

Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Eplerenone 25 mg film-coated tablets

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains 25 mg of eplerenone.

Excipients with known effect:

Each 25 mg tablet contains 36.625 mg of lactose monohydrate (see section 4.4).

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Film-coated tablet.

Round, yellow and convex film-coated tablets.

4 CLINICAL PARTICULARS

4.1 Therapeutic Indications

Eplerenone is indicated, in addition to standard therapy including beta-blockers, to reduce the risk of cardiovascular mortality and morbidity in stable patients with left ventricular dysfunction ($LVEF \leq 40\%$) and clinical evidence of heart failure after recent myocardial infarction.

In addition to standard optimal therapy, to reduce the risk of CV mortality and morbidity in adult patients with New York Heart Association (NYHA) class II (chronic) heart failure and left ventricular systolic dysfunction ($LVEF \leq 30\%$) (see section 5.1).

4.2 Posology and method of administration

Posology

For the individual adjustment of dose, the strengths of 25 mg and 50 mg are available.

For post-MI heart failure patients

The recommended maintenance dose of eplerenone is 50 mg once daily (OD). Treatment should be initiated at 25 mg once daily and titrated to the target dose of 50 mg once daily, preferably within four weeks, taking into account the serum potassium level (see Table 1). Eplerenone therapy should usually be started within 3-14 days after an acute myocardial infarction.

For patients with NYHA class II (chronic) heart failure

For chronic heart failure NYHA class II patients, treatment should be initiated at a dose of 25 mg once daily and titrated to the target dose of 50 mg once daily preferably within 4 weeks; taking into account the serum potassium level (see Table 1 and section 4.4).

Patients with a serum potassium of $> 5,0$ mmol/l should not be started on eplerenone (see section 4.3).

Serum potassium should be measured before initiating eplerenone therapy, within the first week of treatment and at one month after the start of treatment or after a dose adjustment. Serum potassium should be assessed as needed, periodically thereafter.

After initiation, the dose should be adjusted based on the serum potassium levels as shown in Table 1.

Table 1: Dose adjustment table after initiation

Serum potassium (mmol/l)	Action	Dose adjustment
< 5,0	Increase	25 mg EOD* to 25 mg OD 25 mg OD to 50 mg OD
5,0 – 5,4	Maintain	No dose adjustment
5,5 – 5,9	Decrease	50 mg OD to 25 mg OD 25 mg OD to 25 mg EOD* 25 mg EOD* to withhold
≥6,0	Withhold	Not applicable

*EOD: Every other day

Following withholding eplerenone due to serum potassium $\geq 6,0$ mmol/l, eplerenone can be re-started at a dose of 25 mg every other day when potassium levels have fallen below 5,0 mmol/l.

Paediatric population

The safety and efficacy of eplerenone in children and adolescents have not been established. Currently available data are described in section 5.1 and 5.2.

Elderly patients

No initial dose adjustment is required in the elderly. Due to an age-related decline in renal function, the risk of hyperkalaemia is increased in elderly patients. This risk may be further increased when co-morbidity associated with increased systemic exposure is also present, in particular mild to moderate hepatic impairment. Periodic monitoring of serum potassium is recommended (see section 4.4).

Patients with renal impairment

No initial dose adjustment is required in patients with mild renal impairment. Periodic monitoring of serum potassium is recommended (see section 4.4).

Patients with moderate renal impairment (CrCl 30-60 mL/min) should be started at 25 mg every other day, and dose should be adjusted based on the potassium level (see Table 1). Periodic monitoring of serum potassium is recommended (see section 4.4).

There is no experience in patients with CrCl <50 mL/min with post MI heart failure. The use of eplerenone in these patients should be done cautiously. Doses above 25 mg daily have not been studied in patients with CrCl <50 mL/min.

Use in patients with severe renal impairment (CrCl <30 mL/min) is contraindicated (see section 4.3).

Eplerenone is not dialysable.

Patients with hepatic impairment

No initial dose adjustment is necessary for patients with mild to moderate hepatic impairment. Due to increased systemic exposure to eplerenone in patients with mild to moderate hepatic impairment, frequent and regular monitoring of serum potassium is recommended in these patients, especially when elderly (see section 4.4).

