PROFESSIONAL INFORMATION

SCHEDULING STATUS

S3

1 NAME OF THE MEDICINE

F**URLIN** 5 mg film coated tablet
F**URLIN** 10 mg film coated tablet.

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each **FURLIN** 5 film-coated tablet contains 5 mg solifenacin succinate
Each **FURLIN** 10 film-coated tablet contains 10 mg solifenacin succinate.

Excipients with known effect
Each 5 mg film-coated tablet contains 94.600 mg lactose monohydrate.
Each 10 mg film-coated tablet contains 94.600 mg lactose monohydrate.
For full list of excipients, see section 6.1

3 PHARMACEUTICAL FORM

Film-coated tablets
F**URLIN** 5: Yellow coloured, round, biconvex, film coated tablets with '44' de bossed on one side and 'V' on the other side.

F**URLIN** 10: Pink coloured, round, biconvex, film coated tablets with '45' debossed on one side and 'V' on the other side

4 CLINICAL PARTICULARS

Therapeutic indications
FURLIN is indicated for the symptomatic treatment of overactive bladder syndrome: symptoms of urinary urgency, frequent micturition and/or urge incontinence.

Posology and method of administration
Posology
Adults, including the elderly:
The recommended dose is 5 mg once daily. If needed, the dose may be increased to 10 mg once daily.

Special populations
Patients with renal impairment
No dose adjustment is necessary for patients with mild to moderate renal impairment (creatinine clearance > 30 ml/min).
Patients with severe renal impairment (creatinine clearance ≤ 30 ml/min) should be treated with caution and receive no more than 5 mg once daily.

Patients with hepatic impairment:
No dose adjustment is necessary for patients with mild hepatic impairment. Patients with moderate hepatic impairment should be treated with caution and received not more than 5 mg once daily.

Potent inhibitors of cytochrome P450 3A4:
The maximum dose of **FURLIN** should be limited to 5 mg when treated simultaneously with ketoconazole or therapeutic doses of other potent CYP3A4-inhibitors e.g. ritonavir, nelfinavir, itraconazole.

Paediatric population
The safety and efficacy of **FURLIN** in children have not yet been established. Therefore, **FURLIN** should not be used in children.

Method of administration
FURLIN should be taken orally and should be swallowed whole with liquids. It can be taken with or without food, as is convenient.

Contraindications
- Hypersensitivity to solifenacin or to any of the excipients of **FURLIN** (see **section 6.1**)
- Urinary retention
- Uncontrolled narrow angle glaucoma
- Myasthenia gravis
- Toxic megacolon
- Patients undergoing haemodialysis
- Patients with severe hepatic impairment
- Patients with severe renal impairment (Cl_{cr} < 30 mL/min) and on treatment with a strong CYP3A4 inhibitor, e.g. ketoconazole (see **"section 4.5"**)
- Patients with moderate hepatic impairment and on treatment with a strong CYP3A4 inhibitor, e.g. ketoconazole (see **"section 4.5")**
- Patients with a prolonged QT interval, either congenital or acquired
- Pregnancy and lactation

Special warnings and precautions for use
Other causes of frequent urination (heart failure or renal disease) should be addressed before treatment with **FURLIN**. If urinary tract infection is present, an appropriate antibacterial therapy should be started.

FURLIN should be used with caution in patients with:
- Significant decompensated bladder outlet obstruction at risk of urinary retention.
- Gastrointestinal obstructive disorders.
- Risk of decreased gastrointestinal motility.
- Severe renal impairment (creatinine clearance ≤ 30 mL/min), and doses should not exceed 5 mg for these patients.
- Moderate hepatic impairment (Child-Pugh score of 7 to 9), and doses should not exceed 5 mg for these patients.
- Concomitant use of a potent CYP3A4 inhibitor, e.g. ketoconazole
- Hiatus hernia/gastro-oesophageal reflux and/or who are concurrently taking medicines (such as bisphosphonates) that can cause or exacerbate oesophagitis.
- Autonomic neuropathy.

QT prolongation and Torsade de Pointes have been observed in patients with risk factors, such as pre-existing long QT syndrome and hypokalaemia (see **section 4.3**).

