

# SUMMARY OF PRODUCT CHARACTERISTICS

## 1 NAME OF THE MEDICINAL PRODUCT

Natrilix 2.5 mg Tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

One film-coated tablet contains 2.5 mg Indapamide hemihydrate

Excipient with known effect: 57.5mg lactose monohydrate

For the full list of excipients, see section 6.1

## 3 PHARMACEUTICAL FORM

Tablet.

White, round, biconvex, film-coated tablets.

## 4 CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Natrilix 2.5 mg is indicated in essential hypertension in adults.

### 4.2 Posology and method of administration

#### Posology

#### *Adults:*

The dosage is one tablet, containing 2.5 mg indapamide hemihydrate, daily, to be taken in the morning. The action of Natrilix is progressive and the reduction in blood pressure may continue and not reach a maximum until several months after the start of therapy. A larger dose than 2.5 mg Natrilix daily is not recommended as there is no appreciable additional antihypertensive effect but a diuretic effect may become apparent. If a single daily tablet of Natrilix does not achieve a sufficient reduction in blood pressure, another antihypertensive agent may be added; those which have been used in combination with Natrilix include beta-blockers, ACE inhibitors, methyldopa,

clonidine and other adrenergic blocking agents. The co-administration of Natrilix with diuretics which may cause hypokalaemia is not recommended.

There is no evidence of rebound hypertension on withdrawal of Natrilix.

#### Special populations

##### Renal impairment (see sections 4.3 and 4.4):

In severe renal failure (creatinine clearance below 30 ml/min), treatment is contraindicated.

Thiazide and related diuretics are fully effective only when renal function is normal or only minimally impaired.

##### Hepatic impairment (see sections 4.3 and 4.4):

In severe hepatic impairment, treatment is contraindicated.

##### Elderly (see section 4.4):

In the elderly, the plasma creatinine must be adjusted in relation to age, weight and gender. Elderly patients can be treated with Natrilix when renal function is normal or only minimally impaired.

##### Paediatric population:

The safety and efficacy of Natrilix 2.5mg in children and adolescents have not been established. No data are available.

##### Method of administration:

Oral use.

### **4.3 Contraindications**

- Hypersensitivity to the active substance, to other sulfonamides or to any of the excipients listed in section 6.1.
- Severe renal failure.
- Hepatic encephalopathy or severe impairment of liver function.
- Hypokalaemia.

### **4.4 Special warnings and precautions for use**

#### Special warnings

When liver function is impaired, thiazide-related diuretics may cause hepatic encephalopathy, particularly in case of electrolyte imbalance. Administration of the diuretic must be stopped immediately if this occurs.

#### Photosensitivity:

Cases of photosensitivity reactions have been reported with thiazides and thiazide-related diuretics (see section 4.8). If photosensitivity reaction occurs during treatment, it is recommended to stop the treatment. If a re-administration of the diuretic is

deemed necessary, it is recommended to protect exposed areas to the sun or to artificial UVA.

*Excipients:*

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

Special precautions for use

- **Water and electrolyte balance:**

• Plasma sodium:

This must be measured before starting treatment, then at regular intervals subsequently. The fall in plasma sodium may be asymptomatic initially and regular monitoring is therefore essential, and should be even more frequent in the elderly and cirrhotic patients (see sections 4.8 and 4.9). Any diuretic treatment may cause hyponatraemia, sometimes with very serious consequences. Hyponatraemia with hypovolaemia may be responsible for dehydration and orthostatic hypotension. Concomitant loss of chloride ions may lead to secondary compensatory metabolic alkalosis: the incidence and degree of this effect are slight.

• Plasma potassium:

Potassium depletion with hypokalaemia is the major risk of thiazide and related diuretics. The risk of onset of hypokalaemia (< 3.4 mmol/l) must be prevented in certain high risk populations, *i.e.* the elderly, malnourished and/or polymedicated, cirrhotic patients with oedema and ascites, coronary artery disease and cardiac failure patients. In this situation, hypokalaemia increases the cardiac toxicity of digitalis preparations and the risks of arrhythmias.

