Bactroban

Version GDSv16/IPIv05

Bactroban

Mupirocin free acid

Qualitative and Quantitative Composition

2% w/w mupirocin free acid in a white, translucent, water soluble, polyethylene glycol base.

Pharmaceutical Form

Ointment.

Clinical Particulars

Indications

Bacterial skin infections, e.g. impetigo, folliculitis and furunculosis.

Dosage and Administration

Populations

Adults and Children

BACTROBAN should be applied to the affected area 2 to 3 times a day for up to 10 days, depending on the response.

The area may be covered with a dressing or occluded if desired.

Do not mix with other preparations as there is a risk of dilution, resulting in a reduction in the antibacterial activity and potential loss of stability of the mupirocin in the ointment.

Contraindications

Hypersensitivity to ***BACTROBAN*** or other ointments containing polyethylene glycol and any of its constituents.

Warnings and Precautions

In the rare event of a possible sensitisation reaction or severe local irritation occurring with the use of the product, treatment should be discontinued, the product should be wiped off and appropriate alternative therapy for the infection instituted.

As with other antibacterial products, prolonged use may result in overgrowth of non-susceptible organisms.

Pseudomembranous colitis has been reported with the use of antibiotics and may range in severity from mild to life-threatening. Therefore, it is important to consider its diagnosis in patients who develop diarrhoea during or after antibiotic use. Although this is less likely to occur with topically applied mupirocin, if prolonged or significant diarrhoea occurs or the patient experiences abdominal cramps, treatment should be discontinued immediately and the patient investigated further.

This ***BACTROBAN*** ointment formulation is not suitable for ophthalmic use, intranasal use, use in conjunction with cannulae and at the site of central venous cannulation.

Avoid contact with the eyes. If contaminated, the eyes should be thoroughly irrigated with water until the ointment residues have been removed.

When ***BACTROBAN*** is used on the face care should be taken to avoid the eyes.

Renal Impairment

Polyethylene glycol can be absorbed from open wounds and damaged skin and is excreted by the kidneys.

In common with other polyethylene glycol-based ointments, ***BACTROBAN*** should be used with caution if there is evidence of moderate or severe renal impairment.

Interactions

None reported.

Pregnancy and Lactation

Fertility

There are no data on the effects of mupirocin on human fertility. Studies in rats showed no effects on fertility (see *Pre-Clinical Information*).

Pregnancy

Adequate human data on use during pregnancy are not available. Studies in animals do not indicate reproductive toxicity (see *Pre-Clinical Information*).

Lactation

Adequate human and animal data on use during lactation are not available.

If a cracked nipple is to be treated, it should be thoroughly washed prior to breast-feeding.

Effects on Ability to Drive and Use Machines

No adverse effects on the ability to drive and use machines have been observed.

Adverse Reactions

Adverse reactions are listed below by system organ class and frequency. Frequencies are defined as: very common (greater than or equal to 1/10), common (greater than or equal to 1/100, less than 1/10), uncommon (greater than or equal to 1/1000, less than 1/100), rare (greater than or equal to 1/10000, less than 1/1000), very rare (less than 1/10000), including isolated reports.

Common and uncommon adverse reactions were determined from pooled safety data from a clinical trial population of 1573 treated patients encompassing 12 clinical studies. Very rare adverse reactions were primarily determined from post-marketing experience data and therefore refer to reporting rate rather than true frequency.

Skin and Subcutaneous Tissue Disorders

Common:	Burning localised to the area of application.
Uncommon:	Itching, erythema, stinging and dryness localised to the area of application. Cutaneous sensitisation reactions to mupirocin or the ointment base.

Immune System Disorders

Very rare:	Systemic allergic reactions including anaphylaxis, generalised rash, urticaria and angioedema have been reported with ***BACTROBAN*** ointment.

Overdose

There is currently limited experience with overdosage of ***BACTROBAN*** ointment.

Treatment

There is no specific treatment for an overdose of ***BACTROBAN*** ointment. In the event of overdose, the patient should be treated supportively with appropriate monitoring as necessary. Further management should be as clinically indicated or as recommended by the national poisons centre, where available.

Pharmacological Properties

Pharmacodynamics

Mechanism of Action

Mupirocin is a novel antibiotic produced through fermentation by *Pseudomonas fluorescens*. Mupirocin inhibits isoleucyl transfer-RNA synthetase, thereby arresting bacterial protein synthesis. Due to this particular mode of action and its unique chemical structure, mupirocin does not show any cross-resistance with other clinically available antibiotics.

