SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Liothyronine Sodium 20micrograms Tablets

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains 20micrograms liothyronine sodium

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Tablets
Round, white tablets with “KL” embossed on one side and a break line on the other. The score line is not intended for breaking the tablet.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Liothyronine is indicated in adults and children for the treatment of coma of myxedema, the management of severe chronic thyroid deficiency and hypothyroid states occurring in the treatment of thyrotoxicosis.

Liothyronine sodium can be used also as an adjunct to carbimazole to prevent subclinical hypothyroidism developing during carbimazole treatment of thyrotoxicosis.

Liothyronine sodium may be preferred for treating severe and acute hypothyroid states because of its rapid and more potent effect, but thyroxine sodium is normally the drug of choice for routine replacement therapy.

4.2 Posology and method of administration

Posology

Adults:
Starting dose of 10 or 20 micrograms every 8 hours, increasing after one week, if necessary, to the usual recommended daily dose of 60 micrograms in two or three divided doses.

Myxedema Coma:
60 micrograms given by stomach tube, then 20 micrograms every 8 hours. It is more usual to start treatment with intravenous liothyronine.

Adjunct to carbimazole treatment of thyrotoxicosis:
20 micrograms every 8 hours.

Paediatric population:
Children below 12 years:
A dose of 5 micrograms daily.

Adolescents: 12 – 17 years:
Initially 10-20 micrograms daily; increased to 60 micrograms daily in 2-3 divided doses.

Elderly:
A dose of 5 micrograms daily.

Method of Administration:
For oral use only.

- For doses lower than 20 micrograms, the tablet should be allowed to dissolve/disperse in 20 mL of water for 10 minutes, in a small measuring cup.
- The patient should gently swirl the solution occasionally to aid the dissolution/dispersion. The patient should then swirl the solution for a few seconds prior to using a suitable oral syringe to withdraw the amount of liquid corresponding to the dose prescribed (5mL for a 5micrograms dose; 10 mL for a 10micrograms dose).
- The patient can then squirt the liquid directly into their mouth from the suitable oral syringe by gently pressing the plunger.
- Any remaining liquid should be discarded.
- The solubility of liothyronine in water enables this as a method of administration.

4.3 Contraindications

Hypersensitivity to the active substance(s) or to any of the excipients listed in section 6.1.

Patients with angina of effort or cardiovascular diseases and thyrotoxicosis.

4.4 Special warnings and precautions for use

In severe and prolonged hypothyroidism, adrenocortical activity may be decreased. When thyroid replacement therapy is started, metabolism increases more than adrenocortical activity and this can lead to adrenocortical insufficiency requiring supplemental adrenocortical steroids.

Liothyronine rather than levothyroxine would be the replacement therapy of choice during block and replace treatment of thyrotoxicosis with propylthiouracil (PTU) due to the inhibition by PTU of the peripheral conversion of T4 to T3.

Liothyronine sodium treatment may result in an increase in insulin or anti-diabetic drug requirements. Care is required for patients with diabetes mellitus and diabetes insipidus.

In myxoedema, care must be taken to avoid imposing excessive burden on cardiac muscle affected by prolonged severe thyroid depletion. Particular care is needed in the elderly who have a greater risk of occult cardiovascular disease. Baseline ECG is recommended prior to commencement of liothyronine treatment in order to detect changes consistent with ischaemia. Patients should undergo cardiovascular monitoring, including periodic ECGs, during liothyronine treatment. Liothyronine is contraindicated in established myocardial ischaemia (see section 4.3) in which case, levothyroxine, with cautious dose escalation, is recommended instead.

Panhypopituitarism or predisposition to adrenal insufficiency (initiate corticosteroid therapy before starting liothyronine), pregnancy, breast-feeding (see section 4.6).

If metabolism increases too rapidly (causing diarrhoea, nervousness, rapid pulse, insomnia, tremors and sometimes anginal pain where there is latent myocardial ischaemia), reduce dose or withhold for 1-2 days and start again at a lower dose.

Thyroid function should continue to be monitored throughout treatment to avoid over- or under-treatment. The risks of over-treatment include atrial fibrillation, osteoporosis and bone fractures.

<u>Interferences with laboratory test</u>
Biotin may interfere with thyroid immunoassays that are based on a biotin/streptavidin interaction, leading to either falsely decreased or falsely increased test results. The risk of interference increases with higher doses of biotin.

When interpreting results of laboratory tests, possible biotin interference has to be taken into consideration, especially if a lack of coherence with the clinical presentation is observed.

For patients taking biotin-containing products, laboratory personnel should be informed when a thyroid function test is requested. Alternative tests not susceptible to biotin interference should be used, if available (see section 4.5).

Excipients
This medicine contains less than 1 mmol sodium (23 mg) per dose, that is to say essentially ‘sodium-free’.

4.5 Interaction with other medicinal products and other forms of interaction

Liothyronine sodium therapy may potentiate the action of anticoagulants. Phenytoin levels may be increased by liothyronine. Anticonvulsants, such as carbamazepine and phenytoin enhance the metabolism of thyroid hormones and may displace thyroid hormones from plasma proteins. Initiation or discontinuation of anticonvulsant therapy may alter liothyronine dose requirements.