Individuals with a long QT interval are also at risk, whether the origin is congenital or iatrogenic. Hypokalaemia, as well as bradycardia, is then a predisposing factor to the onset of severe arrhythmias, in particular, potentially fatal *torsades de pointes*.

More frequent monitoring of plasma potassium is required in all the situations indicated above. The first measurement of plasma potassium should be obtained during the first week following the start of treatment.

Detection of hypokalaemia requires its correction.

• Plasma calcium:

Thiazide and related diuretics may decrease urinary calcium excretion and cause a slight and transitory rise in plasma calcium. Frank hypercalcaemia may be due to previously unrecognised hyperparathyroidism.

Treatment should be withdrawn before the investigation of parathyroid function.

- **Blood glucose:**

Monitoring of blood glucose is important in diabetics, in particular in the presence of hypokalaemia.

- **Uric acid:**

Tendency to gout attacks may be increased in hyperuricaemic patients.

- **Renal function and diuretics:**

Thiazide and related diuretics are fully effective only when renal function is normal or only minimally impaired (plasma creatinine below levels of the order of 25 mg/l, *i.e.* 220 µmol/l in an adult). In the elderly, this plasma creatinine must be adjusted in relation to age, weight and gender.

Hypovolaemia, secondary to the loss of water and sodium induced by the diuretic at the start of treatment causes a reduction in glomerular filtration. This may lead to an increase in blood urea and plasma creatinine. This transitory functional renal insufficiency is of no consequence in individuals with normal renal function but may worsen pre-existing renal insufficiency.

- **Athletes:**

The attention of athletes is drawn to the fact that this medicinal product contains a drug substance, which may give a positive reaction in doping tests.

## 4.5 Interaction with other medicinal products and other forms of interaction

Combinations that are not recommended:

**Lithium:**

Increased plasma lithium with signs of overdosage, as with a salt-free diet (decreased urinary lithium excretion). However, if the use of diuretics is necessary, careful monitoring of plasma lithium and dose adjustment are required.

Combinations requiring precautions for use:

**Torsades de pointes-inducing drugs:**

- class Ia antiarrhythmics (quinidine, hydroquinidine, disopyramide),
- class III antiarrhythmics (amiodarone, sotalol, dofetilide, ibutilide),
- some antipsychotics :

phenothiazines (chlorpromazine, cyamemazine, levomepromazine, thioridazine, trifluoperazine),

benzamides (amisulpride, sulpiride, sultopride, tiapride),

butyrophenones (droperidol, haloperidol),

others: bepridil, cisapride, diphemanil, erythromycin IV, halofantrine, mizolastine, pentamidine, sparfloxacin, moxifloxacin, vincamine IV.

Increased risk of ventricular arrhythmias, particularly *torsades de pointes* (hypokalaemia is a risk factor).

Monitor for hypokalaemia and correct, if required, before introducing this combination. Clinical, plasma electrolytes and ECG monitoring.

*Use substances which do not have the disadvantage of causing torsades de pointes in the presence of hypokalaemia.*

**N.S.A.I.Ds. (systemic route) including COX-2 selective inhibitors, high dose salicylic acid ( $\geq 3$  g/day):**

Possible reduction in the antihypertensive effect of indapamide.

Risk of acute renal failure in dehydrated patients (decreased glomerular filtration). Hydrate the patient; monitor renal function at the start of treatment.

**Angiotensin converting enzyme (A.C.E.) inhibitors:**

Risk of sudden hypotension and/or acute renal failure when treatment with an A.C.E. is initiated in the presence of pre-existing sodium depletion (particularly in patients with renal artery stenosis).

*In hypertension*, when prior diuretic treatment may have caused sodium depletion, it is necessary:

- either to stop the diuretic 3 days before starting treatment with the A.C.E. inhibitor, and restart a hypokalaemic diuretic if necessary;
- or give low initial doses of the A.C.E. inhibitor and increase the dose gradually.

*In congestive heart failure*, start with a very low dose of A.C.E. inhibitor, possibly after a reduction in the dose of the concomitant hypokalaemic diuretic.

