

# Summary of Product Characteristics

## 1 NAME OF THE MEDICINAL PRODUCT

Aldactone 100 mg Film-coated tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains 100 mg of spironolactone.

For a full list of excipients see section 6.1

## 3 PHARMACEUTICAL FORM

Film coated tablet (Tablets)

Round, buff coloured, biconvex tablet with a peppermint odour embossed 'SEARLE over 134' on one side and the other side plain.

## 4 CLINICAL PARTICULARS

### 4.1 Therapeutic Indications

In the management of refractory oedema associated with congestive cardiac failure; hepatic cirrhosis with ascites and oedema, malignant ascites, nephrotic syndrome, diagnosis and treatment of primary aldosteronism, essential hypertension.

Children should only be treated under guidance of a paediatric specialist. There is limited paediatric data available (see sections 5.1 and 5.2).

### 4.2 Posology and method of administration

Administration of Aldactone once daily with a meal is recommended.

#### Posology

#### **Adults**

**Congestive heart failure:** Usual dose - 100 mg/day. In difficult or severe cases the dosage may be gradually increased up to 200 mg/day. When oedema is controlled, the usual maintenance level is 75 mg/day to 200 mg/day.

**Severe heart failure in conjunction with standard therapy (New York Heart Association Class III-IV):** Based on the Randomized Aldactone Evaluation Study (RALES), treatment in conjunction with standard therapy should be initiated at a dose of spironolactone 25 mg once daily in patients with a serum potassium  $\leq 5.0$  mEq/L and serum creatinine  $\leq 2.5$  mg/dL. Patients who tolerate 25 mg once daily may have their dose increased to 50 mg once daily as clinically indicated. Patients who do not tolerate 25 mg once daily may have their dose reduced to 25 mg every other day. See section 4.4 for advice on monitoring serum potassium and serum creatinine.

**Hepatic cirrhosis with ascites and oedema:** If urinary  $\text{Na}^+/\text{K}^+$  ratio is greater than 1.0, 100 mg per day. If the ratio is less than 1.0, 200 mg/day to 400 mg/day. Maintenance dosage should be individually determined.

**Malignant ascites:** Initial dose usually 100 mg/day to 200 mg/day. In severe cases the dosage may be gradually increased up to 400 mg/day. When oedema is controlled, maintenance dosage should be individually determined.

**Nephrotic syndrome:** Usual dose – 100 mg/day to 200 mg/day. Spironolactone has not been shown to be anti-inflammatory, nor to affect the basic pathological process. Its use is only advised if glucocorticoids by themselves are insufficiently effective.

**Diagnosis and treatment of primary aldosteronism:** Aldactone may be employed as an initial diagnostic measure to provide presumptive evidence of primary hyperaldosteronism while patients are on normal diets.

Long test: Aldactone is administered at a daily dosage of 400 mg for 3 to 4 weeks. Correction of hypokalaemia and of hypertension provides presumptive evidence for the diagnosis of primary hyperaldosteronism.

Short test: Aldactone is administered at a daily dosage of 400 mg for 4 days. If serum potassium increases during Aldactone administration but drops when Aldactone is discontinued, a presumptive diagnosis of primary hyperaldosteronism should be considered.

After the diagnosis of hyperaldosteronism has been established by more definitive testing procedures, Aldactone may be administered in doses of 100 mg to 400 mg daily in preparation for surgery. For patients who are considered unsuitable for surgery, Aldactone may be employed for long term maintenance therapy at the lowest effective dosage determined for the individual patient.

**Essential hypertension:** Usual dose – 50 mg/day to 100 mg/day, which for difficult or severe cases may be gradually increased at 2 weekly intervals up to 200 mg/day. Treatment should be continued for 2 weeks or longer since an adequate response may not occur before this time. Dosage should subsequently be adjusted according to the response of the patient.

### **Elderly**

It is recommended that treatment is started with the lowest dose and titrated upwards as required to achieve maximum benefit. Care should be taken in severe hepatic and renal impairment which may alter drug metabolism and excretion.

### **Paediatric population**

Initial daily dosage should provide 1-3 mg of spironolactone per kilogram body weight, given in divided doses. Dosage should be adjusted on the basis of response and tolerance (see sections 4.3 and 4.4).

Children should only be treated under guidance of a paediatric specialist. There is limited paediatric data available (see sections 5.1 and 5.2).

### **4.3 Contraindications**

Spironolactone is contraindicated in adult and paediatric patients with the following:

- acute renal insufficiency, significant renal compromise, anuria
- Addison's disease
- hyperkalaemia
- hypersensitivity to spironolactone
- concomitant use of eplerenone

Spironolactone is contraindicated in paediatric patients with moderate to severe renal impairment.

