity for neoglucogenesis. A hypoglycaemic episode occurring in these patients may be prolonged, so appropriate management should be initiated.

Patient information

The risks of hypoglycaemia, together with its symptoms, treatment, and conditions that predispose to its development, should be explained to the patient and to family members.

The patient should be informed of the importance of following dietary advice, of regular exercise, and of regular monitoring of blood glucose levels.

Poor blood glucose control

Blood glucose control in treated patients may be jeopardised by: St John's Wort (*Hypericum perforatum*) preparations, fever, trauma, infection or surgical intervention. It may be necessary to discontinue treatment and to administer insulin in these cases.

The efficacy of oral antidiabetic agents often decreases in the long term. This may be due to progression in the severity of the diabetes, or to a reduced response to treatment. This phenomenon is known as secondary failure and should be distinguished from primary failure, when the drug is ineffective as first-line treatment. However, before classifying the patient as a secondary failure, dose adjustment and reinforcement of dietary measures should be considered.

Dysglycaemia

Disturbances in blood glucose, including hypoglycaemia and hyperglycaemia have been reported, in diabetic patients receiving concomitant treatment with fluoroquinolones, especially in elderly patients. Indeed, careful monitoring of blood glucose is recommended in all patients receiving at the same time Gliclazide and a fluoroquinolone.

Laboratory tests

Measurement of glycated haemoglobin levels (or fasting venous plasma glucose) is recommended in assessing blood glucose control. Blood glucose self-monitoring may also be useful.

Glucose-6-phosphate dehydrogenase deficiency (G6PD): Treatment of patients with glucose-6-phosphate (G6PD)-deficiency with sulphonylurea agents can lead to haemolytic anaemia. Since Gliclazide belongs to the chemical class of sulphonylurea drugs, caution should be used in patients with G6PD-deficiency and a non-sulphonylurea alternative should be considered.

Porphyric patients: Cases of acute porphyria have been described with some other sulphonylurea drugs, in patients who have porphyria.

5.5 Interaction with other medicinal products and other forms of interaction

1) The following products are likely to increase the risk of hypoglycaemia

Contra-indicated combination

- Miconazole (systemic route, or omucosal gel):** increases the hypoglycaemic effect with possible onset of hypoglycaemic symptoms, even coma.

Combinations which are not recommended

- Phenylbutazone (systemic route):** increases the hypoglycaemic effect of sulphonylureas (shifts their binding to plasma proteins and / or reduces their elimination). It is preferable to use a different anti-inflammatory agent, otherwise warn the patient and emphasise the importance of self-monitoring: adjust the dose during and after treatment with the anti-inflammatory.
- Alcohol:** increases the hypoglycaemic reaction (by inhibiting compensatory reactions) and may potentiate the onset of hypoglycaemic coma. Ingestion of alcohol may also cause a disulfiram-like reaction with characteristic flushing of the face, throbbing headache, giddiness, tachypnoea, tachycardia or angina pectoris. Chronic alcohol abuse may, as a result of liver enzyme induction, increase the metabolism of sulphonylurea drugs, shortening the plasma half-life and duration of action. Avoid alcohol or medicines containing alcohol.

Combinations requiring precautions for use

Potentiation of the blood glucose lowering effect and thus, in some instances, hypoglycaemia may occur during concomitant treatment with the following drugs: other antidiabetics (insulin, acarbose, metformin, thiazolidinediones, dipeptidyl peptidase-4 inhibitors, GLP-1 receptor agonists), clofibrate, salicylates (high doses),

chloramphenicol, beta-blockers, fluconazole, angiotensin converting enzyme inhibitors (captopril, enalapril), H2-receptor antagonists, MAOIs, sulphonamides, clarithromycin, and nonsteroidal anti-inflammatory drugs.

Warn the patient and emphasize the importance of self-monitoring of blood glucose levels. It may be necessary to adjust the dose of the antidiabetic agent during treatment with these substances.

2) The following products may cause an increase in blood glucose levels

Combination which is not recommended

- Danazol:** diabetogenic effect of danazol.

If the use of this active substance cannot be avoided, warn the patient and emphasize the importance of urine and blood glucose monitoring. It may be necessary to adjust the dose of the antidiabetic agent during and after treatment with danazol.

Combinations requiring precautions during use

As with all hypoglycaemics, caution should be observed in administering thiazide diuretics, since these diuretics have been reported to aggravate the diabetic state.

- Chlorpromazine (neuroleptics):** high doses (>100 mg per day of chlorpromazine) increases blood glucose levels (reduced insulin release).