Concomitant treatment

In case of concomitant treatment with mild to moderate CYP3A4 inhibitors, such as amiodarone, diltiazem and verapamil, treatment may be started with a dose of 25 mg OD. The dose should not exceed 25 mg OD (see section 4.5).

Eplerenone may be administered with or without food (see section 5.2).

4.3 Contraindications

- Hypersensitivity to eplerenone or any of the excipients listed in section 6.1.
- Patients with serum potassium level > 5,0 mmol/l at initiation
- Patients with severe renal insufficiency (eGFR <30 mL per minute per 1.73 m²)- Patients with severe hepatic insufficiency (Child-Pugh Class C)

- Patients receiving potassium-sparing diuretics, potassium-supplements or strong inhibitors of CYP3A4 (eg itraconazole, ketoconazole, ritonavir, nelfinavir, clarithromycin, telithromycin and nefazodone) (see section 4.5).

-The combination of an angiotensin converting enzyme (ACE) inhibitor and an angiotensin receptor blocker (ARB) with Eplerenone

4.4 Special warnings and precautions for use

Hyperkalaemia: Consistent with its mechanism of action, hyperkalaemia may occur with eplerenone. Serum potassium levels should be monitored in all patients at initiation of treatment and with a change in dosage.

Thereafter, periodic monitoring is recommended especially in patients at risk for the development of hyperkalaemia, such as (elderly) patients with renal insufficiency (see section 4.2) and patients with diabetes. The use of potassium supplements after initiation of eplerenone therapy is not recommended due to an increased risk of hyperkalaemia. Dose reduction of eplerenone has been shown to decrease serum potassium levels. In one study, the addition of hydrochlorothiazide to eplerenone therapy has been shown to offset increases in serum potassium.

The risk of hyperkalaemia may increase when eplerenone is used in combination with an ACE inhibitor and/or an ARB. The combination of an ACE inhibitor and an ARB with eplerenone should not be used (see sections 4.3 and 4.5).

Impaired renal function: Potassium levels should be monitored regularly in patients with impaired renal function, including diabetic microalbuminuria. The risk of hyperkalaemia increases with decreasing renal function. While the data from EPHEBUS in patients with type 2 diabetes and microalbuminuria is limited, an increased occurrence of hyperkalaemia was observed in this small number of patients. Therefore, these patients should be treated with caution. Eplerenone is not removed by haemodialysis.

Impaired hepatic function: No elevations of serum potassium above 5,5 mmol/l were observed in patients with mild to moderate hepatic impairment (Child Pugh class A and B). Electrolyte levels should be monitored in patients with mild to moderate hepatic impairment. The effect of eplerenone has not been evaluated in patients with severe hepatic impairment and therefore its use is contraindicated (see sections 4.2 and 4.3).

CYP3A4 Inducers: Co-administration of eplerenone with strong CYP3A4 inducers is not recommended (see section 4.5).

Lithium, cyclosporin and tacrolimus should be avoided during treatment with eplerenone (see section 4.5).

Lactose: the tablets contain lactose, therefore patients with rare hereditary problems of galactose intolerance, lactase deficiency or glucose-galactose malabsorption should not receive this medicinal product.

4.5 Interaction with other medicinal products and other forms of interactions

Pharmacodynamic interactions

Potassium-sparing diuretics and potassium supplements: Due to increased risk of hyperkalaemia, eplerenone should not be administered to patients receiving potassium-sparing diuretics or potassium supplements (see section 4.3). Potassium-sparing diuretics may potentiate the effect of anti-hypertensive agents and other diuretics.

ACE inhibitors, ARBs

The risk of hyperkalaemia may increase when eplerenone is used in combination with an ACE inhibitor and/or an ARB. A close monitoring of serum potassium and renal function is recommended, especially in patients at risk for impaired renal function, e.g., the elderly. The triple combination of an ACE inhibitor and an ARB with eplerenone should not be used (see sections 4.3 and 4.4).

Lithium: Drug interaction studies of eplerenone have not been conducted with lithium. However, the occurrence of lithium toxicity has been reported in patients receiving lithium concomitantly with diuretics and ACE inhibitors (see section 4.4). Co-administration of eplerenone and lithium should be avoided. If this combination appears necessary serum lithium levels should be monitored (see section 4.4).