Aldactone should not be administered concurrently with other potassium-conserving diuretics and potassium supplements should not be given routinely with Aldactone as hyperkalaemia may be induced.

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

Concomitant use of spironolactone with other potassium sparing diuretics, angiotensin-converting enzyme (ACE) inhibitors, nonsteroidal anti-inflammatory drugs, angiotensin II antagonists, aldosterone blockers, heparin, low molecular weight heparin or other drugs or conditions known to cause hyperkalaemia, potassium supplements, a diet rich in potassium, or salt substitutes containing potassium, may lead to severe hyperkalaemia.

Hyperkalaemia may also occur in patients with impaired renal function. Cardiac dysrhythmias, occasionally fatal, may result.

The concomitant administration of this preparation with cardiac glycosides or hypotensive agents may necessitate adjustment of those drugs.

Reversible increases in blood urea may occur during use of the drug especially in the presence of impaired renal function.

Dilution hyponatraemia may occur in combination with other diuretics.

Patients who are being treated with this preparation require regular supervision with monitoring of fluid and electrolyte state. Periodic estimation of serum electrolytes is recommended due to the possibility of hyperkalaemia, hyponatremia and possible transient blood urea nitrogen (BUN) elevation, especially in the elderly and/or in patients with pre-existing impaired renal or hepatic function.

The preparation should only be used with particular caution in elderly patients or those with potential obstruction of the urinary tract, or with disorders rendering their electrolyte balance precarious.

Spironolactone may induce gynaecomastia and menstrual irregularities.

Reversible hyperchloraemic metabolic acidosis, usually in association with hyperkalaemia, has been reported to occur in some patients with decompensated hepatic cirrhosis, even when renal function is normal.

Carcinogenicity: see section 5.3.

### **Hyperkalaemia in Patients with Severe Heart Failure**

Hyperkalaemia may be fatal. It is critical to monitor and manage serum potassium in patients with severe heart failure receiving spironolactone. Avoid using other potassium-sparing diuretics. Avoid using oral potassium supplements in patients with serum potassium >3.5 mEq/L. The recommended monitoring for potassium and creatinine is 1 week after initiation or increase in dose of spironolactone, monthly for the first 3 months, then quarterly for a year, and then every 6 months. Discontinue or interrupt treatment for serum potassium >5 mEq/L or for serum creatinine >4 mg/dL (see section 4.2).

### **Paediatric population**

Potassium-sparing diuretics should be used with caution in hypertensive paediatric patients with mild renal insufficiency because of the risk of hyperkalaemia. (Spironolactone is contraindicated for use in paediatric patients with moderate or severe renal impairment; see section 4.3).

## **4.5 Interaction with other medicinal products and other forms of interactions**

Concomitant use of drugs known to cause hyperkalaemia with spironolactone may result in severe hyperkalaemia. In addition, concomitant use of trimethoprim/sulfamethoxazole (co-trimoxazole) with spironolactone may result in clinically relevant hyperkalaemia.

Spironolactone has been reported to increase serum digoxin concentration and to interfere with certain serum digoxin assays. In patients receiving digoxin and spironolactone the digoxin response should be monitored by means other than serum digoxin concentrations, unless the digoxin assay used has been proven not to be affected by spironolactone therapy. If it proves necessary to adjust the dose of digoxin, patients should be carefully monitored for evidence of enhanced or reduced digoxin effect.

Concurrent use with carbenoxolone or lithium salts should be avoided.

Hyperkalaemic metabolic acidosis has been reported in patients given spironolactone concurrently with ammonium chloride or colestyramine.

Potential of the effect of other diuretics and antihypertensive drugs occurs and their dosage may need to be reduced by about 50% when Aldactone is added to the treatment regime, and then adjusted as necessary. Concomitant administration with cardiac glycosides may necessitate adjustment of the dosages of these drugs.

Since ACE inhibitors decrease aldosterone production they should not routinely be used with Aldactone, particularly in patients with marked renal impairment.

Non-steroidal anti-inflammatory drugs such as aspirin, indomethacin and mefenamic acid may attenuate the natriuretic efficacy of diuretics due to the inhibition of intra-renal synthesis of prostaglandins and have been shown to attenuate the diuretic effect of spironolactone.

Spironolactone reduces vascular responsiveness to noradrenaline.

Caution should be exercised in the management of patients subjected to regional or general anaesthesia while they are being treated with Aldactone.

Spironolactone has been shown to increase the half-life of digoxin.

Spironolactone can interfere with assays for plasma digoxin concentrations.

Spironolactone enhances the metabolism of antipyrine.

In fluorimetric assays, spironolactone may interfere with the estimation of compounds with similar fluorescence characteristics.