*In all cases*, monitor renal function (plasma creatinine) during the first weeks of treatment with an A.C.E. inhibitor.

**Other compounds causing hypokalaemia: amphotericin B (IV), gluco- and mineralo-corticoids (systemic route), tetracosactide, stimulant laxatives:**

Increased risk of hypokalaemia (additive effect).

Monitoring of plasma potassium and correction if required. Must be particularly borne in mind in case of concomitant digitalis treatment. Use non-stimulant laxatives.

**Baclofen:**

Increased antihypertensive effect.

Hydrate the patient; monitor renal function at the start of treatment.

**Digitalis preparations:**

Hypokalaemia predisposing to the toxic effects of digitalis.

Monitoring of plasma potassium and ECG and, if necessary, adjust the treatment.

Combinations to be taken into consideration:

**Potassium-sparing diuretics (amiloride, spironolactone, triamterene):**

Whilst rational combinations are useful in some patients, hypokalaemia or hyperkalaemia particularly in patients with renal failure or diabetes may still occur. Plasma potassium and ECG should be monitored and, if necessary, treatment reviewed.

**Metformin:**

Increased risk of metformin induced lactic acidosis due to the possibility of functional renal failure associated with diuretics and more particularly with loop diuretics. Do not use metformin when plasma creatinine exceeds 15 mg/l (135 µmol/l) in men and 12 mg/l (110 µmol/l) in women.

**Iodinated contrast media:**

In the presence of dehydration caused by diuretics, increased risk of acute renal failure, in particular when large doses of iodinated contrast media are used.

Rehydration before administration of the iodinated compound.

**Imipramine-like antidepressants, neuroleptics:**

Antihypertensive effect and increased risk of orthostatic hypotension increased (additive effect).

**Calcium (salts):**

Risk of hypercalcaemia resulting from decreased urinary elimination of calcium.

**Ciclosporin, tacrolimus:**

Risk of increased plasma creatinine without any change in circulating ciclosporin levels, even in the absence of water/sodium depletion.

**Corticosteroids, tetracosactide (systemic route):**

Decreased antihypertensive effect (water/sodium retention due to corticosteroids).

## 4.6 Fertility, pregnancy and lactation

**Pregnancy:**

There are no or limited amount of data (less than 300 pregnancy outcomes) from the use of indapamide in pregnant women. Prolonged exposure to thiazide during the third trimester of pregnancy can reduce maternal plasma volume as well as uteroplacental blood flow, which may cause a foeto-placental ischaemia and growth retardation.

Animal studies do not indicate direct or indirect harmful effects with respect to reproductive toxicity (see section 5.3).

As a precautionary measure, it is preferable to avoid the use of Indapamide during pregnancy.

#### Breast-feeding:

There is insufficient information on the excretion of indapamide/metabolites in human milk. Hypersensitivity to sulfonamide-derived medicines and hypokalaemia might occur. A risk to the newborns/infants cannot be excluded.

Indapamide is closely related to thiazide diuretics which have been associated, during breast-feeding, with decreased or even suppression of milk lactation.

Indapamide should not be used during breast-feeding.

#### Fertility

Reproductive toxicity studies showed no effect on fertility in female and male rats (see section 5.3). No effects on human fertility are anticipated.

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

Indapamide does not affect vigilance but different reactions in relation with the decrease in blood pressure may occur in individual cases, especially at the start of the treatment or when another antihypertensive agent is added.

As a result the ability to drive vehicles or to operate machinery may be impaired.

### **4.8 Undesirable effects**

#### Summary of safety profile

The most commonly reported adverse reactions are hypersensitivity reactions, mainly dermatological, in subjects with a predisposition to allergic and asthmatic reactions and maculopapular rashes.

During clinical trials, hypokalaemia (plasma potassium <3.4 mmol/l) was seen in 25 % of patients and < 3.2 mmol/l in 10 % of patients after 4 to 6 weeks treatment. After 12 weeks treatment, the mean fall in plasma potassium was 0.41 mmol/l.

The majority of adverse reactions concerning clinical or laboratory parameters are dose-dependent.