Safety and efficacy have not yet been established in patients with a neurogenic cause for detrusor overactivity.

Angioedema with airway obstruction has been reported in some patients on solifenacin. If angioedema occurs, **FURLIN** should be discontinued and appropriate therapy and/or measures should be taken.

Anaphylactic reaction has been reported in some patients treated with solifenacin. In patients who develop anaphylactic reactions, **FURLIN** should be discontinued and appropriate therapy and/or measures should be taken.
The maximum effect of solifenacin can be determined after 4 weeks at the earliest.

Patients with rare hereditary problems of galactose intolerance, total lactase deficiency or glucose-galactose malabsorption should not take this medicine.

Interaction with other medicines and other forms of interaction
Pharmacological interactions
Concomitant administration with other medicines with anticholinergic properties may result in more pronounced therapeutic effects and side effects. An interval of approximately one week should be allowed after stopping treatment with **FURLIN**, before commencing other anticholinergic therapy. The therapeutic effect of **FURLIN** may be reduced by concomitant administration of cholinergic receptor agonists.
FURLIN can reduce the effect of medicines that stimulate the motility of the gastro-intestinal tract, such as metoclopramide and cisapride.

Pharmacokinetic interactions
In vitro studies have demonstrated that at therapeutic concentrations, solifenacin does not inhibit CYP1A1/2, 2C9, 2C19, 2D6, or 3A4 derived from human liver microsomes. Therefore, FURLIN is unlikely to alter the clearance of medicines metabolised by these CYP enzymes.

Effect of other medicinal products on the pharmacokinetics of solifenacin
Since solifenacin is metabolised by CYP3A4, pharmacokinetics interactions are possible with other CYP3A4 substrates, inhibitors and inducers.

Ketoconazole and other CYP3A4 inhibitors:
Simultaneous administration of ketoconazole (200 mg/day) resulted in a two-fold increase of the AUC of solifenacin, while ketoconazole at a dose of 400 mg/day resulted in a three-fold increase of the AUC of solifenacin. Therefore, the maximum dose of FURLIN should be restricted to 5 mg, when used simultaneously with ketoconazole or therapeutic doses of other potent CYP3A4 inhibitors (e.g. ritonavir, nelfinavir, itraconazole).
Simultaneous treatment of **FURLIN** and strong CYP3A4 inhibitors is contraindicated in patients with severe renal impairment or moderate hepatic impairment (see **"section 4.3"**).

The effects of enzyme induction on the pharmacokinetics of solifenacin and its metabolites have not been studied as well as the effect of higher affinity CYP3A4 substrates on solifenacin exposure. Since solifenacin is metabolised by CYP3A4, pharmacokinetic interactions are possible with other CYP3A4 substrates with higher affinity (e.g. verapamil, diltiazem) and CYP3A4 inducers (e.g. rifampicin, phenytoin, carbamazepine).

Effect of solifenacin on the pharmacokinetics of other medicinal products
Oral contraceptives:
Intake of solifenacin showed no pharmacokinetic interaction between solifenacin and combined oral contraceptives (ethinyl oestradiol/levonorgestrel), as both are CYP3A4 substrates.

Warfarin:
Intake of solifenacin did not alter the pharmacokinetics of *R*-warfarin (substrate for CYP3A4) or *S*-warfarin (substrate for CYP2C9) or their effect on the INR.

Digoxin:
Intake of solifenacin showed no effects on the pharmacokinetics of digoxin.

Fertility, pregnancy and lactation
Pregnancy
FURLIN is contraindicated during pregnancy (see **section 4.3**).
Foetal toxicity has been shown in rodents.

Breastfeeding
Solifenacin, as in **FURLIN** is excreted into breast milk. It is contraindicated during lactation (see **section 4.3**), therefore women taking **FURLIN** should not breastfeed their infants.

Fertility
Animal studies do not indicate direct harmful effects on fertility, embryonal / foetal development or parturition. The potential risk for humans is unknown.

Effects on ability to drive and use machines
Since **FURLIN** may cause blurred vision, somnolence and fatigue (see **section 4.8**), the ability to drive and use machines may be negatively affected.