Warn the patient and emphasize the importance of blood glucose self-monitoring. It may be necessary to adjust the dose of the antidiabetic agent during treatment with the neuroleptic agent and after its discontinuation.

- Glucocorticoids (systemic route and local route: intra-articular, cutaneous and rectal preparations) and tetrazosactrin:** increase in blood glucose levels with possible ketosis (reduced tolerance to carbohydrates by corticosteroids).

Warn the patient and emphasize the importance of blood glucose monitoring, particularly at the start of treatment. It may be necessary to adjust the dose of the antidiabetic during treatment with corticosteroids and after discontinuation.

- Ritodrine, salbutamol, terbutaline: (I.V. administration):** Increased blood glucose levels due to beta-2 agonist.

Emphasize the importance of monitoring blood glucose levels. If necessary, switch to insulin.

- Saint John's Wort (*Hypericum perforatum*) preparations:** Gliclazide exposure is decreased by Saint John's Wort-*Hypericum perforatum*. Emphasise the importance of blood glucose levels monitoring.

Barbiturates, oestrogens and progestogens.

3) The following products may cause dysglycaemia

Combinations requiring precautions during use

- Fluoroquinolones:** in case of a concomitant use of Gliclazide 60 mg MR Tablet and a fluoroquinolone, the patient should be warned of the risk of dysglycaemia, and the importance of blood glucose monitoring should be emphasized.

4) Combination which must be taken into account

Anticoagulant (e.g. Warfarin): Sulphonylureas may lead to potentiation of anticoagulation during concurrent treatment. It may be necessary to adjust the dose of the anticoagulant.

Laboratory tests

Glycated haemoglobin should be monitored regularly. Blood glucose measurement may also be useful.

5.6 Fertility, pregnancy, and lactation

Pregnancy

There is no or limited amount of data (less than 300 pregnancy outcomes) from the use of gliclazide in pregnant women, even though there are few data with other sulphonylurea.

In animal studies, gliclazide is not teratogenic.

The use of gliclazide during pregnancy is contraindicated.

Control of diabetes should be obtained before the time of conception to reduce the risk of congenital abnormalities linked to uncontrolled diabetes.

Oral hypoglycaemic agents are not suitable, insulin is the drug of first choice for treatment of diabetes during pregnancy. It is recommended that oral hypoglycaemic therapy is changed to insulin before a pregnancy is attempted, or as soon as pregnancy is discovered.

Breast-feeding

It is unknown whether Gliclazide or its metabolites are excreted in breast milk. Given the risk of neonatal hypoglycaemia, the product is therefore contraindicated in breast-feeding mother. A risk to the newborns/infants cannot be excluded.

Fertility

No effect on fertility or reproductive performance was noted in male and female rats.

5.7 Effects on ability to drive and use machines

Gliclazide has no or negligible influence on the ability to drive and use machines. However, patients should be made aware of the symptoms of hypoglycaemia and should be careful if driving or operating machinery, especially at the beginning of treatment.

5.8 Undesirable effects

Good clinical acceptability of gliclazide, has been established in many studies as well as in medical practice.

As per literature data, the safety of a modified release formulation of gliclazide (30mg - 120mg) has been evaluated in controlled clinical trials in 955 patients, of which 728 patients were treated in long-term comparative trials, against a gliclazide immediate release formulation (80mg - 320mg), for up to 10 months. In these comparative trials, the overall incidence and type of adverse events were similar in both groups. Adverse events were generally mild and transient, not requiring discontinuation of therapy. However, where patients

If a hypoglycaemic episode is severe or prolonged, and even if it is temporarily controlled by intake of sugar, immediate medical treatment or even hospitalization is required.

Gastrointestinal disorders, including abdominal pain, nausea, vomiting, dyspepsia, diarrhoea and constipation have been reported; if these should occur they can be avoided or minimised if gliclazide is taken with breakfast.

In long-term comparative studies, the percentage of patients experiencing hypoglycaemic episodes was similar between patients treated with the modified release formulation of gliclazide (11.6%) and those treated with the immediate release formulation of gliclazide (11.1%). However, the number of hypoglycaemic episodes per 100 patient months was lower in the modified release group (3.5) than in the immediate release group (4.8). Analysis of elderly patients (over 65 years old) showed less hypoglycaemia than in the general population, with a prevalence of hypoglycaemic episodes lower in the modified release group (2.6 hypoglycaemic episodes for 100 patient months) than in the immediate release group (4.1).

The percentage of patients experiencing hypoglycaemic episodes in the sub-population with renal failure, was similar to that observed in the general population.