**Spironolactone binds to the androgen receptor and may increase prostate specific antigen (PSA) levels in abiraterone-treated prostate cancer patients. Use with abiraterone is not recommended.**

#### 4.6 Fertility, pregnancy and lactation

##### Pregnancy

Spironolactone was devoid of teratogenic effects in mice. Rabbits receiving spironolactone showed reduced conception rate, increased resorption rate, and lower numbers of live births. No embryotoxic effects were seen in rats administered high dosages, but limited, dosage-related hypolactinemia and decreased ventral prostate and seminal vesicle weights in males, and increasing luteinizing hormone secretion and ovarian and uterine weights in females were reported. Feminization of the external genitalia of male fetuses was reported in another study in rats.

There are no studies in pregnant women. Spironolactone should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

##### Breast-feeding

The metabolite canrenone is detected in breast milk, so that breast-feeding of infants should be avoided during therapy with the drug.

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

Somnolence and dizziness have been reported to occur in some patients. Caution is advised when driving or operating machinery until the response to initial treatment has been determined.

#### 4.8 Undesirable effects

The following adverse events have been reported in association with spironolactone therapy:

The following undesirable effects have been observed in clinical trials and reported during treatment with spironolactone with the following frequencies: 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 ( $< 1/10,000$ ); not known (cannot be estimated from the available data).

System Organ Class	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 $< 1/10,000$	Frequency Not Known (cannot be estimated from the available data)
Neoplasms benign, malignant and unspecified (including cysts and polyps)			Benign breast neoplasm (male)			
Blood and lymphatic system disorders						Agranulocytosis, Leukopenia, Thrombocytopenia, Anaemia, Purpura, Eosinophilia

Metabolism and nutrition disorders	Hyperkalaemia		Electrolyte imbalance			
Psychiatric disorders		Confusional state				Libido disorder
Nervous system disorders		Dizziness				Headache, Drowsiness, Ataxia, Lethargy
Gastrointestinal disorders		Nausea				Gastrointestinal disorder
Hepatobiliary disorders			Hepatic function abnormal			
Skin and subcutaneous tissue disorders		Pruritus, Rash	Urticaria			Toxic epidermal necrolysis (TEN), Stevens-Johnson syndrome, Drug reaction with eosinophilia and systemic symptoms (DRESS), Alopecia, Hypertrichosis, Pemphigoid
Musculoskeletal and connective tissue disorders		Muscle spasms				
Renal and urinary disorders		Acute kidney injury				
Reproductive system and breast disorders		Gynaecomastia*, Breast pain**	Menstrual disorder			Impotence
General disorders and administration site conditions		Malaise				Drug fever

\* Gynaecomastia may develop in association with the use of spironolactone. Development appears to be related to both dosage level and duration of therapy and is normally reversible when spironolactone is discontinued. In rare instances some breast enlargement may persist.

\*\* In clinical trials, breast pain was reported more commonly in males than in females.

#### 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 HPRA Pharmacovigilance. Website: [www.hpra.ie](http://www.hpra.ie).

#### **4.9 Overdose**

Acute overdosage may be manifested by drowsiness, mental confusion, nausea, vomiting, dizziness, diarrhoea or maculopapular or erythematous rash. Dehydration may occur. Hyponatraemia or hyperkalaemia may be induced but these effects are unlikely to be associated with acute overdosage. Symptoms of hyperkalaemia may manifest as paraesthesia, weakness, flaccid paralysis or muscle spasm and may be difficult to distinguish clinically from hypokalaemia. Electro-cardiographic changes are the earliest specific signs of potassium disturbance. No specific antidote has been identified. Spironolactone use should be discontinued. Improvement may be expected after withdrawal of the drug. General supportive measures including replacement of fluids and electrolytes may be indicated. For hyperkalaemia, reduce potassium intake, administer potassium-excreting diuretics, intravenous glucose with regular insulin, or oral ion-exchange resins.

### **5 PHARMACOLOGICAL PROPERTIES**

#### **5.1 Pharmacodynamic properties**

### Mechanism of action

Aldactone, as a competitive aldosterone antagonist, increases sodium excretion whilst reducing potassium loss at the distal renal tubule. It has a gradual and prolonged action, maximum response being usually attained after 2 to 3 days treatment. Combination of Aldactone with a conventional, more proximally acting diuretic usually enhances diuresis without excessive potassium loss.