Cyclosporin, tacrolimus: Cyclosporin and tacrolimus may lead to impaired renal function and increase the risk of hyperkalaemia. The concomitant use of eplerenone with cyclosporin or tacrolimus should be avoided. If needed, close monitoring of serum

potassium and renal function are recommended when cyclosporine and tacrolimus are to be administered during treatment with eplerenone (see section 4.4).

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs): Treatment with NSAIDs may lead to acute renal failure by acting directly on glomerular filtration, especially in at-risk patients (elderly and/or dehydrated patients). Patients receiving eplerenone and NSAIDs should be adequately hydrated and be monitored for renal function prior to initiating treatment.

Trimethoprim: The concomitant administration of trimethoprim with eplerenone increases the risk of hyperkalaemia. Monitoring of serum potassium and renal function should be made, particularly in patients with renal impairment and in the elderly.

Alpha 1 blockers (e.g. prazosin, alfuzosin): When alpha-1-blockers are combined with eplerenone there is the potential for increased hypotensive effect and/or postural hypotension. Clinical monitoring for postural hypotension is recommended during alpha-1-blocker co-administration.

Tricyclic antidepressants, neuroleptics, amifostine, baclofene: Co-administration of these drugs with eplerenone may potentially increase antihypertensive effects and the risk of postural hypotension.

Glucocorticoids, tetracosactide: Co-administration of these drugs with eplerenone may potentially decrease the antihypertensive effects (sodium and fluid retention).

Pharmacokinetic interactions

In vitro studies indicate that eplerenone is not an inhibitor of CYP1A2, CYP2C19, CYP2C9, CYP2D6 and CYP3A4 isoenzymes. Eplerenone is not a substrate or an inhibitor of P-glycoprotein.

Digoxin: systemic exposure (AUC) to digoxin increases by 16 % (90 % CI: 4 % – 30 %) when co-administered with eplerenone. Caution is warranted when digoxin is dosed near the upper limit of therapeutic range.

Warfarin: No clinically significant pharmacokinetic interactions were observed with warfarin. Caution is warranted when warfarin is dosed near the upper limit of therapeutic range.

CYP3A4 substrates: Results of pharmacokinetic studies with CYP3A4 substrates, such as midazolam and cisapride, showed no significant pharmacokinetic interactions when these drugs are co-administered with eplerenone.

CYP3A4 inhibitors:

- Strong CYP3A4 inhibitors: significant pharmacokinetic interactions may occur when eplerenone is co-administered with drugs that inhibit the CYP3A4 enzyme. A strong inhibitor of CYP3A4 (ketoconazole 200 mg b.i.d.) led to a 441% increase in AUC of eplerenone (see section 4.3). The concomitant use of eplerenone with strong CYP3A4 inhibitors, such as ketoconazole, itraconazole, ritonavir, nelfinavir, clarithromycin, telithromycin and nefazodone, is contraindicated (see section 4.3).

- Mild to moderate CYP3A4 inhibitors: co-administration with erythromycin, saquinavir, amiodarone, diltiazem, verapamil and fluconazole has led to significant pharmacokinetic interactions, with increases in AUC ranking from 98% to 187%. Eplerenone dosing should therefore not exceed 25 mg when mild to moderate inhibitors of CYP3A4 are co-administered with eplerenone (see section 4.2).

CYP3A4 inducers: Co-administration of St. John Wort (a strong CYP3A4 inducer) with eplerenone caused a 30% decrease in eplerenone AUC. A more pronounced decrease in eplerenone AUC may occur with stronger CYP3A4 inducers such as rifampicin. Due to the risk of decreased eplerenone efficacy, the concomitant use of strong CYP3A4 inducers (rifampicin, carbamazepine, phenytoin, phenobarbital and St. John Wort) with eplerenone is not recommended (see section 4.4).

Antacids: based on the results of a pharmacokinetic study, the occurrence of significant interactions is not expected when antacids are co-administered with eplerenone.