If co-administered with cardiac glycosides, adjustment of dosage of cardiac glycoside may be necessary. Colestyramine and colestipol given concurrently reduces gastrointestinal absorption of liothyronine.

Liothyronine raises blood sugar levels and this may upset the stability of patients receiving antidiabetic agents.

Liothyronine increases receptor sensitivity to catecholamines thus accelerating the response to tricyclic antidepressants. A number of drugs may affect thyroid function tests and this should be borne in mind when monitoring patients on liothyronine therapy.

Co-administration of oral contraceptives may result in an increased dosage requirement of liothyronine sodium.

Amiodarone may inhibit the deiodination of thyroxine to triiodothyronine resulting in a decreased concentration of triiodothyronine with a rise in the concentration of inactive reverse triiodothyronine.

As with other thyroid hormones, Liothyronine may enhance effects of amitriptyline and effects of imipramine.

Metabolism of thyroid hormones accelerated by barbiturates and primidone (may increase requirements for thyroid hormones in hypothyroidism).

Requirements for thyroid hormones in hypothyroidism may be increased by oestrogens.

Interferences with laboratory test
Biotin may interfere with thyroid immunoassays that are based on a biotin/streptavidin interaction, leading to either falsely decreased or falsely increased test results (see section 4.4).

4.6 Fertility, pregnancy and lactation

Pregnancy

Safety during pregnancy is not known. The risk of foetal congenital abnormalities should be weighed against the risk to the foetus of untreated maternal hypothyroidism.

Breast-feeding
Liothyronine sodium is excreted into breast milk in low concentrations. This may interfere with neonatal screening programmes.

Fertility
No human or animal data on the effect of active substance liothyronine on fertility are available.

4.7 Effects on ability to drive and use machines

Liothyronine Sodium tablets have no or negligible influence on the ability to drive and use machines.

4.8 Undesirable effects

The following effects are indicative of excessive dosage and usually disappear on reduction of dosage or withdrawal of treatment for a day or two.

The undesirable effects are listed below by organ class and the following frequency convention:

Not known: frequency cannot be estimated from the available data.

System Organ Class	Frequency	Adverse events
Immune system disorders	Not known	Hypersensitivity reactions including rash, pruritus and oedema also reported.
Metabolism and nutrition disorders	Not known	Excessive loss of weight.
Psychiatric disorders	Not known	Restlessness, excitability, insomnia.
Nervous system disorders	Not known	Headache, tremor.
Cardiac disorders	Not known	Anginal pain, cardiac arrhythmias, palpitations, tachycardia.
Vascular disorders	Not known	Flushing.
Gastrointestinal disorders	Not known	Diarrhoea, vomiting.
Skin and subcutaneous tissue disorders	Not known	Sweating.
Musculoskeletal and connective tissue disorders	Not known	Muscle cramps, muscular weakness.
General disorders and administration site conditions	Not known	Fever, flushing, heat intolerance.

Paediatric population:

- Transient hair loss in children (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 or search for MHRA Yellow Card in the Google Play or Apple App Store.

4.9 Overdose

Symptoms
If patient is seen within a few hours of overdosage: gastric lavage or emesis.

There may be exaggeration of the side effects as well as agitation, confusion, irritability, hyperactivity, headache, sweating, mydriasis, tachycardia, arrhythmias, tachypnoea, pyrexia, increased bowel movements and convulsions.

Management
Treatment is symptomatic. Tachycardia in adults may be controlled with 40mg propanolol every 6 hours.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Thyroid hormones
ATC code: H03AA02

Mechanism of action
Liothyronine sodium is a naturally occurring thyroid hormone.

Liothyronine sodium tablets are qualitatively similar in biological action to thyroxine but the effect develops in a few hours and lasts for 24 to 48 hours after stopping the treatment.

5.2 Pharmacokinetic properties

Absorption
Liothyronine sodium is almost completely absorbed from the gastro-intestinal tract.

Distribution

It is less readily bound to plasma proteins than thyroxine. About 0.5% is in the unbound form.

Elimination
The half-life of liothyronine in euthroidism is 1 to 2 days. Thyroid hormones do not readily cross the placenta. Minimal amounts are excreted in breast milk.

5.3 Preclinical safety data

There are no preclinical 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

Pregelatinised starch,
Cellulose microcrystalline,
Light magnesium oxide,
Sodium starch glycolate,
Sodium stearyl fumarate

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

Bottle pack - 24 months
Blister pack – 16 months

6.4 Special precautions for storage

Store below 25°C.
Store in the original package in order to protect from light.
For HDPE Bottle pack: After first opening use within 42 days.

6.5 Nature and contents of container

PVC/PE/PVDC/Alu blister containing 7, 10, 14, 20, 28, 30, 56, 60, 84, 90 or 112 tablets OR HDPE induction sealed bottle with child-resistant tamper-evident screw cap containing 2 g desiccant and 28 tablets.
Not all pack sizes may be marketed.

6.6 Special precautions for disposal

No special requirements.

7 MARKETING AUTHORISATION HOLDER

Accord-UK Ltd
(Trading style: Accord)
Whiddon valley
Barnstaple
Devon
EX32 8NS

8 MARKETING AUTHORISATION NUMBER(S)

PL 0142/1256

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

19/01/2022

10 DATE OF REVISION OF THE TEXT

21/07/2025