

# Summary of Product Characteristics

## 1 NAME OF THE MEDICINAL PRODUCT

MST Continus 100mg Prolonged-release tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains morphine equivalent to morphine sulfate 100 mg.

For the full list of excipients, see section 6.1

## 3 PHARMACEUTICAL FORM

Film-coated prolonged-release tablet

Grey tablets marked with the Napp logo on one side and 100mg on the other.

## 4 CLINICAL PARTICULARS

### 4.1 Therapeutic Indications

For the prolonged relief of severe and intractable pain and in the short term control of post-operative pain.

### 4.2 Posology and method of administration

#### Posology

#### Adults

A patient presenting with severe pain, uncontrolled by weaker opioids (e.g. dihydrocodeine) should normally be started on 30 mg 12 hourly. Patients previously on normal release oral morphine should be given the same total daily dose as MST CONTINUS tablets but in divided doses at 12-hourly intervals.

Increasing severity of pain will require an increased dosage of the tablets. Higher doses should be made, where possible in 30-50% increments as required. The correct dosage for any individual patient is that which is sufficient to control pain with no, or tolerable, side effects for a full 12 hours. It is recommended that the 200 mg strength is reserved for patients who have already been titrated to a stable analgesic dose using lower strengths of morphine or other opioid preparations.

Patients receiving MST CONTINUS tablets in place of parenteral morphine should be given a sufficiently increased dosage to compensate for any reduction in analgesic effects associated with oral administration. Usually such increased requirement is of the order of 100%. In such patients individual dose adjustments are required.

#### Paediatric population

For children with severe cancer pain, a starting dose in the range of 0.2 to 0.8 mg morphine per kg bodyweight 12 hourly is recommended. Doses should then be titrated as for adults.

#### Post-operative pain

MST CONTINUS tablets are not recommended in the first 24 hours post-operatively or until normal bowel function has returned; thereafter it is suggested that the following dosage schedule be observed at the physician's discretion:

- (a) MST CONTINUS tablets 20 mg 12 hourly to patients under 70 kg
- (b) MST CONTINUS tablets 30 mg 12 hourly to patients over 70 kg

- (c) Elderly - a reduction in dosage may be advisable in the elderly
- (d) Children - not recommended

Supplemental parenteral morphine may be given if required but with careful attention to the total dosages of morphine, and bearing in mind the prolonged effects of morphine in this prolonged release formulation.

#### Method of administration:

Oral.

MST CONTINUS tablets should be swallowed whole and not broken, chewed or crushed. The administration of broken, chewed or crushed tablets may lead to a rapid release and absorption of a potentially fatal dose of morphine (see section 4.9, Overdose).

MST CONTINUS tablets should be used at 12-hourly intervals. The dosage is dependent upon the severity of the pain, the patient's age and previous history of analgesic requirements.

### **4.3 Contraindications**

Hypersensitivity to the active substance or to any of the constituents listed in section 6.1.

Respiratory depression, head injury, paralytic ileus, 'acute abdomen', delayed gastric emptying, obstructive airways disease, acute hepatic disease, concurrent administration of monoamine oxidase inhibitors or within two weeks of discontinuation of their use.

Children under one year of age.

Pre-operative administration of MST CONTINUS tablets is not recommended, or for the first 24 hours post-operatively.

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

As with all narcotics a reduction in dosage may be advisable in the elderly, in hypothyroidism and in patients with significantly impaired renal, hepatic or respiratory function. Use with caution in opiate dependent patients and in patients with severe bronchial asthma, a history of substance abuse, convulsive disorders, raised intracranial pressure, hypotension with hypovolaemia, severe cor pulmonale, diseases of the biliary tract, pancreatitis, inflammatory bowel disorders, prostatic hypertrophy, adrenocortical insufficiency, acute alcoholism and delirium tremens.

Morphine may lower the seizure threshold in patients with a history of epilepsy.

Should paralytic ileus be suspected or occur during use, MST CONTINUS tablets should be discontinued immediately.

As with all morphine preparations, patients who are about to undergo additional pain relieving procedures (e.g. surgery, plexus blockade) should not receive MST CONTINUS tablets for 24 hours prior to the intervention. If further treatment with MST CONTINUS tablets is indicated, then the dosage should be adjusted to the new post-operative requirement.

