1. NAME OF THE MEDICINAL PRODUCT

StroVac®
Suspension for injection

Active substance: inactivated microorganisms of specified enterobacteria

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active substance: 0.5 ml suspension for injection (= 1 vaccine dose) contains at least 10^9 inactivated microorganisms of the following type and quantity: Escherichia coli 7.5 x 10^8, Morganella morganii 3.75 x 10^7, Proteus mirabilis 3.75 x 10^7, Klebsiella pneumoniae 1.5 x 10^8, Enterococcus faecalis 2.5 x 10^7

Excipients with known effect: thiomersal, aluminium phosphate and traces of phenol

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Basis suspension and dry substance for preparing a suspension for injection.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

Therapy and prophylaxis of recurrent urinary tract infections of bacterial origin.

Note: StroVac is used for primary immunisation. A booster vaccination should be given about 1 year after the primary immunisation. Booster-StroVac® is available for this.

4.2 Posology and method of administration

The dose for 1 injection (single dose) is 0.5 ml of the freshly prepared vaccine suspension.
Unless otherwise directed, the following vaccination schedule applies to adults and adolescents aged from 16 years:

Vaccination schedule

Primary immunisation (StroVac)
3 injections of 0.5 ml vaccine suspension at 1- to 2-week intervals.

Approximately one year's protection is achieved with the primary immunisation.
A protective immune response, clinically manifesting as an improvement in symptoms or symptomatic relief over a certain period of time, may not be established in all vaccine recipients.

Booster vaccination (Booster-StroVac)
1 injection of 0.5 ml vaccine suspension approximately 1 year after primary immunisation.

No long-term clinical studies have been conducted. Experience from clinical practice show that booster vaccination frequently takes the form of 1 injection.

Preparing the vaccine suspension

- The vaccine suspension is not prepared until immediately prior to injection.
- First shake the ampoule of basis suspension thoroughly. The aluminium phosphate contained in the ampoule may have settled as a white deposit during storage. Before further use, this adjuvant must be redispersed throughout the liquid by shaking so that the basis suspension is ready to use. The solid particles may be finely and evenly dispersed or may be flocculent.
- Subsequently 0.5 ml of this basis suspension are drawn up and added to the dry substance.
- The mixture is shaken well once more to produce the vaccine suspension.
  The liquid remains cloudy, as adjuvant and active substance are not dissolved but finely dispersed (suspended).
- The vaccine suspension (suspension for injection) is then drawn up.

Injecting the vaccine suspension

- For the injection use a second needle with a dry exterior to prevent local lesions.
- Deep intramuscular and slow injection is performed, preferably into the deltoid muscle of the upper arm.
- StroVac is **not** suited for a subcutaneous (s.c.) injection.
- **It is imperative to avoid intravasal administration!**

4.3 Contraindications

- Acute infectious diseases, with the exception of urogenital infections
- Active tuberculosis
- Severe diseases of the haematopoietic system (e. g. acute leukosis, coagulation disorders involving tendency to bleed)
- Severe cardiac and renal diseases

- Immune system diseases
  (autoimmune diseases and immunoproliferative diseases)
- Hypersensitivity to the bacterial antigens contained in StroVac or against one of the excipients named in section 6.1
- Children aged less than 5 years must not be treated with StroVac.

4.4 Special warnings and precautions for use

As with all injectable vaccines, anaphylactic reactions cannot be excluded. For this reason, medical supervision should be ensured and the conditions for appropriate emergency procedures should be met.

It is known that non-sterile inflammatory processes, including abscess formation and lesion of a nerve segment or an artery or vein, are possible as a result of an injection.

StroVac should never be administered intravasally!

Children
Insufficient data are available on the use of StroVac in children aged between 5 and 15 years. There is a similar lack of adequate animal studies. Therefore StroVac should only be used in children between 5 and 15 years of age if this is absolutely necessary and the potential benefit outweighs the possible risks.

Excipients
Thiomersal, aluminium phosphate and the phenol traces, as excipients of the product, can lead to hypersensitivity reactions, particularly topical reactions.

Strovac contains less than 1 mmol sodium (23 mg) per dose rate, that is to say essentially 'sodiumfree'.

4.5 Interaction with other medicinal products and other forms of interaction

There may be partial or complete loss of the effect of StroVac during immunosuppressive treatment or radiation therapy.

4.6 Fertility, pregnancy and lactation

Insufficient data are available on the use of StroVac during pregnancy in humans. There is a similar lack of adequate reproduction studies in animals.
As is the case with all inactivated vaccines, no damage to the unborn child is expected. However StroVac should only be used in pregnancy if this is absolutely necessary and the potential benefit outweighs the possible risks to the foetus.
Insufficient data are available on the use of StroVac in humans during lactation.

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. However, some of the reactions listed under "Undesirable effects" may affect the ability to drive or use machines.

4.8 Undesirable effects

The assessment of undesirable effects is based on the following frequencies:
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)

Possible undesirable effects
Systematic studies show that local and general reactions to vaccination most commonly occur in the form of flu-like symptoms, which are generally considered to be the body confronting the vaccine.

Local vaccination reactions at the injection site

- Very commonly local reactions such as redness, swelling, tightness or pain originating at the injection site are observed.
- Indurations at the injection site have been reported via the spontaneous reporting system.

