

Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

SeHCAT 370kBq capsules

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

[⁷⁵Se] tauroselcholic acid is supplied as capsules of 370 kBq at the activity reference date.

Each capsule contains less than 0.1 mg of tauroselcholic acid.

Selenium-75 has a physical half-life of approximately 118 days and decays by gamma emission with principal energies at 0.136 MeV and 0.265 MeV.

Excipient(s) with known effect

This medicinal product contains:

Sodium: 71.04mg per capsule.

For a full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Capsule, hard.

Size 3, hard gelatin capsule with an orange body and ivory cap, containing a white powder.

4 CLINICAL PARTICULARS

4.1 Therapeutic Indications

This medicinal product is for diagnostic use only.

[⁷⁵Se]taurosel cholic acid is used for the investigation of bile acid malabsorption and measurement of bile acid pool loss. It may be used in the assessment of ileal function, in the investigation of inflammatory bowel disease and chronic diarrhoea and in the study of entero-hepatic circulation.

4.2 Posology and method of administration

Posology

Adults

The normal dose for adults is one capsule, administered orally.

Elderly Population

The adult dose may be used.

Paediatric population

There is no paediatric dosage form or clinical experience of the use of this product in children. If the product is to be administered to children the same dosage as in adults is used.

A careful assessment of the risk/benefit ratio should be undertaken before use of the product in children, particularly since use of a fixed dose results in an increased effective dose equivalent in children (see section 11).

Hepatic impairment

Careful consideration of the activity to be administered is required since an increased radiation exposure is possible in these patients.

Method of administration

To ensure smooth passage of the capsule into the stomach, it is recommended that 15 ml drinks of water are taken by the patient before, during and after swallowing the capsule. The patient should be in a sitting or standing position during administration .

The instructions for preparation of radiopharmaceuticals are given in section 12.

4.3 Contraindications

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

4.4 Special warnings and precautions for use

Potential for hypersensitivity or anaphylactic reactions

If hypersensitivity or anaphylactic reactions occur, the administration of the medicinal product must be discontinued immediately and intravenous treatment initiated, if necessary. To enable immediate action in emergencies, the necessary medicinal products and equipment such as endotracheal tube and ventilator must be immediately available.

Caution is advised in the administration of [⁷⁵Se]tauroselcholic acid to patients with severe hepatic dysfunction or biliary tract obstruction as in these conditions radiation dose to the liver will be significantly increased.

Individual benefit/risk justification

For each patient, the radiation exposure must be justifiable by the likely benefit. The activity administered should in every case be as low as reasonably achievable to obtain the required diagnostic information.

Hepatic impairment

Careful consideration of the benefit risk ratio in these patients is required since an increased radiation exposure is possible.

Paediatric population

No data are available. Careful consideration of the indication is required since the effective dose per MBq is higher than in adults (see section 11).

Specific warnings

This medicinal product contains 3.01 mmol (71.04 mg) sodium in each capsule. This should be taken into account in patients on a low sodium diet.

Precautions with respect to environmental hazard see section 6.6.

4.5 Interaction with other medicinal products and other forms of interactions

No interaction studies have been performed and no interactions have been reported to date.

4.6 Fertility, pregnancy and lactation

Women of childbearing potential

When an administration of radiopharmaceuticals to a woman of childbearing potential is intended, it is important to determine whether or not she is pregnant. Any woman who has missed a period should be assumed to be pregnant until proven otherwise. If in doubt about the potential pregnancy (if the woman has missed a period, if the period is very irregular, etc.), alternative techniques not using ionising radiation (if there are any) should be offered to the patient.

Pregnancy :

No data are available on the use of this product in human pregnancy . Animal reproduction studies have not been performed. Radionuclide procedures carried out on pregnant women also involve radiation doses to the foetus. Only essential investigations should therefore be carried out during pregnancy when the likely benefit far exceeds the risk incurred by the mother and the foetus.

