



For Healthcare Professionals Only

Olinc[®] IM/IV Injection Capsules

(Lincomycin)

اولینک
انجکشن / کپسولز
(لینکومائین)

WARNING

Clostridioides difficile associated diarrhea (CDAD) has been reported with use of nearly all antibacterial agents, including lincomycin and may range in severity from mild diarrhea to fatal colitis. Treatment with antibacterial agents alters the normal flora of the colon leading to overgrowth of *C. difficile*. Because lincomycin therapy has been associated with severe colitis which may end fatally, it should be reserved for serious infections where less toxic antimicrobial agents are inappropriate. It should not be used in patients with nonbacterial infections such as most upper respiratory tract infections. *C. difficile* produces toxins A and B which contribute to the development of CDAD. As these infections can be refractory to antimicrobial therapy and may require colectomy, CDAD must be considered in all patients who present with diarrhea following antibacterial use. Careful medical history is necessary. If CDAD is suspected or confirmed, ongoing antibacterial use not directed against *C. difficile* may need to be discontinued. Appropriate fluid and electrolyte management, protein supplementation, antibacterial treatment of *C. difficile*, and surgical evaluation should be instituted as clinically indicated.

QUALITATIVE AND QUANTITATIVE COMPOSITION

Olinc 150mg/mL Injection

Each ampoule contains:
Lincomycin HCl USP eq. to Lincomycin..... 150mg
(Product Specs.: USP)

Olinc 300mg/mL Injection

Each ampoule contains:
Lincomycin HCl USP eq. to Lincomycin..... 300mg
(Product Specs.: USP)

Olinc 600mg/2mL Injection

Each ampoule contains:
Lincomycin HCl USP eq. to Lincomycin..... 600mg
(Product Specs.: USP)

Olinc 500mg Capsules

Each capsule contains:
Lincomycin HCl USP eq. to Lincomycin..... 500mg
(Product Specs.: USP)

PHARMACEUTICAL FORM

Capsules and Injection

CLINICAL PARTICULARS

Therapeutic Indications

Olinc is indicated in the treatment of serious infections due to susceptible strains of gram-positive aerobes such as streptococci, pneumococci and staphylococci. Its use should be reserved for penicillin-allergic patients. Before selecting lincomycin, the physician should consider the nature of the infection and the suitability of other alternatives.

Olinc has been found to be effective in the treatment of infections due to staphylococci resistant to other antibiotics.

The drug may be administered in concomitance with other antimicrobial agents when indicated. The specific infections for which is indicated are as follows:

- Upper respiratory infections including tonsillitis, pharyngitis, otitis media, sinusitis, scarlet fever and as adjuvant therapy for diphtheria. Effectiveness in the treatment of mastoiditis would be anticipated.
- Lower respiratory infections including acute and chronic bronchitis and pneumonia.
- Skin and skin structure infections including cellulitis, furuncles, abscesses, impetigo, acne and wound infections. Conditions such as erysipelas, lymphadenitis, paronychia (panaritium), mastitis and cutaneous gangrene should, if caused by susceptible organisms, respond to lincomycin therapy.
- Bone and joint infections including osteomyelitis and septic arthritis.
- Septicemia and endocarditis. Selected cases of septicemia and/or endocarditis due to susceptible organisms have responded well to lincomycin.
- Bacillary Dysentery.

Posology and method of administration

Oral route

Adults

- Severe infections: 500mg every 8 hours.
- Very severe infections: 500mg every 6 hours.

To achieve an optimal absorption, it is recommended to ingest nothing save water for a period of one to two hours before and after administration.

Intramuscular route

Adults

- Severe infections: 600mg (2mL) every 24 hours.
- Very severe infections: 600mg (2mL) every 12 hours or more frequently, depending on the severity of the infection.

Pediatric population

Children over 2 years of age

- Severe infections: 10mg/kg/daily by intramuscular injection.
- More severe infections: 10mg/kg/ every 12 hours or more frequently.

Intravenous route

Intravenous doses are given on the basis of 1g Olinc diluted in not less than 100mL of appropriate solution and infused over a period of not less than one hour.

Note: Severe cardiopulmonary reactions have occurred when this drug has been given at greater than the recommended concentration and rate.

Adults:

- Severe infections: 600mg to 1g given every 8-12 hours.
- More severe infections: The above doses may be increased. In life-threatening situations, daily intravenous doses of as much as 8g have been given.

Pediatric population

Children over 1 month of age:

Depending on the severity of the infection, 10-20mg/kg/day may be infused in divided doses as described below.

Dose	Volume Diluent	Time
600mg	100mL	1 hr
1 gram	100mL	1 hr
2 grams	200mL	2 hr
3 grams	300mL	3 hr
4 grams	400mL	4 hr

These doses may be repeated as often as required to the limit of the maximum recommended daily dose of 8g.

The following infusion solutions have been found to be physically compatible:

- Glucose Intravenous Infusion 5%
- Glucose Intravenous Infusion 10%
- Sodium Chloride 0.9%
- Compound Sodium Lactate Intravenous Infusion, Sodium Lactate 1/6 Molar and Dextran 70 Intravenous Infusion.