As with all oral morphine preparations, MST CONTINUS tablets should be used with caution post-operatively, and following abdominal surgery as morphine impairs intestinal motility and should not be used until the physician is assured of normal bowel function. MST CONTINUS tablets are not recommended preoperatively or within the first 24 hours postoperatively.

The major risk of opioid excess is respiratory depression.

The patient may develop tolerance to the drug with chronic use and require progressively higher doses to maintain pain control. Prolonged use of this product may lead to physical dependence and a withdrawal syndrome may occur upon abrupt cessation of therapy. When a patient no longer requires therapy with morphine, it may be advisable to taper the dose gradually to prevent symptoms of withdrawal.

Hyperalgesia that will not respond to a further dose increase of morphine sulfate may occur, particularly in high doses. A morphine sulfate dose reduction or change in opioid may be required.

Morphine has an abuse profile similar to other strong agonist opioids. Morphine may be sought and abused by people with latent or manifest addiction disorders. There is potential for development of psychological dependence (addiction) to opioid analgesics, including morphine. The product should be used with particular care in patients with a history of alcohol and drug abuse.

The prolonged release tablets must be swallowed whole, and not broken, chewed, dissolved or crushed. The administration of broken, chewed or crushed tablets may lead to a rapid release and absorption of a potentially fatal dose of morphine (see section 4.9).

Abuse of oral dosage forms by parenteral administration can be expected to result in serious adverse events, which may be fatal.

Concomitant use of alcohol and MST CONTINUS tablets may increase the undesirable effects of MST CONTINUS tablets; concomitant use should be avoided.

It is not possible to ensure bio-equivalence between different brands of prolonged release morphine products. Therefore, it should be emphasised that patients, once titrated to an effective dose, should not be changed from MST CONTINUS preparations to other slow, sustained or prolonged release morphine or other potent narcotic analgesic preparations without retitration and clinical assessment.

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

Morphine potentiates the effects of tranquillisers, general anaesthetics, phenothiazines, other central nervous system depressants including hypnotics or sedatives, muscle relaxants, antihypertensives and gabapentin.

Morphine should not be co-administered with monoamine oxidase inhibitors or within two weeks of such therapy. Interactive effects resulting in respiratory depression, hypotension, profound sedation, or coma may result if these drugs are taken in combination with the usual doses of morphine (see section 4.3).

Alcohol may enhance the pharmacodynamic effects of MST CONTINUS tablets; concomitant use should be avoided.

Medicinal products that block the action of acetylcholine, for example antihistamines, anti-parkinsons and anti-emetics, may interact with morphine to potentiate anticholinergic adverse events.

Cimetidine inhibits the metabolism of morphine.

Plasma concentrations of morphine may be reduced by rifampicin.

Although there are no pharmacokinetic data available for concomitant use of ritonavir with morphine, ritonavir induces the hepatic enzymes responsible for the glucuronidation of morphine, and may possibly decrease plasma concentrations of morphine.

## **4.6 Fertility, pregnancy and lactation**

### Pregnancy

MST CONTINUS tablets are not recommended during pregnancy and labour due to the risk of neonatal respiratory depression. Prolonged use of morphine sulfate during pregnancy can result in neonatal opioid withdrawal syndrome.

Breast-feeding

Administration to nursing mothers is not recommended as morphine is excreted in breast milk.

4.7 Effects on ability to drive and use machines

Morphine may modify the patient's reactions to a varying extent depending on the dosage and susceptibility. If affected, patients should not drive or operate machinery.

4.8 Undesirable effects

In normal doses, the commonest side effects of morphine are nausea, vomiting, constipation and drowsiness. With chronic therapy, nausea and vomiting are unusual with MST CONTINUS tablets but should they occur the tablets can be readily combined with an anti-emetic if required. Constipation may be treated with appropriate laxatives.