#### Tabulated summary of adverse reactions

The following undesirable effects have been observed with indapamide during treatment ranked under the following frequency:

Very common ( $\geq 1/10$ ); common ( $\geq 1/100$  to  $<1/10$ ); uncommon ( $\geq 1/1,000$  to  $< 1/100$ ); rare ( $\geq 1/10,000$  to  $<1/1,000$ ); very rare ( $\geq 1/100,000$  to  $<1/10,000$ ), not known (cannot be estimated from the available data).

<b>MedDRA System Organ Class</b>	<b>Undesirable Effects</b>	<b>Frequency</b>
<b>Blood and the lymphatic System Disorders</b>	Agranulocytosis	Very rare
	Aplastic anaemia	Very rare
	Haemolytic anaemia	Very rare
	Leucopenia	Very rare
	Thrombocytopenia	Very rare

<b>MedDRA System Organ Class</b>	<b>Undesirable Effects</b>	<b>Frequency</b>
<b>Metabolism and Nutrition Disorders</b>	Hypercalcaemia	Very rare
	Potassium depletion with hypokalaemia, particularly serious in certain high risk populations (see section 4.4)	Not known
	Hyponatraemia (see section 4.4)	Not known
<b>Nervous System disorders</b>	Vertigo	Rare
	Fatigue	Rare
	Headache	Rare
	Paraesthesia	Rare
	Syncope	Not known
<b>Eye disorders</b>	Myopia	Not known
	Blurred vision	Not known
	Visual impairment	Not known
<b>Cardiac Disorders</b>	Arrhythmia	Very rare
	Torsade de pointes (potentially fatal) (see sections 4.4 and 4.5)	Not known
<b>Vascular Disorders</b>	Hypotension	Very rare
<b>Gastrointestinal Disorders</b>	Vomiting	Uncommon
	Nausea	Rare
	Constipation	Rare
	Dry mouth	Rare
	Pancreatitis	Very rare
<b>Hepatobiliary Disorders</b>	Abnormal hepatic function	Very rare
	Possibility of onset of hepatic encephalopathy in case of hepatic insufficiency (see sections 4.3 and 4.4)	Not known
	Hepatitis	Not known
<b>Skin and Subcutaneous Tissue Disorder</b>	Hypersensitivity reactions	Common
	Maculopapular rashes	Common
	Purpura	Uncommon
	Angioedema	Very rare
	Urticaria	Very rare
	Toxic epidermal necrolysis	Very rare
	Stevens-Johnson Syndrome	Very rare
	Possible worsening of pre-existing acute disseminated lupus erythematosus	Not known
Photosensitivity reactions (see section 4.4)	Not known	
<b>Renal and Urinary Disorders</b>	Renal failure	Very rare
<b>Investigations</b>	Electrocardiogram QT prolonged (see sections 4.4 and 4.5)	Not known
	Blood glucose increased (see section 4.4)	Not known
	Blood uric acid increased (see section 4.4)	Not known
	Elevated liver enzyme levels	Not known

#### 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 Yellow Card Scheme Website: [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard).



## 4.9 Overdose

### Symptoms

Indapamide has been found free of toxicity at up to 40 mg, *i.e.* 16 times the therapeutic dose.

Signs of acute poisoning take the form above all of water/electrolyte disturbances (hyponatraemia, hypokalaemia). Clinically, possibility of nausea, vomiting, hypotension, cramps, vertigo, drowsiness, confusion, polyuria or oliguria possibly to the point of anuria (by hypovolaemia).

### Management

Initial measures involve the rapid elimination of the ingested substance(s) by gastric wash-out and/or administration of activated charcoal, followed by restoration of water/electrolyte balance to normal in a specialised centre.

## 5 PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Sulfonamides, plain

ATC code: C 03 BA 11

#### Mechanism of action

Natrilix (indapamide) is a non-thiazide sulfonamide with an indole ring, belonging to the diuretic family. At the dose of 2.5 mg per day Natrilix exerts a prolonged antihypertensive activity in hypertensive human subjects.