### **Severe Heart Failure**

RALES was a multinational, double-blind study in 1663 patients with an ejection fraction of  $\leq 35\%$ , a history of NYHA Class IV heart failure within 6 months, and Class III-IV heart failure at the time of randomization. All patients were required to be taking a loop diuretic and, if tolerated, an ACE inhibitor. Patients with a baseline serum creatinine of  $>2.5$  mg/dL or a recent increase of 25% or with a baseline serum potassium of  $>5.0$  mEq/L were excluded. Patients were randomized 1:1 to spironolactone 25 mg orally once daily or matching placebo. Patients who tolerated 25 mg once daily had their dose increased to 50 mg once daily as clinically indicated. Patients who did not tolerate 25 mg once daily had their dosage reduced to 25 mg every other day. The primary endpoint for RALES was time to all-cause mortality. RALES was terminated early, after a mean follow-up of 24 months, because of significant mortality benefit detected on a planned interim analysis. Spironolactone reduced the risk of death by 30% compared to placebo ( $p < 0.001$ -95% confidence interval 18% - 40%). Spironolactone reduced the risk of cardiac death, primarily sudden death and death from progressive heart failure by 31% compared to placebo ( $p < 0.001$ -95% confidence interval 18% - 42%).

Spironolactone also reduced the risk of hospitalization for cardiac causes (defined as worsening heart failure, angina, ventricular arrhythmias or myocardial infarction) by 30% ( $p < 0.001$ -95% confidence interval 18% - 41%). Changes in NYHA class were more favorable with spironolactone: In the spironolactone group, NYHA class at the end of the study improved in 41% of patients and worsened in 38% compared to improved in 33% and worsened in 48% in the placebo group ( $p < 0.001$ ).

### **Paediatric population**

There is a lack of substantive information from clinical studies on spironolactone in children. This is a result of several factors: the few trials that have been performed in the paediatric population, the use of spironolactone in combination with other agents, the small numbers of patients evaluated in each trial and the different indications studied. The dosage recommendations for paediatrics are based upon clinical experience and case studies documented in the scientific literature.

## **5.2 Pharmacokinetic properties**

Spironolactone is well absorbed orally and is principally metabolised to active metabolites: sulfur containing metabolites (80%) and partly canrenone (20%). Although the plasma half-life of spironolactone itself is short (1.3 hours) the half-lives of active metabolites are longer (ranging from 2.8 to 11.2 hours).

### **Paediatric population**

There are no pharmacokinetic data available in respect of use in paediatric population. The dosage recommendations for paediatrics are based upon clinical experience and case studies documented in the scientific literature.

## **5.3 Preclinical safety data**

Carcinogenicity: spironolactone has been shown to produce tumours in rats when administered at high doses over a long period of time. In man and the rat spironolactone is metabolised to a minor extent to canrenone. In contrast canrenone and canrenoic acid are the major metabolites of potassium canrenoate.

A dose related incidence of myelocytic leukaemia has been observed in rats administered potassium canrenoate at doses above 20 mg/kg/day for a period of 1 year. In 1 long term (2 year) oral carcinogenicity study of potassium canrenoate in the rat, myelocytic leukaemia and hepatic, thyroid, testicular and mammary tumours were observed. Potassium canrenoate was not mutagenic in tests using bacteria and yeast, or in an in vivo mammalian system. It was mutagenic in vitro tests in mammalian cells following metabolic activation. An increased incidence of leukaemia has not been observed in chronic rat toxicity studies with spironolactone at doses up to 500 mg/kg/day, which may be due to differences in metabolism between spironolactone and potassium canrenoate in rats.

The usual therapeutic dose of spironolactone ranges between 0.35 mg/kg/day to 5.7 mg/kg/day (25 mg/day to 400 mg/day). The significance of these animal findings with respect to clinical use is not certain. However, the long term use of spironolactone in young patients requires careful consideration of the benefits and the potential hazard involved.

## **6 PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

Calcium sulfate dihydrate  
Maize starch  
Povidone  
Felcofix peppermint  
Magnesium stearate  
Hypromellose  
Macrogol 400  
Opaspray yellow M-1-6032B contains:

Titanium dioxide (E171)  
Iron oxide yellow (E172)  
Iron oxide red (E172)

### **6.2 Incompatibilities**

Not applicable.

### **6.3 Shelf life**

5 years.

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

Do not store above 30°C. Keep blisters in the outer carton in order to protect from light.

### **6.5 Nature and contents of container**

The following presentations are registered:

PVC/foil blister packs of 50 and 100 tablets.  
PVC/foil Calendar packs of 28 tablets.

Not all pack sizes may be marketed.

### **6.6 Special precautions for disposal and other handling**

No special requirements.

## **7 MARKETING AUTHORISATION HOLDER**

Pfizer Healthcare Ireland  
9 Riverwalk  
National Digital Park  
Citywest Business Campus  
Dublin 24  
Ireland

## **8 MARKETING AUTHORISATION NUMBER**

PA0822/110/003

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

Date of first authorisation: 13 March 1975

Date of last renewal: 1 April 2008

**10 DATE OF REVISION OF THE TEXT**

February 2022