Breast-feeding:

Before administering a radioactive medicinal product to a mother who is breast-feeding consideration should be given as to whether the investigation could be reasonably delayed until after the mother has ceased breast feeding and as to whether the most appropriate choice of radiopharmaceutical has been made, bearing in mind the secretion of activity in breast milk. If the administration is considered necessary, breast feeding should be interrupted. Breast milk should be expressed and discarded about three to four hours after [⁷⁵Se]tauroselcholic acid administration, after which breast feeding can be resumed.

4.7 Effects on ability to drive and use machines

No studies on the effects on the ability to drive and use machines have been performed.

4.8 Undesirable effects

The frequencies of undesirable effects are defined as follows:

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 ($< 1/10,000$) and not known (cannot be estimated from the available data)

Exposure to ionising radiation is linked with cancer induction and a potential for development of hereditary defects. As the effective dose is 0.26 mSv when the maximal recommended activity of 370 kBq is administered these adverse reactions are expected to occur with a low probability.

Immune system disorders

Not known: Hypersensitivity

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 to HPRA Pharmacovigilance, Earlsfort Terrace, IRL - Dublin 2; Tel: +353 1 6764971; Fax: +353 1 6762517.

Website: www.hpra.ie; E-mail: medsafety@hpra.ie.

Paediatric population

No data are available.

4.9 Overdose

It is considered that overdosage is unlikely as the product is presented as a capsule which is administered orally in a controlled clinical setting. Should overdosage occur there are no known procedures which could be used to increase the clearance of activity from the body.

5 PHARMACOLOGICAL PROPERTIES**5.1 Pharmacodynamic properties**

Pharmacotherapeutic group: diagnostic radiopharmaceuticals, hepatic and reticuloendothelial system, selenium (⁷⁵Se)tauroselcholic acid, ATC Code: V09DX01

Mechanism of action

Tauroselcholic acid is a bile acid analogue which shows identical physiological behaviour with naturally occurring bile acid conjugates.

Pharmacodynamic effects

At the chemical concentrations and activities used for diagnostic procedures [⁷⁵Se]tauroselcholic acid does not appear to exert any pharmacodynamic effects.

Paediatric population

No data are available.

5.2 Pharmacokinetic propertiesDistribution

The distribution of activity is almost entirely confined to the lumen of the biliary ducts, gut and liver .

Organ Uptake

Following oral administration in normal subjects, approximately 95% of the labelled bile acid is absorbed, mainly by the terminal ileum during each enterohepatic cycle.

Elimination

Whole body retention data from normal subjects showed 97 to 100% of [⁷⁵Se]tauroselcholic was excreted with a biological half-life of 2.6 days and that, in most cases, a small component of about 3% was eliminated with a mean half time of 62 days.

Paediatric population

No data are available.

5.3 Preclinical safety data

A single dose study in rats has indicated a safety margin of greater than 10,000 times the maximum human oral dosage. This agent is not intended for regular or continuous administration. Repeat dose toxicity studies, mutagenicity and long-term carcinogenicity studies have not been performed.

6 PHARMACEUTICAL PARTICULARS**6.1 List of excipients**

Disodium phosphate dihydrate

Gelatin capsule

The gelatin capsule contains the following ingredients:

Titanium dioxide

Quinoline yellow

Erythrosine

Gelatin

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

18 weeks from the date of manufacture.

The activity reference date is 12 weeks before the expiry date.

6.4 Special precautions for storage

Store below 25°C. Do not freeze. Store in the original container in order to protect from light.

Store in accordance with national regulations for radioactive materials.

6.5 Nature and contents of container

SeHCAT is available in a polystyrene container with polythene caps. The capsules are held in place with polythene foam pads. Pack size: single capsule packs.

6.6 Special precautions for disposal and other handling

General warning

Radiopharmaceuticals should be received, used and administered only by authorised persons in designated clinical settings. Their receipt, storage, use, transfer and disposal are subject to the regulations and/or appropriate licenses of the competent official organisation.