Other undesirable effects:

Adverse events reported during controlled clinical trials with the modified release formulation of gliclazide were those expected in an ageing population with diabetes. Adverse events that were reported in at least 2.0% of patients, in long-term controlled clinical studies, are presented in the following table. The most frequent adverse events were not specifically related to the disease (such as respiratory infections or back pain).

Treatment emergent adverse events* (listed by body system) occurring in ≥2.0% of patients in long-term controlled clinical trials

	Gliclazide modified release tablets (30mg-120mg) n=728	Gliclazide immediate release tablets (80mg - 320mg) n=734
Resistance mechanism		
Infection viral	7.7	5.6
Respiratory		
Rhinitis	4.4	4.6
Bronchitis	4.4	4.6
Pharyngitis	4.3	3.5
Upper respiratory infection	3.3	3.7
Coughing	2.1	2.0
Musculo-skeletal		
Back pain	5.2	4.1
Arthralgia	3.0	3.5
Arthrosis	2.2	2.2
Secondary term		
Inflicted injury	4.3	4.5
Body as a whole		
Headache	3.8	4.6
Asthenia	2.2	2.6
Cardiovascular		
Hypertension	3.2	3.7
Angina pectoris	2.1	2.2
Urinary		
Urinary tract infections	2.6	3.0
Gastrointestinal		
Diarrhoea	2.5	2.0
Central, periph., nervous system		
Dizziness	2.2	2.3
Metabolism and nutrition		
Hyperglycaemia	1.9	2.2

*whatever the relationship to treatment

Analysis of adverse events in sub-populations showed a similar pattern to that seen in the general population. Gender, age and renal insufficiency had no significant influence on the safety profile of the modified release formulation of gliclazide.

Gastrointestinal disturbances (reported with gliclazide), including nausea, dyspepsia, diarrhoea, abdominal pain, vomiting and constipation may be avoided or minimised if gliclazide is taken with breakfast.

The following undesirable effects have been reported:

- Skin and mucosae reactions pruritis, urticaria, angioedema, maculopapular rashes, rash, erythema and, bullous reactions (such as Stevens-Johnson syndrome and toxic epidermal necrolysis and autoimmune bullous disorders), and exceptionally drug rash with eosinophilia and systemic symptoms (DRESS).
- Haematological disorders (as with other sulphonylurea drugs): a few rare cases of anaemia, leucopenia, thrombocytopenia and, agranulocytosis.
- Occasional elevations of serum creatinine, blood urea nitrogen, serum bilirubin and hepatic enzyme (AST, ALT, alkaline phosphatase) levels and exceptionally, hepatitis. Treatment should be discontinued if cholestatic jaundice appears. These symptoms usually disappear after discontinuation of treatment.
- As with any glucose lowering medication, transient visual disorders may occur on initiation of treatment, due to changes in blood glucose levels.

Class attribution effects: As for other sulphonylureas, the following adverse events have been observed: cases of erythrocytopenia, agranulocytosis, haemolytic anaemia, pancytopenia, allergic vasculitis, hyponatraemia, elevated liver enzyme levels and even impairment of liver function (e.g. with cholestasis and jaundice) and hepatitis which regressed after withdrawal of the sulphonylurea or led to life-

threatening liver failure in isolated cases.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit-risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the national reporting system to the respective drug regulatory authorities.

5.9 Overdose

An overdose of sulphonylurea may cause hypoglycaemia.

Moderate symptoms of hypoglycaemia, without any loss of consciousness or neurological signs, should be corrected by carbohydrate intake, dose adjustment and/or modification of diet. Strict monitoring should be continued until the doctor is sure that the patient is out of danger.

Severe hypoglycaemic reactions are possible (with coma, convulsions or other neurological disorders) and should be treated as a medical emergency, requiring immediate hospitalization.

If hypoglycaemic coma is diagnosed or suspected, the patient should be given a rapid I.V. injection of 50 ml of concentrated glucose solution (20 to 30%). This should be followed by continuous infusion of a more dilute glucose solution (10%) at a rate that will maintain blood glucose levels above 5 mmol/L. It is recommended that patients should be monitored closely for a 48 hour period at least.

Plasma clearance of gliclazide may be prolonged in patients with hepatic disease. However, due to the strong binding of gliclazide to proteins, dialysis is not effective in these patients.

6. PHARMACOLOGICAL PROPERTIES

6.1 Pharmacodynamic properties

Pharmacotherapeutic group: sulfonylureas, urea derivative, ATC code: A10BB09

Mechanism of action

Gliclazide is an oral hypoglycaemic sulphonylurea which differs from other related compounds. It has an N-containing heterocyclic ring with an endocyclic bond.