The following frequencies are the basis for assessing undesirable effects:

- Very common (≥ 1/10)
- Common (≥ 1/100 to < 1/10)
- Uncommon (≥ 1/1,000 to <1/100)
- Rare (≥ 1/10,000 to < 1/1,000)
- Very rare (<1/10,000)
- Not known (cannot be estimated from the available data)

|   | Very Common            | Common   | Uncommon  | Not known   |
|---|------------------------|--|---|---|
| Immune system disorders                         |                        |  | Hypersensitivity  | Anaphylactic reaction<br>Anaphylactoid reaction       |
| Psychiatric disorders                           |                        | Confusion<br>Insomnia  | Agitation<br>Euphoria<br>Hallucinations<br>Mood altered           | Thinking disturbances<br>Drug dependence<br>Dysphoria |
| Nervous system disorders                        |                        | Dizziness<br>Headache<br>Involuntary muscle contractions<br>Somnolence | Convulsions<br>Hypertonia<br>Paraesthesia<br>Syncope<br>Myoclonus | Hyperalgesia (see section 4.4)                        |
| Eye disorders                                   |                        |  | Visual disturbance  | Miosis  |
| Ear and labyrinth disorders                     |                        |  | Vertigo   |   |
| Cardiac disorders                               |                        |  | Palpitations  | Bradycardia<br>Tachycardia                            |
| Vascular disorders                              |                        |  | Facial flushing<br>Hypotension                                    | Hypertension  |
| Respiratory, thoracic and mediastinal disorders |                        |  | Pulmonary oedema<br>Respiratory depression<br>Bronchospasm        | Cough decreased                                       |
| Gastrointestinal disorders                      | Nausea<br>Constipation | Abdominal pain<br>Anorexia<br>Dry mouth<br>Vomiting                    | Ileus<br>Taste perversion<br>Dyspepsia                            |   |
| Hepatobiliary disorders                         |                        |  | Increased hepatic enzymes   | Biliary pain<br>Exacerbation of pancreatitis          |

|  |  |  |                   |   |
|--|--|--|-------------------|---|
| Skin and subcutaneous tissue disorders               |  | Hyperhidrosis<br>Rash                      | Urticaria         |   |
| Renal and urinary disorders                          |  |  | Urinary retention | Ureteric spasm  |
| Reproductive system and breast disorders             |  |  |                   | Amenorrhoea<br>Decreased libido<br>Erectile dysfunction                         |
| General disorders and administration site conditions |  | Asthenia<br>Fatigue<br>Malaise<br>Pruritus | Peripheral oedema | Drug tolerance<br>Drug withdrawal syndrome<br>Drug withdrawal syndrome neonatal |

The effects of morphine have led to its abuse and dependence may develop with regular, inappropriate use. This is not a major concern in the treatment of patients with severe pain.

**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](http://www.hpra.ie); E-mail: [medsafety@hpra.ie](mailto:medsafety@hpra.ie)

**4.9 Overdose**

Signs of morphine toxicity and overdose are pin-point pupils, skeletal muscle flaccidity, bradycardia, hypotension, respiratory depression, pneumonia aspiration, somnolence and central nervous system depression which can progress to stupor or coma. Circulatory failure and deepening coma may occur in more severe cases. Overdose can result in death. Rhabdomyolysis progressing to renal failure has been reported in opioid overdose.

Crushing and taking the contents of a prolonged release dosage form may lead to the release of morphine in an immediate fashion; this might result in a fatal overdose.

Treatment of morphine overdose:

Primary attention should be given to the establishment of a patent airway and institution of assisted or controlled ventilation.

The pure opioid antagonists are specific antidotes against the effects of opioid overdose. Other supportive measures should be employed as needed.

In the case of massive overdose, administer naloxone 0.8 mg intravenously. Repeat at 2-3 minute intervals as necessary, or by an infusion of 2 mg in 500 ml of normal saline or 5% dextrose (0.004 mg/ml).

The infusion should be run at a rate related to the previous bolus doses administered and should be in accordance with the patient's response. However, because the duration of action of naloxone is relatively short, the patient must be carefully monitored until spontaneous respiration is reliably re-established. MST CONTINUS tablets will continue to release and add to the morphine load for up to 12 hours after administration and the management of morphine overdosage should be modified accordingly.

For less severe overdose, administer naloxone 0.2 mg intravenously followed by increments of 0.1 mg every 2 minutes if required.

Naloxone should not be administered in the absence of clinically significant respiratory or circulatory depression secondary to morphine overdose.

Naloxone should be administered cautiously to persons who are known, or suspected, to be physically dependent on morphine. In such cases, an abrupt or complete reversal of opioid effects may precipitate an acute withdrawal syndrome.