Radiopharmaceuticals should be prepared in a manner which satisfies both radiation safety and pharmaceutical quality requirements. Appropriate aseptic precautions should be taken.

If at any time in the preparation of this product the integrity of this container is compromised it should not be used.

Administration procedures should be carried out in a way to minimise risk of contamination of the medicinal product and irradiation of the operators. Adequate shielding is mandatory.

The administration of radiopharmaceuticals creates risks for other persons from external radiation or contamination from spill of urine, vomiting, etc. Radiation protection precautions in accordance with national regulations must therefore be taken.

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

7 MARKETING AUTHORISATION HOLDER

GE Healthcare Buchler GmbH & Co KG
Gieselweg 1
38110 Braunschweig
Germany

8 MARKETING AUTHORISATION NUMBER

PA22661/001/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 15 November 1989
Date of last renewal: 15 November 2009

10 DATE OF REVISION OF THE TEXT

November 2021

11 DOSIMETRY

The table below shows the dosimetry as calculated according to the Publication 80 of the ICRP(International Commission on Radiological Protection, Radiation Dose to Patients from Radiopharmaceuticals, Pergamon Press 1998).

Organ	Absorbed dose per unit activity administered (mGy/MBq)				
	Adult	15 years	10 years	5 years	1 year
Adrenals	3.2E-01	4.1E-01	6.2E-01	9.4E-01	1.5E+00
Bladder	3.3E-01	4.2E-01	6.7E-01	1.0E+00	1.7E+00
Bone surfaces	2.3E-01	3.0E-01	4.3E-01	6.4E-01	1.2E+00

Brain	4.8E-02	5.6E-02	7.9E-02	1.2E-01	2.0E-01
Breast	7.7E-02	9.6E-02	1.8E-01	2.8E-01	5.2E-01
Gall bladder	6.4E+00	7.1E+00	9.0E+00	1.5E+01	4.8E+01
GI-tract					
Stomach	4.2E-01	5.5E-01	9.3E-01	1.5E+00	2.5E+00
SI	1.9E+00	2.4E+00	3.8E+00	5.9E+00	1.0E+01
Colon	2.0E+00	2.4E+00	3.8E+00	5.8E+00	1.0E+01
ULI	1.9E+00	2.3E+00	3.5E+00	5.3E+00	9.1E+00
LLI	2.1E+00	2.6E+00	4.2E+00	6.5E+00	1.2E+01
Heart	3.3E-01	4.3E-01	6.4E-01	9.6E-01	1.6E+00
Kidneys	5.0E-01	6.1E-01	8.9E-01	1.3E+00	2.0E+00
Liver	6.9E-01	8.7E-01	1.3E+00	1.8E+00	3.2E+00
Lungs	2.4E-01	3.3E-01	4.7E-01	7.2E-01	1.3E+00
Muscles	2.0E-01	2.5E-01	3.7E-01	5.5E-01	9.8E-01
Oesophagus	1.1E-01	1.4E-01	1.9E-01	2.9E-01	4.8E-01
Ovaries	1.0E+00	1.3E+00	2.0E+00	2.9E+00	4.9E+00
Pancreas	4.5E-01	5.8E-01	1.1E+00	1.7E+00	2.6E+00
Red marrow	2.9E-01	3.4E-01	4.6E-01	6.0E-01	8.3E-01
Skin	7.5E-02	9.1E-02	1.4E-01	2.2E-01	4.2E-01
Spleen	3.0E-01	4.1E-01	6.6E-01	1.0E+00	1.7E+00
Testes	9.2E-02	1.3E-01	2.2E-01	3.7E-01	7.0E-01
Thymus	1.1E-01	1.4E-01	1.9E-01	2.9E-01	4.8E-01
Thyroid	6.9E-02	9.6E-02	1.5E-01	2.7E-01	5.2E-01
Uterus	7.5E-01	9.4E-01	1.5E+00	2.3E+00	3.8E+00
Remaining Organs	2.6E-01	3.4E-01	5.3E-01	8.3E-01	1.3E+00
Effective dose (mSv/MBq)	6.9E-01	8.6E-01	1.3E+00	2.0E+00	3.9E+00

For this product the effective dose to a healthy adult resulting from the administration of a 370 kBq capsule is typically 0.26 mSv.

