Scientific leaflet

SANOCHEMIA
Diagnostics International

Secrelux®

1. Name of the medicinal product
Secrelux®
Active constituent: secretin pentahydrochloride

2. Prescribing status/legal category
Prescription only medicine

3. Composition of the medicinal product

3.1. Chemical or pharmacological group
For diagnosis of exocrine pancreas function

3.2. Therapeutically active constituent:
One ampoule with 24.4 mg powder contains 0.029 mg secretin pentahydrochloride, equivalent to the effect of 100 clinical units (CU).

The biological activity of this completely synthetic active constituent is equivalent to that of porcine secretin.

3.3. Excipients
Glycine hydrochloride, glycine, polygelin
Solvent: 1 ampoule with 10 ml isotonic sodium chloride

4. Indications
- Diagnosis of exocrine pancreatic function
- Diagnosis of Zollinger-Ellison syndrome

5. Contraindications
Hypersensitivity to secretin or to any of the other constituents.

Pancreatic function testing with Secrelux® is contraindicated in acute pancreatitis or during an acute episode of chronic pancreatitis. The investigation should be performed at least 2 weeks after complete resolution of the acute symptoms.

There is no experience of the use of Secrelux® during pregnancy and lactation. For this reason, the use of Secrelux® is contraindicated during pregnancy and lactation.

Until relevant experience is available, use of Secrelux® in children cannot be recommended.

6. Undesirable effects
During and after intravenous administration of secretin, there is frequently a rise in so-called "pancreatic enzymes" (amylase, lipase, trypsin) in the blood: these enzyme rises generally have no clinical importance. The use of secretin occasionally results in diarrhoea, which may be associated with cramp-like abdominal pain and/or nausea and vomiting.

If injection is too rapid, flushing and faintness may occur. Increased gastric juice volume and urinary urgency may be observed with infusion of secretin, as well as occasionally electrolyte disturbances. After intravenous injection and also with overdosing, a transient fall in blood sugar may occur in diabetic subjects.

In some cases, administration of secretin may be followed by a fall in blood pressure, acidosis and hypersensitivity reactions to the peptide, which may manifest as headache, raised blood pressure, tachycardia, itching of the skin, rash and urticaria.

Overdoses of secretin have a blood pressure-lowering effect.

7. Interactions with other medicinal products
Carbonic anhydrase inhibitors, peripherally-acting synthetic anticholinergics, ACTH, corticosteroids, thyroxine, oestrogens, progesterone, prolactin, glucagon, prostaglandins, and morphine reduce the effect of secretin.

Simultaneous pancreatic investigation with Secrelux® and stomach secretion investigation with pentagastrin is not advisable because of the overlap in effects; the two drugs have additive blood pressure-reducing effects.

8. Warnings
None

9. Most important incompatibilities
The prepared Secrelux® solution must not be mixed with other drugs (see 11 Method of use).

10. Dosage with individual and daily doses
For diagnosis of exocrine pancreas function 1 CU secretin /kg body weight

Diagnosis of Zollinger-Ellison syndrome 1-2 CU secretin/kg body weight

11. Method and duration of use
Dissolve Secrelux® in 10 ml isotonic saline and inject or infuse intravenously depending on the nature of the test.

In general, Secrelux® should only be administered once.

However, if necessary, pancreatic function tests may be repeated after 2-3 days, particularly for diagnosis of Zollinger-Ellison syndrome.

Diagnosis of exocrine pancreatic function

Secrelux® can be used as follows for testing the excretory function of the pancreas:
Dissolve Secrelux® in 10 ml isotonic sodium chloride solution. Inject 1 CU secretin/kg body weight intravenously over 1-2 minutes or infuse intravenously over up to 1 hour. Use the freshly prepared solution immediately.

When Secrelux® is used in combination with pancreozymin or caerulein, it is recommended that the investigation be started with intravenous injection of Secrelux® (1 CU/kg body weight). After 1 hour, Secrelux® should be infused if necessary at a dosage of 1 CU/kg body weight per hour (infusion duration 1 hour), with simultaneous administration of pancreozymin or caerulein.

Conduct and evaluation of tests of exocrine pancreas function

After fasting the patient for 10-12 hours introduce a double-lumen (Lagerlöf) or triple-lumen (Bartelheimer) radiodense indwelling tube through the mouth and the nose, so that one tube opening is in the fundus of stomach and the other in the distal third of the duodenum. Discard the duodenal juice obtained at the start and the stomach contents obtained throughout the test. Following this, aspirate duodenal juice over a 20-minute collection period and collect in an ice-cooled vessel. Use this sample to determine the baseline values.