4.6 Fertility, pregnancy and lactation

Pregnancy: There are no adequate data on the use of eplerenone in pregnant women. Animal studies did not indicate direct or indirect adverse effects with respect to pregnancy, embryofetal development, parturition or post-natal development (see section 5.3). Caution should be exercised in the prescription of eplerenone to pregnant women.

Lactation: It is unknown if eplerenone is excreted in human breast milk after oral administration. However, pre-clinical data show that eplerenone and/or its metabolites are present in rat breast milk and that rat pups exposed by this route developed normally. Because of the unknown potential for adverse effects on the breast fed infant, a decision should be made whether to discontinue breast feeding or discontinue the drug, taking into account the importance of the drug to the mother.

Fertility

There are no human data available on fertility.

4.7 Effects on ability to drive and use machines

No studies on the effects of eplerenone on the ability to drive and use machines have been performed. Eplerenone does not cause drowsiness or impairment of cognitive function but when driving vehicles or operating machines it should be taken into account that dizziness may occur during treatment.

4.8 Undesirable effects

In the eplerenone post-acute myocardial infarction heart failure efficacy and survival study (EPHESUS) and Eplerenone in Mild Patients Hospitalization and Survival Study in Heart Failure [EMPHASIS-HF]), the overall incidence of adverse events reported with eplerenone (78,9%) was similar to placebo (79,5%).

The discontinuation rate due to adverse events in these studies was 4,4% for patients receiving eplerenone and 4,3% for patients receiving placebo.

Adverse events reported below were either taken from EPHESUS and are those with suspected relationship to treatment and in excess of placebo or are serious and significantly in excess of placebo or have been observed during post marketing surveillance. Adverse events are listed by body system and absolute frequency. Frequencies are defined as: 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)

Infections and infestations

Uncommon: pyelonephritis, infection, pharyngitis

Blood and lymphatic system disorders

Uncommon: eosinophilia

Endocrine disorders

Uncommon: hypothyroidism

Metabolism and nutrition disorders

Common: hyperkalaemia, hypercholesterolaemia

Uncommon: hyponatraemia, dehydration, hypertriglyceridaemia

Psychiatric disorders

Common: insomnia

Nervous system disorders

Common: dizziness, syncope, headache

Uncommon: hypoaesthesia

Cardiac disorders

Common: left ventricular failure, atrial fibrillation

Uncommon: tachycardia

Vascular disorders

Common: hypotension
Uncommon: arterial thrombosis of the leg, postural hypotension

Respiratory, thoracic and mediastinal disorders

Common: cough

Gastrointestinal disorders

Common: diarrhoea, nausea, constipation, vomiting
Uncommon: flatulence

Skin and subcutaneous tissue disorders

Common: rash, pruritus
Uncommon: hyperhidrosis, angioedema

Musculoskeletal and connective tissue disorders

Common: muscle spasms, back pain
Uncommon: cramp in the legs, musculoskeletal pain

Renal and urinary disorders

Common: renal impairment (see sections 4.4 and 4.5)

Hepatobiliary disorders

Uncommon: cholecystitis

Reproductive system and breast disorders

Uncommon: gynaecomastia

General disorders and administration site conditions

Common: asthenia
Uncommon: malaise

Investigations

Common: blood urea increased, blood creatinine increased
Uncommon: epidermal growth factor receptor decreased, blood glucose increased

In EPHEBUS study, there were numerically more cases of stroke in the group of elderly patients (≥ 75 years). However, there was no statistically significant difference concerning the occurrence of stroke, between the group receiving eplerenone (30) and the group receiving placebo (22). In EMPHASIS-HF, the number of cases of stroke in the very elderly (≥ 75 years old) was 9 in the eplerenone group and 8 in the placebo group.

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, Earlsfort Terrace, IRL - Dublin 2; Tel: +353 1 6764971; Fax: +353 1 6762517. Website: www.hpra.ie; E-mail: medsafety@hpra.ie.