#### Pharmacodynamic effects

Dose-effect studies have demonstrated that, at the dose of 2.5 mg per day, the antihypertensive effect is maximal and the diuretic effect is sub-clinical.

At this antihypertensive dose of 2.5 mg per day, Natrilix reduces vascular hyperreactivity to noradrenaline in hypertensive patients and decreases total peripheral resistance and arteriolar resistance.

The implication of an extrarenal mechanism of action in the antihypertensive effect is demonstrated by maintenance of its antihypertensive efficacy in functionally anephric hypertensive patients.

The vascular mechanism of action of Natrilix involves:

- a reduction in the contractility of vascular smooth muscle due to a modification of transmembrane ion exchanges, essentially calcium;
- vasodilatation due to stimulation of the synthesis of prostaglandin PGE<sub>2</sub> and the vasodilator and platelet antiaggregant prostacyclin PGI<sub>2</sub>;

- potentiation of the vasodilator action of bradykinin.

It has also been demonstrated that in the short-, medium- and long-term, in hypertensive patients, Natrilix:

- reduces left ventricular hypertrophy;
- does not appear to alter lipid metabolism: triglycerides, LDL-cholesterol and HDL-cholesterol;
- does not appear to alter glucose metabolism, even in diabetic hypertensive patients. Normalisation of blood pressure and a significant reduction in microalbuminuria have been observed after prolonged administration of Natrilix in diabetic hypertensive subjects.

Lastly, the co-prescription of Natrilix with other antihypertensives (beta-blockers, calcium channel blockers, angiotensin converting enzyme inhibitors) results in an improved control of hypertension with an increased percentage of responders compared to that observed with single-agent therapy.

## 5.2 Pharmacokinetic properties

### Absorption

Indapamide is rapidly and completely absorbed after oral administration. Peak blood levels are obtained after 1 to 2 hours.

### Distribution

Indapamide is concentrated in the erythrocytes and is 79% bound to plasma protein and to erythrocytes. It is taken up by the vascular wall in smooth vascular muscle according to its high lipid solubility.

### Metabolism

70% of a single oral dose is eliminated by the kidneys and 23% by the gastrointestinal tract. Indapamide is metabolised to a marked degree with 7% of the unchanged product found in the urine during the 48 hours following administration. Elimination half-life ( $\beta$  phase) of indapamide is approximately 15 - 18 hours.

## 5.3 Preclinical safety data

Indapamide has been tested negative concerning mutagenic and carcinogenic properties.

The highest doses administered orally to different animal species (40 to 8000 times the therapeutic dose) have shown an exacerbation of the diuretic properties of indapamide. The major symptoms of poisoning during acute toxicity studies with indapamide administered intravenously or intraperitoneally were related to the pharmacological action of indapamide, *i.e.* bradypnoea and peripheral vasodilation. Reproductive toxicity studies have not shown embryotoxicity and teratogenicity. Fertility was not impaired either in male or in female rats.

## **6 PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

#### Tablet

Lactose monohydrate,  
maize starch,  
magnesium stearate,  
talc,  
povidone.

#### Tablet Coating:

glycerol,  
white beeswax,  
sodium lauryl sulfate,  
methylhydroxypropylcellulose,  
polyoxyethylene glycol 6000,  
magnesium stearate,  
titanium dioxide.

### **6.2 Incompatibilities**

Not applicable

### **6.3 Shelf life**

5 years.

### **6.4 Special precautions for storage**

Do not store above 25°C.

**6.5 Nature and contents of container**

30 tablet pack: 1 blister strip (PVC / Aluminium) of 30 tablets per carton.

60 tablet pack: 2 blister strips (PVC / Aluminium) of 30 tablets per carton.

Not all pack sizes may be marketed.

**6.6 Special precautions for disposal**

No special requirements

**7 MARKETING AUTHORISATION HOLDER**

Servier Laboratories Limited

Sefton House,

Sefton Park,

Bells Hill,

Stoke Poges,

Slough,

SL2 4JS

**8 MARKETING AUTHORISATION NUMBER(S)**

PL 00093/0022

**9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

20 December 1977

**10 DATE OF REVISION OF THE TEXT**

12/2016