SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

BETADINE Throat Spray 0.45% w/v Oromucosal Spray Solution

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Povidone iodine 0.45 % w/v

Betadine Throat Spray contains 4.5 mg/ml of povidone-iodine. One metered-dose spray contains 0.9 mg of povidone-iodine.

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Oromucosal spray, solution

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Betadine Throat Spray is indicated for oral hygiene and acute treatment of oromucosal and pharyngeal infections of viral, bacterial or fungal origin such as: Sore throat (pharyngitis).

4.2 Posology and method of administration

Posology:

For oromucosal use only.

Method of administration

Adult and children aged 6 years and above: one spray onto the back of the throat or affected mouth area every 3-4 hours as needed, up to 3 sprays per day for a maximum of 7 days.

Use in children between 1 year to less than 6 years of age can only be considered by healthcare professional after consideration of the patient's condition.

Administration of the dose to children should be supervised by an adult.

Do not use if the tamper evident seal is broken.

Instructions for Use:

1. Remove the cap from the nozzle. For a new bottle, prime the pump spray by completely pushing down the pump several times (at least 4 times).

2. Tilt the head back slightly, open the mouth and aim the nozzle towards the back of the throat or affected mouth area. Hold your breath and press the pump completely down to spray. Do not breathe in the spray.

3. After each use, wash the pump spray head under clean water and dry. Wipe the nozzle and place the cap back after use.

4.3 Contraindications

- Hypersensitivity to iodine or povidone or to any of the excipients listed in section 6.1.
- Thyroid dysfunction.
- During radioiodine scintigraphy or radioiodine treatment. An interval of at least 4 weeks is required prior to or after radioiodine investigations/treatments (see section 4.5)
- Products containing mercury, should not be used concomitantly due to formation of a substance which can damage the skin.
- Children below the age of 1 year.

4.4 Special warnings and precautions for use

In instances of local irritation or sensitivity, discontinue use.

In oropharyngeal use, precautions should be taken to prevent aspiration of Betadine Throat Spray into the respiratory tract as this may cause complications such as pneumonitis. This may particularly occur in intubated patients.

This medicine contains 40 mg of alcohol (ethanol) in each dose (spray). The amount in each dose (spray) of this medicine is equivalent to less than 1 ml of beer or wine. The small amount of alcohol in this medicine should not have any noticeable effects.

Special caution is needed in pregnant and breast-feeding patients. In such cases benefit/risk assessment should be performed and povidone iodine should only be administered if clearly necessary (see section 4.6).

For use in the mouth and throat only.

4.5 Interaction with other medicinal products and other forms of interaction

The PVP-iodine complex is effective at pH values of between 2.0 and 7.0. It has to be expected that the complex will react with protein and other unsaturated organic compounds, leading to impairment of its effectiveness.

The concomitant use of preparations containing enzymatic components leads to a weakening of the effects of both substances. Products containing silver, hydrogen peroxide and taurolidine may interact with povidone iodine and cause mutual reduction of efficacy.

Povidone iodine products when used before or after application of octenidine may lead to transient dark discolorations at the application site.

Due to the oxidative effect of povidone-iodine preparations various diagnostic agents can show false-positive laboratory results (e.g. tests with toluidine or gum guaiac for the determination of haemoglobin or glucose in the stool or the urine).

Absorption of iodine from Betadine Throat Spray may lower the radioiodine uptake of the thyroid. This can lead to interference with various investigations (thyroid scintigraphy, determination of protein-bound iodine PBI, radioiodine diagnostics) and can interfere with treatment of the thyroid with iodine (radioiodine therapy). After the end of the treatment, 4 weeks should be allowed before a new scintigram is carried out (see section 4.3).

4.6 Fertility, pregnancy and lactation

Pregnancy

There is insufficient data on the use of povidone iodine during pregnancy. Animal studies are limited with respect to reproductive toxicity (see section 5.3). Absorbed iodine has been shown to cross the placental barrier, and during pregnancy, Betadine Throat Spray , should only be used if the clinical condition of the woman requires treatment with povidone iodine.

Breastfeeding

Absorbed iodine is excreted in breast milk to such an extent that effects on breastfed newborns are likely. Iodine can be concentrated in breast milk, compared to serum and may induce transient hypothyroidism with elevation of TSH (thyroid stimulating hormone) in the newborn. In these cases, a check of the child’s thyroid function may be necessary. Betadine Throat Spray should not be used during breastfeeding.

Fertility

There are no data on the effects of povidone iodine on fertility.

4.7 Effects on ability to drive and use machines

Betadine Throat Spray , has no influence on the ability to drive and use machines.

4.8 Undesirable effects

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)

Immune system disorders

Rare *Hypersensitivity*

Very rare *Anaphylactic reaction*

Endocrine disorders

Very rare *Hyperthyroidism (sometimes with symptoms such as tachycardia or restlessness) **

Unknown *Hypothyroidism ****

Metabolism and nutrition disorders

Unknown *Electrolyte imbalance **, Metabolic acidosis **

Skin and subcutaneous disorders

Very rare *Angioedema*

Respiratory, thoracic and mediastinal disorders

Unknown *Pneumonitis*

Renal and urinary disorders

Unknown *Acute renal failure**, Blood osmolarity abnormal**

* In patients with a history of thyroid disease (see under Special Warnings and Special Precautions for Use) following a notable uptake of iodine

** May occur following uptake of large amounts of povidone iodine

*** Hypothyroidism following prolonged or extensive use of povidone iodine

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 at: www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store.

4.9 Overdose

Acute iodine toxicity is manifested by abdominal symptoms, anuria, circulatory collapse, pulmonary oedema and metabolic abnormalities.