4.9 Overdose

No cases of human overdosage with eplerenone have been reported. The most likely manifestation of human overdosage would be anticipated to be hypotension or hypokalaemia. Eplerenone cannot be removed by haemodialysis. Eplerenone has been shown to bind extensively to activated charcoal. If symptomatic hypotension should occur, supportive treatment should be initiated. If hyperkalaemia develops, standard treatment should be initiated.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: aldosterone antagonists, ATC code: C03DA04

Mechanism of action:

Eplerenone has relative selectivity in binding to recombinant human mineralocorticoid receptors compared to its binding to recombinant human glucocorticoid, progesterone and androgen receptors. Eplerenone prevents the binding of aldosterone, a key hormone in the renin-angiotensin-aldosterone system (RAAS), which is involved in the regulation of blood pressure and the pathophysiology of cardiovascular disease.

Pharmacodynamic effects:

Eplerenone has been shown to produce sustained increases in plasma renin and serum aldosterone, consistent with inhibition of the negative regulatory feedback of aldosterone on renin secretion. The resulting increased plasma renin activity and aldosterone circulating levels do not overcome the effects of eplerenone.

In dose-ranging studies of chronic heart failure (NYHA class II-IV), the addition of eplerenone to standard therapy resulted in expected, dose-dependent increases in aldosterone levels. Similarly, in a cardiorenal substudy of EPHESUS, therapy with eplerenone led to a significant increase in aldosterone. These results confirm the blockade of mineralocorticoid receptor in these populations.

Eplerenone was studied in the eplerenone post-acute myocardial infarction heart failure efficacy and survival study (EPHESUS). EPHESUS was a double blind, placebo controlled study, of 3 year duration, involving 6.632 patients with acute myocardial infarction, left ventricular dysfunction (as measured by left ventricular ejection fraction [LVEF] \leq 40%) and clinical signs of heart failure. Within 3-14 days (median 7 days) after an acute myocardial infarction, patients received eplerenone or placebo in addition to standard therapies, at an initial dose of 25 mg once daily, titrated to the target dose of 50 mg once daily after 4 weeks, as long as serum potassium levels were $<$ 5,0 mmol/l. During the study patients received standard care, including acetylsalicylic acid (92%), ACE inhibitors (90%), β -blockers (83%), nitrates (72%), loop diuretics (66%) or HMG-CoA reductase inhibitors (60%).

In EPHESUS, the co-primary endpoints were all-cause mortality and the combined endpoint death or hospitalization from a cardiovascular cause; 14,4 % of patients assigned to eplerenone and 16,7 % of the patients assigned to placebo died (all causes), while 26,7 % of patients assigned to eplerenone and 30,0 % of the patients assigned to placebo met the combined endpoint death or hospitalization for a cardiovascular cause. Thus, in EPHESUS, eplerenone reduced the risk of death from any cause by 15% (RR 0,85; 95% CI, 0,75-0,96; $p=0,008$), compared to placebo, primarily by reducing cardiovascular (CV) mortality. The risk of cardiovascular death or hospitalization by a cardiovascular cause was reduced by 13% with eplerenone (RR 0,87; 95% CI, 0,79-0,95; $p=0,002$). The absolute risk reductions for the endpoints all causes mortality and mortality/hospitalization by a cardiovascular cause were 2,3 and 3,3%, respectively. Clinical efficacy was primarily demonstrated when eplerenone therapy was initiated in patients aged $<$ 75 years old. The benefits of therapy in those patients over the age of 75 are unclear. NYHA functional classification improved or remained stable for a significantly greater proportion of patients receiving eplerenone compared to placebo. The incidence of hyperkalaemia was 3,4 % in the eplerenone group vs 2,0 % in the placebo group ($p<0,001$). The incidence of hypokalemia was 0,5 % in the eplerenone group vs 1,5 % in the placebo group ($p<0,001$).

No consistent effects of eplerenone on heart rate, QRS complex duration, or PR or QT interval were observed, in 147 normal subjects evaluated for electrocardiographic changes during pharmacokinetic studies.

In the EMPHASIS-HF trial the effect of eplerenone when added to standard therapy was investigated on clinical outcomes in subjects with systolic heart failure and mild symptoms (NYHA functional class II).