Undesirable effects
Due to the pharmacological effect of solifenacin, **FURLIN** may cause anticholinergic side effects of mild or moderate severity in general. The frequency of anticholinergic side effects is dose related.
The most frequently reported adverse reaction **FURLIN** was dry mouth. The severity of dry mouth was generally mild.

MedDRA system organ class	Frequency	Adverse reactions
Infections and infestations	Less frequent	Urinary tract infection, cystitis
Nervous system disorders	Less frequent	Somnolence, dysgeusia
Eye disorders	Frequent	Blurred vision
	Less frequent	Dry eyes
Respiratory, thoracic and mediastinal disorders	Less frequent	Nasal dryness
Gastrointestinal disorders	Frequent	Dry mouth, constipation, nausea, dyspepsia, abdominal pain.
	Less frequent	Gastro-oesophageal reflux diseases, dry throat, colonic obstruction, faecal impaction.
Skin and subcutaneous tissue disorders	Less frequent	Dry skin
Renal and urinary disorders	Less frequent	Difficulty in micturition, urinary retention
General disorders and administration site conditions	Less frequent	Fatigue, peripheral oedema.

Post-marketing data:

MedDRA system organ class	Frequency	Adverse reactions
Immune system disorders	Frequency unknown	Anaphylactic reaction
Metabolism and nutrition disorders	Frequency unknown	Decreased appetite, hyperkalaemia
Psychiatric disorders	Less frequent	Hallucinations, confusional state
	Frequency unknown	Delirium
Nervous system disorders	Less frequent	Dizziness, headache
Eye disorders	Frequency unknown	Glaucoma
Cardiac disorders	Frequency unknown	Torsade de Pointes, electrocardiogram QT prolonged, atrial fibrillation, palpitations, tachycardia.
Respiratory, thoracic and mediastinal disorders	Frequency unknown	Dysphonia
Gastrointestinal disorders	Less frequent	Vomiting.
	Frequency unknown	Ileus, abdominal discomfort
Hepato-biliary disorders	Frequency unknown	Liver disorder, abnormal liver function tests
Skin and subcutaneous tissue disorders	Less frequent	Pruritus, rash, erythema multiforme, urticaria, angioedema.
	Frequency unknown	Exfoliative dermatitis
Musculoskeletal and connective tissue disorders	Frequency unknown	Muscular weakness
Renal and urinary disorders	Frequency unknown	Renal impairment

Reporting of suspected adverse reactions
Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Health care providers are asked to report any suspected adverse reactions to SAHPRA via the "**6.04 Adverse Drug Reactions Reporting Form**", found online under SAHPRA's publications:
https://www.sahpra.org.za/Publications/Index/8

Overdose
Symptoms
Overdosage with solifenacin succinate can potentially result in severe anticholinergic effects. In the event of overdose with **FURLIN,** the patient should be treated with activated charcoal.
Standard supportive treatment should be applied, as necessary.
Symptoms can be treated as follows:
- Severe central anticholinergic effects such as hallucinations or pronounced excitation: treat with physostigmine or carbachol.
- Convulsions or pronounced excitation: treat with benzodiazepines.
- Respiratory insufficiency: treat with artificial respiration.
- Tachycardia: treat with beta-blockers.
- Urinary retention: treat with catheterisation.
- Mydriasis: treat with pilocarpine eye drops and/or place patient in dark room.

Specific attention should be paid to patients with known risk for QT-prolongation (i.e. hypokalaemia, bradycardia and concurrent administration of medicines known to prolong QT-interval) and relevant pre-existing cardiac diseases (i.e. myocardial ischaemia, dysrhythmia, congestive heart failure).

5 PHARMACOLOGICAL PROPERTIES

Pharmacodynamic properties
Pharmacotherapeutic group: Urinary antispasmodics, ATC code: G04B D08.
Pharmacological classification: A 5.4 Cholinolytics (anticholinergics)**.**

Solifenacin is a competitive, specific cholinergic-receptor antagonist. *In vitro* studies demonstrated that solifenacin binds to muscarinic receptors, with high affinity.