Mupirocin has bacteriostatic properties at minimum inhibitory concentrations and bactericidal properties at the higher concentrations reached when applied locally.

Pharmacodynamic Effects

Activity

Mupirocin is a topical antibacterial agent showing *in vivo* activity against *Staphylococcus aureus* (including methicillin-resistant strains), *S. epidermidis* and beta-haemolytic *Streptococcus* species.

The *in vitro* spectrum of activity includes the following bacteria:
Commonly Susceptible Species:
Staphylococcus aureus[1,2]
Staphylococcus epidermidis[1,2]
Coagulase-negative staphylococci[1,2]
Streptococcus species[1]
Haemophilus influenzae
Neisseria gonorrhoeae
Neisseria meningitidis
Moraxella catarrhalis
Pasteurella multocida.
1Clinical efficacy has been demonstrated for susceptible isolates in approved clinical indications.
2Including beta-lactamase producing strains and methicillin-resistant strains

Resistant Species:
Corynebacterium species
Enterobacteriaceae
Gram negative non-fermenting rods
Micrococcus species
Anaerobes.
Mupirocin susceptibility (MIC) breakpoints for Staphylococcus spp.
Susceptible: less than or equal to 1 microgram/ml
Intermediate: 2 to 256 micrograms/ml
Resistant: greater than 256 micrograms/ml

Resistance Mechanisms

Low-level resistance in staphylococci (MICs 8 to 256 micrograms/ml) has been shown to be due to changes in the native isoleucyl tRNA synthetase enzyme. High-level resistance in staphylococci (MICs greater than or equal to 512 micrograms/ml) has been shown to be due to a distinct, plasmid encoded isoleucyl tRNA synthetase enzyme. Intrinsic resistance in Gram-negative organisms such as the *Enterobacteriaceae* could be due to poor penetration into the bacterial cell.

Pharmacokinetics

Absorption

Mupirocin penetrates intact human skin but the rate of systemic absorption appears to be low.

Excretion

Systemically absorbed mupirocin is rapidly metabolised to the inactive metabolite monic acid and quickly excreted by the kidneys.

Special Patient Populations

Elderly patients: No restrictions unless there is evidence of moderate or severe renal impairment (see *Warnings and Precautions).*

Pre-Clinical Information

Carcinogenesis/Mutagenesis

Carcinogenesis

Carcinogenicity studies with mupirocin have not been conducted.

Genotoxicity

Mupirocin was not mutagenic in *Salmonella typhimurium* or *Escherichia coli* (Ames assay). In a Yahagi assay, small increases in *Salmonella typhimurium* TA98 were observed at highly cytotoxic concentrations. In an *in vitro*

mammalian gene mutation assay (MLA), no increase in mutation frequency was observed in the absence of metabolic activation. In the presence of metabolic activation, small increases in mutation frequency were observed at highly cytotoxic concentrations. However, no effects were observed in, yeast cell assays for gene conversion/mutation, an *in vitro* human lymphocyte assay or in an *in vitro* unscheduled DNA synthesis (UDS) assay. Furthermore, an *in vivo* mouse micronucleus assay (chromosome damage) and a rat Comet assay (DNA strand breakage) were negative, indicating the small increases observed at highly cytotoxic concentrations *in vitro* do not translate to the *in vivo* situation.

Reproductive Toxicology

Fertility

Mupirocin administered subcutaneously to male rats 10 weeks prior to mating and to female rats 15 days prior to mating until 20 days post coitum at doses up to 100 mg/kg/day had no effect on fertility.

Pregnancy

In embryo-foetal development studies in rats there was no evidence of developmental toxicity at subcutaneous doses up to 375 mg/kg/day.

In an embryo-foetal development study in rabbits at subcutaneous doses up to 160 mg/kg/day, maternal toxicity (impaired weight gain and severe injection site irritation) at the high dose resulted in abortion or poor litter performance. However, there was no evidence of developmental toxicity in foetuses of rabbits maintaining pregnancy to term.

Pharmaceutical Particulars

List of Excipients

Polyethylene glycol.

Incompatibilities

None reported.

Shelf-Life

The expiry date is indicated on the packaging.

Special Precautions for Storage

Store below 25°C.

Nature and Contents of Container

As registered locally.

Instructions for Use/Handling

Any ointment remaining at the end of the treatment should be discarded.

Wash your hands after application.

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