Subjects were included if they were at least 55 years old, had a LVEF \leq 30% or LVEF \leq 35% in addition to QRS duration of $>$ 130 msec, and were either hospitalized for CV reasons 6 months prior to inclusion or had a plasma level of B-type natriuretic peptide (BNP) of at least 250 pg/mL or a plasma level of N-terminal pro-BNP of at least 500 pg/mL in men (750 pg/mL in women). Eplerenone was started at a dose of 25 mg once daily and was increased after 4 weeks to 50 mg once daily if the serum potassium level was $<$ 5.0 mmol/L. Alternatively, if the estimated glomerular filtration rate (GFR) was 30-49 mL/min/1.73 m², eplerenone was started at 25 mg on alternate days, and increased to 25 mg once daily.

In total, 2737 subjects were randomized (double-blind) to treatment with eplerenone or placebo including baseline therapy of diuretics (85%), ACE inhibitors (78%), angiotensin II receptor blockers (19%), beta-blockers (87%), anti thrombotic drugs (88%), lipid lowering agents (63%), and digitalis glycosides (27%). The mean LVEF was ~26% and the mean QRS duration was ~122 msec. Most of the subjects (83.4%) were previously hospitalized for CV reasons within 6 months of randomization, with around 50% of them due to heart failure. Around 20% of the subjects had implantable defibrillators or cardiac resynchronization therapy.

The primary endpoint, death from CV causes or hospitalization for heart failure occurred in 249 (18.3%) subjects in the eplerenone group and 356 (25.9%) subjects in the placebo group (RR 0.63, 95% CI, 0.54-0.74; $p < 0.001$). The effect of eplerenone on the primary endpoint outcomes was consistent across all pre-specified subgroups.

The secondary endpoint of all cause mortality was met by 171 (12.5%) subjects in the eplerenone group and 213 (15.5%) subjects in the placebo group (RR 0.76; 95% CI, 0.62-0.93; $p = 0.008$). Death from CV causes was reported in 147 (10.8%) subjects in the eplerenone group and 185 (13.5%) subjects in the placebo group (RR 0.76; 95% CI, 0.61- 0.94; $p = 0.01$).

During the study, hyperkalaemia (serum potassium level > 5.5 mmol/L) was reported in 158 (11.8%) subjects in the eplerenone group and 96 (7.2%) subjects in the placebo group ($p < 0.001$). Hypokalaemia, defined as serum potassium levels < 4.0 mmol/L, was statistically lower with eplerenone when compared to placebo (38.9% for eplerenone compared to 48.4% for placebo, $p < 0.0001$).

Paediatric population:

Eplerenone has not been studied in pediatric subjects with heart failure.

In a 10-week study of paediatric subjects with hypertension (age range 4 to 16 years, $n=304$), eplerenone, at doses (from 25 mg up to 100 mg per day) that produced exposure similar to that in adults, did not lower blood pressure effectively. In this study and in a 1-year paediatric safety study in 149 subjects (age range 5 to 17 years), the safety profile was similar to that of adults. Eplerenone has not been studied in hypertensive subjects less than 4 years old because the study in older paediatric subjects showed a lack of efficacy (see section 4.2).

Any (long term) effect on hormonal status in paediatric subjects has not been studied.

5.2 Pharmacokinetic properties

Absorption and distribution:

The absolute bioavailability of eplerenone is unknown. Maximum plasma concentrations are reached after about 2 hours. Both peak plasma levels (C_{max}) and area under the curve (AUC) are dose proportional for doses of 10 to 100 mg, and less than proportional at doses above 100 mg. Steady state is reached within 2 days. Absorption is not affected by food.

The plasma protein binding of eplerenone is about 50%, and it is primarily bound to alpha 1-acid glycoproteins. The apparent volume of distribution at steady state is estimated to be 50 (± 7) litres. Eplerenone does not preferentially bind to red blood cells.

Metabolism and excretion:

Eplerenone metabolism is primarily mediated via CYP3A4. No active metabolites of eplerenone have been identified in human plasma.

Less than 5% of an eplerenone dose is recovered as unchanged drug in the urine and faeces. Following a single oral dose of radiolabeled drug, approximately 32% of the dose was excreted in the faeces and approximately 67% was excreted in the urine. The elimination half-life of eplerenone is approximately 3 to 5 hours. The apparent plasma clearance is approximately 10 l/h.