Systemic toxicity may result in renal impairment (including anuria), tachycardia, hypotension, circulatory failure, oedema of glottis resulting in asphyxia, or pulmonary oedema, seizures, fever and metabolic acidosis. Hyperthyroidism or hypothyroidism may also develop.

Treatment is symptomatic and supportive.

For severe hypotension, intravenous fluid should be administered; vasopressors should be added if necessary.

Endotracheal intubation may be required if caustic injury to the upper airway results in significant swelling and oedema.

Vomiting should not be induced. Patient should be maintained in a position to keep the airways open and prevent aspiration (in case of vomiting).

If the patient is not vomiting and can tolerate oral feeding, then ingestion of starchy food (e.g. potato, flour, starch, bread) may help convert iodine to less toxic iodide. If no signs of bowel perforation are present, irrigation of the stomach with starch solution via nasogastric tube may be utilised (gastric effluent will turn dark blue-purple and the colour can be used as a guide in determining when lavage can be terminated).

Haemodialysis effectively clears iodine and should be employed in severe cases of iodine poisoning particularly if renal failure is present. Continuous venous haemodiafiltration is less effective than haemodialysis.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Antiseptics, ATC code: R02AA15

Mechanism of action

Povidone iodine is a complex of elemental iodine (I^2, the active moiety) and the synthetic polymer povidone, (PVP), which acts as a sustained release reservoir of iodine (PVP does not have any intrinsic antibacterial activity) and also enables easier contact of iodine to cell membranes. As povidone iodine comes in contact with the skin and mucous membranes, iodine dissociates from the povidone iodine polymer complex; it is the free iodine that rapidly causes microbicidal activity, whereas iodine bound to the polymer serves as an iodine reservoir. This gradual release of iodine reduces the drawbacks associated with the presence of elemental iodine and maintains its highly effective microbicidal activity. The free iodine rapidly penetrates microorganisms and attacks the key groups of proteins, amino acids, nucleotides and unsaturated fatty acids. It reacts with thiol, sulfhydryl and hydroxyl groups of the amino acids in the enzymes and structural proteins of the microorganisms thereby oxidising them.

Pharmacodynamic effects

Povidone iodine has demonstrated a rapid anti-bacterial (gram positive and gram negative), anti-fungal and viricidal activity (enveloped and non-enveloped viruses). No development of resistance has been observed for povidone iodine, during >60 years of extensive use in hospitals, dental and medical practices. Povidone iodine remains effective against antibiotic resistance micro-organisms and there is no change in its sensitivity.

5.2 Pharmacokinetic properties

Absorption:

Following oromucosal administration, limited amount of iodine (~ 10%) is absorbed. A negligible amount of povidone (~ 35 KDa) could be absorbed into the systemic circulation.

Distribuition:

Absorbed iodine/iodide is distributed throughout the body *via* the circulatory system. A portion (approximately 30%) is removed by the thyroid for hormonal synthesis. Iodine is also distributed (despite to a minor extent) to different organs including liver, blood and thyroid gland after 24 hours. Iodine crosses the placenta and is excreted in breast milk.

Povidone does not pass the blood brain barrier or cross the placenta.

Metabolism:
Iodine is reduced to iodide and is concentrated from the blood stream into the thyroid follicular cell through the action of the sodium/iodide symporter (NIS). The thyroid-

stimulating hormone (TSH) stimulates iodide transport from the blood into thyroid cells, oxidation of iodide to iodine and iodine binding to tyrosine. The metabolism of povidone is minimal (< 0.3%).

Excretion:
Iodine, unless utilised in the thyroid, is excreted mainly *via* urine. Povidone does not cross the placenta and is not excreted in breast milk.

5.3 Preclinical safety data

Acute toxicity

Acute, subchronic and chronic toxicity studies with povidone iodine show toxicity, following systemic administration, at relatively high doses and as such the toxicity is not considered relevant to clinical use.

Genotoxicity

Several *in vitro* genetic toxicology studies suggest that povidone iodine may be mutagenic, while other studies have shown negative findings, including separate *in vivo* studies. Taking into account the toxicity of povidone iodine to the *in vitro* test systems, the weight of evidence suggests that povidone iodine is not genotoxic. No long-term studies in animals have been conducted to evaluate the carcinogenic potential povidone iodine.

Reproductive and developmental toxicity

Developmental toxicity studies in the rabbit indicate that a low molecular weight povidone iodine complex (16-75 mg/kg/day) caused a dose dependent decrease in body weight gain in the mother. The dams showed a dose dependent loss of weight increase and the average embryo and placenta weights were lower than those of the control animals. This study did not reveal any teratogenic effects.

In a study in the rat, the NOAEL following administration of iodine was < 28 mg/kg/day for F0 and F1 due to diminished milk secretion and decreased survival of pups. No other effects were reported. Following administration of iodine via drinking water for 100 days in the rat, T3 significantly decreased and T4/T3 significantly increased at 10 mg/kg/day.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Glycerol (E422)

Ethanol

Levomenthol

Eucalyptus Oil

Potassium Iodide

Purified Water.

6.2 Incompatibilities

Povidone iodine should not be used together with alkali, hydrogen peroxide, taurolidine, tannic acid, and silver and mercury salts.

6.3 Shelf life

3 years.

After first opening: 3 months

6.4 Special precautions for storage

Store below 25°C.

Flammable: contains alcohol. Keep away from open flames or heat.

6.5 Nature and contents of container

High density polyethylene (HDPE) container with a spray pump and a polystyrene copolymer cap enclosed in a printed carton.

Pack size: 50ml.

6.6 Special precautions for disposal

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

7 MARKETING AUTHORISATION HOLDER

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8 MARKETING AUTHORISATION NUMBER(S)

PL 58442/0002

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31/10/2024