GLYPRESSIN SOLUTION FOR INJECTION
Terlipressin acetate

Presentation

GLYPRESSIN 1mg terlipressin acetate per 8.5mL solution for injection:
Clear, colourless liquid. One ampoule of 8.5mL contains 1mg terlipressin acetate (equivalent to 0.85mg terlipressin).

One ampoule contains 1.33mmol (or 30.7mg) sodium.

For full list of excipients see Pharmaceutical Precautions.

Uses

Actions
Pharmacotherapeutic group: Posterior pituitary lobe hormones (vasopressin and analogues), ATC code: H01B A04.

Terlipressin initially has an effect of its own, but is converted by enzymatic cleavage to lysine vasopressin. Terlipressin acetate given at doses of 1mg and 2mg effectively reduces the portal venous pressure and produce marked vasoconstriction. The lowering of portal pressure and azygos blood flow is dependent on dose. The effect of the low dose is reduced after 3 hours, while haemodynamic data show that 2mg terlipressin acetate is more effective than 1mg as the higher dose produces a dependable effect throughout the period of treatment (4 hours).

Pharmacokinetics
The pharmacokinetics follows a two-compartment model. It has been found that the half-life is approximately 40 minutes, metabolic clearance is approximately 9mL/kg/min and the distribution volume is approximately 0.5 L/kg.

The desired concentration of lysine vasopressin in plasma is found initially after approximately 30 minutes and reaches a peak value of 60 to 120 minutes after administration of GLYPRESSIN. Because of 100% cross-reaction between terlipressin and lysine vasopressin, there is no specific RIA method for these substances.

Preclinical Safety Data
Preclinical data reveal no special hazard for humans based on conventional studies of single- and repeat-dose toxicity, and genotoxicity. At dosages relevant to humans, the only effects observed in animals were those attributable to the pharmacological activity of terlipressin. No pharmacokinetic data are available from animals to compare with humans the plasma concentrations at which these effects occurred, but as the route of administration was intravenous, a substantial systemic exposure can be assumed for the animal studies.

An embryo-foetal study in rats demonstrated no adverse effects of terlipressin, but in rabbits abortions occurred, probably related to maternal toxicity, and there were ossification anomalies in a small number of foetuses and a single isolated case of cleft palate.

No carcinogenicity studies have been performed with terlipressin.

Indications
GLYPRESSIN is indicated for the treatment of:

- bleeding oesophageal varices
- treatment of type 1 hepatorenal syndrome, characterised by spontaneous acute renal insufficiency, in patients suffering from severe cirrhosis, with ascites
Dosage and Administration

Dosage

Bleeding Oesophageal Varices
An intravenous injection of 2mg terlipressin acetate every 4 hours by bolus injection. The treatment should continue until bleeding has been controlled for 24 consecutive hours or for a maximum period of 48 hours. After the initial injection, subsequent doses can be reduced to 1mg terlipressin acetate every 4 hours in patients with a body weight of less than 50kg or when necessitated by adverse effects.

Type 1 Hepatorenal Syndrome
3-4mg terlipressin acetate every 24 hours as 3 or 4 administrations.

If serum creatinine does not decrease at least 25% after 3 days, the dose can be increased in a stepwise manner up to a maximum of 2mg terlipressin acetate every 4 hours.

In the other cases, GLYPRESSIN treatment is to be pursued until the obtaining either of a serum creatinine less than 130µmol/litre or of a drop of at least 30% in the serum creatinine with respect to the value measured at the time of diagnosis of hepatorenal syndrome.

The standard average duration of treatment is 10 days.

GLYPRESSIN must only be administered intravenously.

Contraindications

- Pregnancy
- Septic shock with low cardiac output
- Hypersensitivity to terlipressin or any other excipients of the product

Warnings and Precautions

Blood pressure, heart rate and fluid balance should be monitored during treatment. To avoid local necrosis at the injection site, the injection must be given intravenously. Caution should be exercised in treating patients with hypertension, recognised heart disease, or peripheral artery disease. The effectiveness of terlipressin in the treatment of hepatorenal syndrome with concomitant sepsis is unknown. In patients with septic shock with a low cardiac output terlipressin should not be used.

This product contains 1.33mmol (or 30.7mg) of sodium per ampoule. This should be taken into consideration in patients on a controlled sodium diet.

Children and the elderly
Particular caution should be exercised in the treatment of children and elderly patients, as experience is limited in these groups.

There is no data available regarding dosage recommendation in these special patient categories.