After intravenous administration of Secrelux®, collect secretions at intervals of 20 minutes for 1 hour.

Secrelux® (1 CU/kg body weight per hour) and pancreozymin may then be administered slowly intravenously. In this case, continue the collection of secretion for 1 hour in three 20-minute periods.

Reflux of duodenal secretion into the stomach or loss of secretion into the distal small intestine can distort the result of the test. Simultaneous continuous administration of a marker into the duodenum over this period allows calculation of the secretion rate by calculation of the recovery rate.

Normal values: after i.v. injection of 1 CU/kg body weight Secrelux® causes secretion in healthy subjects of 2-5 ml pancreatic juice/min with a bicarbonate concentration of 80-150 mmol/L, with a minimum of 70 mmol/L. This corresponds to a bicarbonate production rate of 160-750 µmol/min.

Evaluation: Functional disturbances of the pancreas, such as occur in chronic pancreatitis, chronic calcifying pancreatitis, or pancreatic carcinoma, can cause changes in the volumes and bicarbonate secretion in a manner determined by the site, nature and extent of the disease. The measured variables can also vary independently of each other, so that abnormal values generally only indicate pancreatic disease, but the results of the test do not permit firm conclusions concerning the nature and severity of the disease.

Diagnosis of Zollinger-Ellison disease

For diagnosis of Zollinger-Ellison disease, various groups perform the secretin test with slight differences in detail. However, in principle, a transient, clearly "paradoxical" rise in the serum gastrin concentration after i.v. administration of 1-2 CU secretin/kg body weight is taken as evidence of the presence of Zollinger-Ellison syndrome.

For this test, the following procedure is recommended:
- Take 2 baseline blood samples from the fasting patient at 15-minute intervals
- i.v. injection of 1-2 CU secretin/kg body weight (over 30-60 seconds)
- Take blood 2, 5, 10, 15 and 30 minutes after hormone injection.

Conduct and evaluation of test in Zollinger-Ellison syndrome

The patient should be fasted for 10-12 hours. Take two blood samples at 15-minute intervals. After i.v. administration of Secrelux®, take blood samples at 2, 5, 10, 15 and 30 minutes after the hormone injection. Measure the gastrin concentration in all the blood samples.

Normal values and evaluation:
Baseline values for serum gastrin in patients with Zollinger-Ellison syndrome are usually greater than those of control subjects to varying degrees. However, the analysis results are dependent upon the radioimmunological method used.

After injection of Secrelux®, a doubling of the serum gastrin concentration compared with the respective baseline value can be expected. Because there is no generally accepted standardised form of the secretin test in suspected Zollinger-Ellison syndrome, interpretation of the results of the test is clinic-specific.

12. Emergency measures, symptoms and antidotes
Acute poisoning with Secrelux® has not been reported.
Excessive dosages and long-term administration of secretin lead to longstanding secretion of pancreatic juice and bicarbonate. This can lead to disturbances of the acid-base balance and the water balance.

13. Pharmacological and toxicological properties, pharmacokinetics and bioavailability, insofar as this information is required for therapeutic use

13.1. Pharmacological properties
Secrelux® causes a marked increase in pancreatic secretion and bicarbonate production lasting 1-2 hours. It is therefore suitable for testing the excretory function of the pancreas.

In the presence of Zollinger-Ellison syndrome, secretin leads to a "paradoxical" release of gastrin from the tumour causing the disease (gastrinoma).

13.2. Toxicological properties
Acute poisoning with Secrelux® has not been reported. High doses were tolerated by mice (2700 CU/kg i.v.) and rabbits (2300 CU/kg i.v.) with no symptoms.
Overdoses of secretin have a blood pressure-lowering effect.

13.3. Pharmacokinetics
The serum half-life is 3-5 minutes.

13.4. Bioavailability
Not applicable

14. Other precautions
Not applicable

15. Shelf life
2 years (powder)
The freshly prepared solution must be used immediately.

16. Special storage conditions
Do not store above 8° C.

16.1. Special precautions for disposal of unused medicinal products
None

17. Presentation and pack sizes
Powder and solvent for solution for injection or infusion.
1 ampoule with 24.4 mg powder (= 100 CU) and 1 ampoule with 10 ml solvent.

18. Date of information
July 2002

19. Name and address of marketing authorisation holder
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