Systemic vaccination reactions

- Commonly vaccination reactions (systemic reactions) occur in the form of fatigue, flu-like symptoms with limb pain, fever (even up to 40 °C) and chills. Headaches, dizziness and nausea may occur.
- There have been rare reports of cardiovascular symptoms including circulatory collapse.
- Transient regional swelling of the lymph nodes has been reported in very rare cases.
- There have also been very rare cases of the following: allergic reactions (exanthema and even anaphylactic reactions), gastrointestinal complaints (such as vomiting, flatulence, diarrhoea, reduced appetite), burning sensation in the "bladder", increased urge incontinence, renal pain, perichondritis and increased hepatic enzymes.
- Neurological symptoms (e.g. paraesthesia, feelings of numbness or paralysis, meningeal irritation) have been reported in individual cases via the spontaneous reporting system.

- Individual cases in which a chronic herpes infection has been reactivated in chronological connection with the injection of StroVac have been reported via the spontaneous reporting system.
- Elevated laboratory values for liver function tests have been obtained in chronological connection with StroVac immunisation when CRP has been measured.

No further injections should be given if severe undesirable effects or allergic reactions are present.

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 Bundesinstitut für Impfstoffe und biomedizinische Arzneimittel, Paul-Ehrlich-Institut, Paul-Ehrlich-Straße 51-59, 63225 Langen, Tel: +49 6103 77 0, Fax: +49 6103 77 1234, Website: www.pei.de.

4.9 Overdose

No cases of overdose or intoxication are known to date.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group:
Other bacterial vaccines
Enterobacteriaceae strains, combinations
ATC code: J07AX53

Urinary tract infections (UTI) primarily develop because of increasing colonisation of the efferent urinary tract by microorganisms from the intestinal flora such as Escherichia coli, Klebsiella or Enterococcus faecalis. In healthy people, the microorganisms are rinsed out with the stream of urine. In patients with a tendency to UTI and/or in the case of highly virulent pathogens, adherence of the bacteria to the epithelium of the urinary tract causes infection.
The virulence characteristics of the pathogen, such as serotype and type of pili, and the local immune status of the urinary tract are of critical importance for the development and severity of the urinary tract infections.

Reduced concentrations of secretory immunoglobulin A antibodies (sigA titre) have been detected in the urine and vaginal secretion of patients susceptible to infection. This local immune insufficiency facilitates the adherence of uropathogenic microorganisms and is therefore considered to be the cause of recurrent urinary tract infections in particular.

StroVac/Booster-StroVac contains, in inactivated form, a broad spectrum of the bacteria species and serotypes most commonly present in urinary tract infections. Because coli bacteria are particularly common in UTI, 75 % of the vaccines consist of 6 different strains of Escherichia coli.

In animal studies, treatment with StroVac/Booster-StroVac resulted in a positive immune response to the bacterial antigens contained in the product. In addition, elevated concentrations of specific and non-specific class IgA and IgG immunoglobulins were detected in the urine. Treatment imparts effective protective effect against an experimental infection with live bacteria from the product. Furthermore, a protective effect against E. coli strains not contained in the medicine was imparted through cross sensitivity reaction. Increased macrophage activity is detected after treatment with StroVac/Booster-StroVac.

The mechanisms of the induced resistance to urinary tract infections are not yet fully understood today. In animal studies, StroVac/Booster-StroVac showed no toxicity.

In humans, treatment with StroVac/Booster-StroVac induced agglutination reactions in the serum to the microorganisms contained in StroVac/Booster-StroVac. Antibody titres increase many times compared with baseline values. An increase also occurs in the locally formed secretory IgA in the urine as a sign of improved local immune reaction and thus an enhanced natural resistance to UTI. The clinical manifestation of the effect takes the form of a substantial drop in the rate of recurrent UTI.

Up to 95 % of patients remain relapse-free over a study period of 12 months. In other patients, the time between episodes of infection increases.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Aluminium phosphate
Dextran
Disodium hydrogen phosphate
Potassium dihydrogen phosphate
Sodium chloride
Sucrose
Thiomersal
Traces of phenol
Water for injection

6.2 Incompatibilities

None known to date. StroVac should not be mixed in a syringe with other medicinal products, however, and should not be administered with other injections at the same site.

6.3 Shelf life

60 months
StroVac should not be used after the expiry date.

6.4 Special precautions for storage

Do not freeze.

6.5 Nature and contents of container

Packs containing 3 vials of dry substance and 3 ampoules each containing 0.5 ml basis suspension for preparation of 3 suspensions for injection.

6.6 Special precautions for disposal

No special requirements.

7. MARKETING AUTHORISATION HOLDER

Strathmann GmbH & Co. KG
PO Box 610425
22424 Hamburg
Germany
Tel.: +49 (0) 40 55 90 5-0
Fax: +49 (0) 40 55 90 5-100
E-mail: VL.Strathmann.Info@dermapharm.com
Website: www.strathmann.de

8. MARKETING AUTHORISATION NUMBER

16a/84a

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 12.07.1984
Date of last renewal of the authorisation: 12.07.2004

10. DATE OF REVISION OF THE TEXT

July 2021

11. LEGAL CATEGORY

Prescription-only medicine