## 5 PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

**Pharmacotherapeutic group: Natural opium alkaloid**

ATC code: NO2A A01

Morphine acts as an agonist at opiate receptors in the CNS particularly Mu and to a lesser extent Kappa receptors. Mu receptors are thought to mediate supraspinal analgesia, respiratory depression and euphoria, and Kappa receptors, spinal analgesia, miosis and sedation.

#### *Central Nervous System*

The principal actions of therapeutic value of morphine are analgesia and sedation (i.e., sleepiness and anxiolysis). Morphine produces respiratory depression by direct action on brain stem respiratory centres.

Morphine depresses the cough reflex by direct effect on the cough centre in the medulla. Antitussive effects may occur with doses lower than those usually required for analgesia. Morphine causes miosis, even in total darkness. Pinpoint pupils are a sign of narcotic overdose but are not pathognomonic (e.g., pontine lesions of haemorrhagic or ischaemic origin may produce similar findings). Marked mydriasis rather than miosis may be seen with hypoxia in the setting of morphine overdose.

#### *Gastrointestinal Tract and Other Smooth Muscle*

Morphine causes a reduction in motility associated with an increase in smooth muscle tone in the antrum of the stomach and duodenum. Digestion of food in the small intestine is delayed and propulsive contractions are decreased. Propulsive peristaltic waves in the colon are decreased, while tone is increased to the point of spasm resulting in constipation. Morphine generally increases smooth muscle tone, especially the sphincters of the gastrointestinal and biliary tracts. Morphine may produce spasm of the sphincter of Oddi, thus raising intrabiliary pressure.

#### *Cardiovascular System*

Morphine may produce release of histamine with or without associated peripheral vasodilation. Manifestations of histamine release and/or peripheral vasodilation may include pruritus, flushing, red eyes, sweating, and/or orthostatic hypotension.

#### *Endocrine System*

Opioids may influence the hypothalamic-pituitary-adrenal or -gonadal axes. Some changes that can be seen include an increase in serum prolactin, and decreases in plasma cortisol and testosterone in association with inappropriately low or normal ACTH, LH or FSH levels. Some premenopausal women may have low oestrogen levels. Clinical symptoms may be manifest from these hormonal changes.

#### *Other Pharmacological Effects*

In vitro and animal studies indicate various effects of natural opioids, such as morphine, on components of the immune system; the clinical significance of these findings is unknown.

### 5.2 Pharmacokinetic properties

Morphine is well absorbed from MST CONTINUS tablets. However first pass metabolism does occur. Apart from the liver, metabolism also occurs in the kidney and intestinal mucosa. The major urinary metabolite is morphine-3-glucuronide but morphine-6-glucuronide is also formed. Morphine-3-glucuronide also appears in the bile and is excreted into the intestine, hydrolysed and absorbed as free morphine. The half life for morphine in plasma is approximately 2.5 - 3.0 hours.

### 5.3 Preclinical safety data

There are no pre-clinical data of relevance to the prescriber which are additional to that already included in other sections of the SPC.

## 6 PHARMACEUTICAL PARTICULARS

### 6.1 List of excipients

Hyetellose  
 Cetostearyl alcohol  
 Magnesium stearate  
 Talc

Film-coat:  
 Hypromellose (E464)  
 Macrogol 400  
 Titanium dioxide (E171)  
 Iron oxide (E172)  
 Indigo carmine (E132)

### 6.2 Incompatibilities

Not applicable.

### 6.3 Shelf life

3 years.

### 6.4 Special precautions for storage

Do not store above 25°C.  
 Store in the original package.

### 6.5 Nature and contents of container

Aluminium foil backed PVdC/PVC blister pack (60 tablets).  
 Polypropylene container with polyethylene lid (60 tablets).

Not all pack sizes may be marketed.

### 6.6 Special precautions for disposal and other handling

No special requirements.

## 7 MARKETING AUTHORISATION HOLDER

Mundipharma Pharmaceuticals Limited  
 Millbank House  
 Arkle Road  
 Sandyford  
 Dublin 18  
 Ireland

**8 MARKETING AUTHORISATION NUMBER**

PA1688/004/006

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

Date of first authorisation: 29 November 1983

Date of last renewal: 03 April 2010

**10 DATE OF REVISION OF THE TEXT**

May 2017