Use in pregnancy and lactation
Treatment with terlipressin during pregnancy is contraindicated. Terlipressin has been shown to cause uterine contractions and increased intrauterine pressure in early pregnancy and may decrease uterine blood flow. Terlipressin may have harmful effects on pregnancy and on the foetus.

Spontaneous abortion and malformation have been shown in rabbits after treatment with terlipressin.
It is not known whether terlipressin is excreted in human milk. The excretion of terlipressin in milk has not been studied in animals. A risk to the suckling child cannot be excluded. A decision on whether to continue/discontinue breast-feeding or to continue/discontinue therapy with terlipressin should be made taking into account the benefit of breast-feeding to the child and the benefit of terlipressin therapy to the woman.

**Effects on ability to drive and use machines**

No studies on the effects on the ability to drive and use machines have been performed.

**Adverse Effects**

The most commonly reported undesirable effects in clinical trials (frequency 1-10%) are paleness, increased blood pressure, abdominal pain, nausea, diarrhoea and headache.

The antidiuretic effect of GLYPRESSIN may cause hyponatraemia unless fluid balance is controlled.

<table>
<thead>
<tr>
<th>MedDRA</th>
<th>COMMON (10-1%)</th>
<th>UNCOMMON (1-0.1%)</th>
<th>RARE (0.1-0.01%)</th>
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<tbody>
<tr>
<td><strong>System Organ Class</strong></td>
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<tr>
<td>Metabolism</td>
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<td>Nervous system</td>
<td>Headache</td>
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<td><strong>Cardiac</strong></td>
<td>Bradycardia</td>
<td>Atrial Fibrillation</td>
<td>Ventricular extracystoles</td>
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<td>Tachycardia</td>
<td>Chest pain</td>
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<td>Myocardial Infarction</td>
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<td>Torsade de pointes</td>
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<td>Cardiac failure</td>
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<td><strong>Vascular</strong></td>
<td>Peripheral vasoconstriction</td>
<td>Intestinal ischaemia</td>
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<td></td>
<td>Peripheral ischaemia</td>
<td>Peripheral cyanosis</td>
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<td>Facial pallor</td>
<td>Hot flushes</td>
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<td>Hypertension</td>
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<td><strong>Respiratory</strong></td>
<td>Respiratory distress</td>
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<td></td>
<td>Respiratory failure</td>
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<td><strong>Gastrointestinal</strong></td>
<td>Transient abdominal cramps</td>
<td>Transient nausea</td>
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<td>Transient diarrhoea</td>
<td>Transient vomiting</td>
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<td><strong>Skin and subcutaneous</strong></td>
<td>Skin necrosis</td>
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<td><strong>Pregnancy, puerperium and perinatal conditions</strong></td>
<td>Uterine hypertonus</td>
<td>Uterine ischaemia</td>
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<td><strong>General disorders and administration site disorders</strong></td>
<td>Injection site necrosis</td>
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**Interactions**

The hypotensive effect of non-selective beta-blockers on the portal vein is increased with terlipressin. Concomitant treatment with medicinal products with a known bradycardic effect (e.g. propofol, sufentanil) may lower the heart rate and cardiac output. These effects are due to reflexogenic inhibition of cardiac activity via the vagus nerve due to the elevated blood pressure.

**Overdosage**

The recommended dose (2mg terlipressin acetate) every 4 hours should not be exceeded as the risk of severe circulatory adverse effects is dose-dependent.
Elevated blood pressure in patients with recognised hypertension can be controlled with 150mcg clonidine intravenous. Bradycardia requiring treatment should be treated with atropine.

**Pharmaceutical Precautions**

**List of excipients**
Sodium chloride, acetic acid, sodium acetate trihydrate, water for injections

**Incompatibilities**
In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

**Shelf-life**
2 years

**Special precautions for storage**
Store in a refrigerator (2°C-8°C). The ampoules are stored in the outer carton in order to protect from light.

**Medicine Classification**
Prescription Medicine.

**Package Quantities**
8.5mL solution in clear, colourless, glass ampoules (Type 1 glass). Pack size: 5 x 8.5mL.

**Further Information**

**Instructions for use/handling**
Any unused drug or waste materials should be disposed of in accordance with local requirements.

**Name and Address**

Exclusive New Zealand distributors:
Pharmaco (NZ) Ltd
P O Box 4079
Auckland
Telephone (09) 377-3336

**Date of Preparation**
21 April 2015

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