Pharmacodynamic effects

Gliclazide reduces blood glucose levels by stimulating insulin secretion from the β -cells of the islets of Langerhans. Gliclazide shows high affinity, strong selectivity and reversible binding to the β -cell K_{ATP} channels with a low affinity for cardiac and vascular K_{ATP} channels. Increased postprandial insulin and C-peptide secretion persists after two years of treatment. Gliclazide also has extra-pancreatic effects and haemovascular properties.

Effects on insulin release

In type 2 diabetes, Gliclazide restores the first peak of insulin secretion in response to glucose and increases the second phase of insulin secretion. A significant increase in insulin response is seen in response to stimulation induced by a meal or glucose.

Extra-pancreatic effects

Gliclazide has been shown to increase peripheral insulin sensitivity:

- In muscle, euglycaemic hyperinsulinaemic clamp studies with gliclazide have demonstrated significantly increased (35%) insulin mediated glucose uptake which may improve diabetes control. Gliclazide potentiates insulin action on muscle glycogen synthase. These effects are consistent with a post-transcriptional action of gliclazide on GLUT4 glucose transporters.
- Studies on glucose turnover have further shown that gliclazide decreases hepatic glucose production, leading to an improvement in fasting blood glucose levels.

Other actions

Gliclazide has been shown in some studies to have actions independent of that on glucose levels. These haemovascular effects of gliclazide include:

- Partial inhibition of platelet aggregation and adhesion with a decrease in markers of platelet activation (beta thromboglobulin, thromboxane B2)
- Increased vascular endothelial fibrinolytic activity (increased tPA activity)
- Anti-oxidant properties, notably a reduction in plasma lipid peroxides and increased erythrocyte superoxide dismutase activity
- Inhibition of the increased adhesiveness of type II diabetic patient's monocytes to endothelial cells *in vitro*.

The antioxidant, platelet inhibiting and fibrinolytic actions of gliclazide involve processes which have been implicated in the pathogenesis of vascular complications of type II diabetes. There is no clinical evidence that the haemovascular effects of gliclazide are of therapeutic benefit in type II diabetes patients.

6.2 Pharmacokinetic properties

Absorption

Plasma levels increase progressively during the first 6 hours, reaching a plateau which is maintained from the sixth to the twelfth hour after administration. Intra-individual variability is low.

Gliclazide is completely absorbed. Food intake does not affect the rate or degree of absorption.

Distribution

Plasma protein binding is approximately 95%. The volume of distribution is around 30 liters. A single daily intake of gliclazide maintains effective gliclazide plasma concentrations over 24 hours.

Biotransformation

Gliclazide is mainly metabolized in the liver and excreted in the urine: less than 1% of the unchanged form is found in the urine. No active metabolites have been detected in plasma.

Elimination

The elimination half-life of gliclazide varies between 12 and 20 hours.

Linearity/non-linearity

The relationship between the dose administered and the area under the concentration curve as a function of time is linear for doses of gliclazide up to 90mg/day. At the highest evaluated dose (135mg/day), the AUC increases slightly more than proportionally to the dose.

Special populations

Elderly

No clinically significant changes in pharmacokinetic parameters have been observed in elderly patients.

6.3 Preclinical safety data

As per the information reported in literature, preclinical data reveal no special hazards for humans based on conventional studies of repeated dose toxicity and genotoxicity. Long term carcinogenicity studies have not been done. No teratogenic changes have been shown in animal studies, but lower foetal body weight was

observed in animals receiving doses 25-fold higher than the maximum recommended dose in humans.

7. PHARMACEUTICAL PARTICULARS

7.1 List of excipients

Calcium hydrogen phosphate dihydrate (DITAB), Hypromellose (Methocel K100 Prem LV), Hypromellose (Methocel K4M PCR), Povidone (K-30), Purified water, Magnesium stearate.

7.2 Incompatibilities

None known.

7.3 Shelf life

2years

7.4 Special precautions for storage

Store below 30 °C.
Gliclazide Modified Release Tablets 60mg packed in following pack: 3 x 10 Tablets of Clear PVC blister and 10 x 10 Tablets of Clear PVC blister

7.5 Nature and contents of container

Gliclazide Modified Release Tablets 60mg packed in following pack: 3 x 10 Tablets of Clear PVC blister and 10 x 10 Tablets of Clear PVC blister

7.6 Special precautions for disposal and other handling

Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

8. PRODUCT REGISTRANT

Goldplus Universal Pte Ltd
103 Kallang Avenue #06-02, Singapore 339504

9. PRODUCT REGISTRATION NUMBER

SINXXXXX

10. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

08/12/2023

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