Pharmacokinetic properties
Absorption
Following the oral administration of solifenacin succinate tablets, maximum solifenacin plasma concentrations (C_{max}) are reached after 3 to 8 hours. The t_{max} is independent of the dose. The C_{max} and area under the curve (AUC) increase in proportion to the dose between 5 to 40 mg. Absolute bioavailability is approximately 90 %. Food intake does not affect the C_{max} and AUC of solifenacin.

Distribution
The apparent volume of distribution of solifenacin following intravenous administration is about 600 L. Solifenacin is largely (approximately 98 %) bound to plasma proteins, primarily α1-acid glycoprotein.

Biotransformation
Solifenacin is extensively metabolised by the liver, primarily by cytochrome P450 3A4 (CYP3A4).
However, alternative metabolic pathways exist, that can contribute to the metabolism of solifenacin. The systemic clearance of solifenacin is about 9,5 L/h and the terminal half-life of solifenacin is 45 to 68 hours. After oral dosing, one pharmacologically active (4*R*-hydroxy solifenacin) and three inactive metabolites (*N*-glucuronide, *N*-oxide and 4*R*-hydroxy-N-oxide of solifenacin) have been identified in plasma in addition to solifenacin.

Elimination
After a single administration of 10 mg [^{14}C-labelled] – solifenacin, about 70 % of the radioactivity was detected in urine and 23 % in faeces over 26 days. In urine, approximately 11 % of radioactivity is recovered as unchanged medicine about 18 % as the *N*-oxide metabolite, 9 % as the 4*R*-hydroxy-*N*-oxide metabolite and 8 % as the 4*R*-hydroxy metabolite (active metabolite).

Linearity/non-linearity
Pharmacokinetics is linear in the therapeutic dose range.

Other special populations
Age
No dosage adjustment based on patient age is required. Studies in elderly have shown that the exposure to solifenacin, expressed as the AUC, after administration of solifenacin succinate (5 mg and 10 mg once daily) was similar in healthy elderly subjects (aged 65 through 80 years) and healthy young subjects (aged less than 55 years). The mean rate of absorption expressed as t_{max} was slightly slower in the elderly and the terminal half-life was approximately 20 % longer in elderly subjects. These modest differences were considered not clinically significant.
The pharmacokinetics of solifenacin has not been established in children.

Gender
The pharmacokinetics of solifenacin is not influenced by gender.

Renal impairment
The AUC and C_{max} of solifenacin in mild and moderate renal impaired patients, was not significantly different from that found in healthy volunteers. In patients with severe renal impairment (creatinine clearance ≤ 30 mL/min) exposure to solifenacin was significantly greater than in the controls with increases in C_{max} of about 30 %, AUC of more than 100 % and $t_{½}$ of more than 60 %. A statistically significant relationship was observed between creatinine clearance and solifenacin clearance.
Pharmacokinetics in patients undergoing haemodialysis has not been studied.

Hepatic impairment
In patients with moderate hepatic impairment the C_{max} is not affected, AUC increases with 60 % and $t_{½}$ doubled. Pharmacokinetics of solifenacin in patients with severe hepatic impairment has not been studied.

6 PHARMACEUTICAL PARTICULARS

List of excipients
Core tablet
Colloidal Silicon Dioxide
Corn Starch
Hydroxy Propyl Methyl Cellulose
Lactose Monohydrate
Magnesium Stearate

Film coating
Hypromellose
Iron Oxide Yellow E171 (5 mg) and Iron Oxide Red E172 (10 mg)
Macrogol
Talc
Titanium Dioxide

Incompatibilities
Not applicable

Shelf life
2 years

Special precautions for storage
This medicine does not require any special storage conditions.
Keep the product out of the reach and sight of children.

Nature and contents of container
HDPE bottle with a child-resistant closure. Pack-sizes of 30 or 90 film-coated tablets.

Special precautions for disposal
No special requirements.

7 HOLDER OF CERTIFICATE OF REGISTRATION

Trinity Pharma (Pty) Ltd
106 16th Road
Midrand
1686

8 REGISTRATION NUMBER(S)

Furlin 5: 49/5.4/0130
Furlin 10: 49/5.4/0131

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

12 July 2022

10 DATE OF REVISION OF THE TEXT

N.A

TRINITY PHARMA

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