In most clinical investigations for which this substance is used (e.g. Crohn's disease) the effects of impaired ileal absorption and shorter gastrointestinal transit time tend to reduce the dose commitment compared with the normal case. However, in patients with severe cholestatic jaundice, the liver dose has been estimated to be about 100 times the normal value.

12 INSTRUCTIONS FOR PREPARATION OF RADIOPHARMACEUTICALS

Measurement of bile pool loss

Measurement of the rate of bile loss from the endogenous pool using SeHCAT may be achieved either by determining the retention of activity in the body over a period of days or by determining the excretion of activity in faeces. The results may be expressed as a rate of loss if several measurements are taken, or more simply as a retained percentage after a fixed period (7 days is convenient). A whole body counter or other counter or other counting techniques may be used.

For some investigations scintigraphic studies may be appropriate.

Measurement of retained activity

Whole body counter

A 370 kBq (10 µCi) capsule is administered to the patient together with a drink of water. Using conventional whole body counting techniques an initial count of the patient provides, after background subtraction, a zero-time or 100% value. After 7 days the patient is counted again, and the retained activity expressed as a percentage of the original value.

Alternative techniques

If a whole body counter is not available, other counting techniques may be used successfully. Since the activity is confined to the abdominal region, a counter with a field of view encompassing the abdomen can be employed.

A gamma camera is used extensively and single crystal probes have also been used.

A standard axial positioning of the patient along the centreline of the counter should be maintained. The centre of the crystal should be positioned midway between the umbilicus and the base of the sternum.

To avoid excessive background interference from sources of technetium-99m, it is recommended that the camera window be set at the 265 keV photon peak of selenium-75 (20% window).

It is important that same technique is used at day 0 and day 7 to avoid any errors in the final calculation of the retention rate. It is also important to keep the positioning of the patient constant at each measurement.

Procedure

1. The patient should be given at least 15 ml of water to drink prior to taking the capsule. A similar drink of water should be taken with the capsule and again afterwards to encourage rapid transit of the capsule to the stomach and subsequent dispersion of the contents.
2. Allow 1-3 hours for physiological equilibration.
3. Measure the background before the first count of the patient. A preset time may be used.
4. Place the patient on the couch as described above. AP Count for pre- set time (300 seconds suggested and record the counts).
5. Turn the patient and repeat the count from the other view, PA.
6. Measure the background again.
7. After background subtraction, calculate the geometric mean of the two patient counts $\sqrt{(PA \times AP)}$.
8. Repeat steps 3-7 after 7 days.
9. Correct the day 7 value for radioactive decay by multiplying by 1.04
10. Express day 7 value as percentage of day 0 value.

Measurement of excreted activity

The alternative method of estimating bile acid loss is by scintillation counting of total faecal samples collected over a period (e.g. 7 days). A dosage of 370 kBq (10 μ Ci) (orange and yellow capsule) is recommended. It is important to ensure that standard geometry is monitored and that total collection of faeces is achieved. Samples from patients undergoing two simultaneous radionuclide investigations should not be counted unless faecal excretion of the other radionuclide is known to be insignificant, or unless the counting equipment can be selectively set to accumulate only selenium-75 photon emissions. Counting of the faecal γ activity using a sodium iodide crystal detector in a well counter or other suitable instrument is the counting method of choice.

The procedure for the administration of the capsule of SeHCAT is the same as when measuring retained activity.