Special populations

Age, Gender and Race: The pharmacokinetics of eplerenone at a dose of 100 mg once daily, has been investigated in the elderly (≥ 65 years), in males and females and in blacks. The pharmacokinetics of eplerenone was not significantly different between males and females. At steady state, elderly patients had increases in C_{max} (22%) and AUC (45%) compared with younger subjects (18 to 45 years). At steady state C_{max} was 19% lower and AUC was 26% lower in blacks (see section 4.2).

Paediatric population: A population pharmacokinetic model for eplerenone concentrations from two studies in 51 paediatric hypertensive subjects of ages 4 to 16 years identified that patient body weight had a statistically significant effect on eplerenone volume of distribution but not on its clearance. Eplerenone volume of distribution and peak exposure in a heavier paediatric patient are predicted to be similar to that in an adult of similar body weight; in a lighter 45 kg patient, the volume of distribution is about 40% lower and the peak exposure is predicted to be higher than typical adults. Eplerenone treatment was initiated at 25 mg once daily in paediatric patients and increased to 25 mg twice daily after 2 weeks and eventually to 50 mg twice daily, if clinically indicated. At these doses, the highest observed eplerenone concentrations in paediatric subjects were not substantially higher than those in adults initiated at 50 mg once daily.

Renal insufficiency: The pharmacokinetic of eplerenone was evaluated in patients with varying degrees of renal insufficiency and in patients undergoing hemodialysis. Compared with control subjects, steady state AUC and C_{max} were increased by 38% and 24%, respectively, in patients with severe renal impairment, and were decreased by 26% and 3%, respectively, in patients undergoing hemodialysis. No correlation was observed between plasma clearance of eplerenone and creatinine clearance. Eplerenone is not removed by hemodialysis (see section 4.4).

Hepatic Insufficiency: The pharmacokinetic of eplerenone 400 mg has been investigated in patients with moderate hepatic impairment (Child-Pugh Class B) and compared with normal subjects. Steady state C_{max} and AUC of eplerenone were increased by 3.6% and 42%, respectively (see section 4.2). Since the use of eplerenone has not been investigated in patients with severe hepatic impairment, its use is contraindicated in this group of patients (see section 4.3).

Heart failure: The pharmacokinetic of eplerenone 50 mg was evaluated in patients with heart failure (NYHA class II-IV). Compared with healthy subjects, matched according to age, weight and gender, steady state AUC and C_{max} in patients with heart failure were 38% and 30%, respectively, higher. Consistent with these results, a pharmacokinetic evaluation of eplerenone, based in a subset of patients from EPHEBUS, indicates that clearance of eplerenone in patients with heart failure was similar to that in healthy elderly subjects.

5.3 Preclinical safety data

Preclinical studies of pharmacological safety, genotoxicity, carcinogenic potential and toxicity to reproduction revealed no special hazards for humans.

In repeated dose toxicity studies the occurrence of prostate atrophy was observed in rats and dogs, at exposure levels slightly above clinical exposure levels.

The prostatic changes were not associated with adverse functional consequences. The clinical relevance of these results is unknown.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Tablet core:

Lactose monohydrate
Microcrystalline cellulose
Croscarmellose sodium
Hypromellose
Sodium laurilsulfate
Talc
Magnesium stearate.

Tablets coating:

Opadry yellow:
Hypromellose
Titanium dioxide (E171)
Macrogol
Polysorbate 80
Iron Oxide Yellow (E172)
Iron Oxide Red (E172).

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

3 years.

6.4 Special precautions for storage

The product does not require any special storage conditions.

6.5 Nature and contents of container

Eplerenone tablets are packed in white PVC/PVDC Aluminum blisters containing 28 tablets.

6.6 Special precautions for disposal and other handling

There are no special requirements.

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

7 MARKETING AUTHORISATION HOLDER

Morningside Healthcare (Malta) Limited
93 Mill Street
Qormi QRM 3102
Malta

8 MARKETING AUTHORISATION NUMBER

PA23142/001/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of First Authorisation: 5th April 2013

Date of Last Renewal: 5th April 2018

10 DATE OF REVISION OF THE TEXT

December 2020