Patient with renal function

When Lincomycin therapy is required in individuals with severe impairment of renal function, an appropriate dose is 25 to 30% of that recommended for patients with normal renal function.

During prolonged Lincomycin therapy, periodic liver function and renal and blood counts should be performed.

Contraindications

- This drug is contraindicated in patients previously found to be hypersensitive to lincomycin or clindamycin. It is not indicated in the treatment of minor bacterial infections or viral infections.
- Lincomycin is not indicated in the newborn.

Special Warnings and Precautions for Use

Lincomycin should not be injected IV as a bolus but should be infused as described in the Posology and method of administration.

Risk of Colitis

Clostridium difficile associated diarrhea (CDAD) has been reported with use of nearly all antibacterial agents, including lincomycin, and may range in severity from mild diarrhea to fatal colitis. The severity of the colitis may range from mild to life threatening. Symptoms may occur up to several weeks after cessation of antibiotic therapy.

It should not be used in patients with non-bacterial infections such as most upper respiratory tract infections.

Drugs which delay peristalsis (e.g., opiates and diphenoxylate with atropine) may prolong and/or worsen the condition and should not be used.

Older patients with associated severe illness may tolerate diarrhea less well. They should be carefully monitored for change in bowel frequency.

Lincomycin should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Allergies

Lincomycin, like any drug, should be used with caution in patients with a history of asthma or significant allergies.

Hypersensitivity Reactions

Hypersensitivity reactions (such as anaphylactic reaction, angioedema and serum sickness) have been reported, some of these in patients known to be sensitive to penicillin. If an allergic reaction should occur, the drug should be discontinued and the usual agents (adrenalin, corticosteroids, antihistamines) should be available for emergency treatment.

Severe hypersensitivity reactions, including anaphylactic reactions and severe cutaneous adverse reactions (SCAR) such as Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), acute generalized exanthematous pustulosis (AGEP), and erythema multiforme (EM) have been reported in patients receiving lincomycin therapy. If an anaphylactic reaction or severe skin reaction occurs, lincomycin should be discontinued and appropriate therapy should be initiated.

Super infections

The use of antibiotics occasionally results in overgrowth of non-susceptible organisms particularly yeasts. Should super infections occur, appropriate measures should be taken. When patients with pre-existing monilial infections require Lincomycin therapy, concomitant antimonal treatment should be given.

Meningitis

The drug should not be used in the treatment of meningitis.

Use in hepatic impairment

In patients with impaired hepatic or renal function, the serum half-life of lincomycin is increased. Consideration should be given to decreasing the frequency and dose of lincomycin administered in patients with impaired hepatic or liver function.

Pediatric Use

Lincomycin injectable solution contains benzyl alcohol. Intravenous administration of benzyl alcohol has been associated with serious adverse events and death in pediatric patients including neonates ("gasping syndrome"). Although normal therapeutic doses of this product ordinarily deliver amounts of benzyl alcohol that are substantially lower than those reported in association with the "gasping syndrome", the minimum amount of benzyl alcohol at which toxicity may occur is not known.

Interaction with other medicinal products and other forms of interaction

Lincomycin has been shown to have neuromuscular blocking properties that may enhance the action of other neuromuscular blocking agents. Therefore, it should be used with caution in patients receiving such agents.

Fertility, Pregnancy and lactation

Pregnancy: Lincomycin should only be used during pregnancy if clearly needed.

Lactation: Lincomycin is excreted into the mother's milk. It should not, therefore, be used during lactation unless alternative arrangements can be made for feeding the baby.

Effects on ability to drive and use machines

No data available.

Undesirable Effects

Adverse reactions are listed according to the following categories.

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: $< 1/10,000$

Not known: cannot be estimated from available data

Infections and Infestations

Uncommon: Vaginal infection.

Not known: Pseudomembranous colitis, *Clostridium difficile* colitis.

Gastrointestinal Disorders

Common: Diarrhoea, vomiting, nausea.

Rare: Stomatitis.

Not known: Enterocolitis, oesophagitis, glossitis, abdominal discomfort.

Blood and Lymphatic System Disorders

Not known: Pancytopenia, agranulocytosis, aplastic anaemia, leukopenia, neutropenia, thrombocytopenic purpura.

Immune System Disorders

Not known: Anaphylactic reaction, angioedema, serum sickness

Skin and Subcutaneous Tissue Disorders

Uncommon: Rash, urticaria.

Rare: Pruritus.

Not known: Toxic epidermal necrolysis, Stevens-Johnson syndrome, acute-generalised exanthematous pustulosis, erythema multiforme, dermatitis bullosa, dermatitis exfoliative, anal pruritus.

Hepatobiliary Disorders

Not known: Jaundice, liver function test abnormal, transaminases increased.

Renal and Urinary Disorders

Not known: Renal impairment, oliguria, proteinuria, azotaemia.

Cardiac Disorders

Not known: Cardio-respiratory arrest.

Vascular Disorders

Not known: Hypotension, thrombophlebitis.

Ear and Labyrinth Disorders

Not known: Vertigo, tinnitus.

General Disorders and Administration Site Conditions

Not known: Injection site abscess sterile, injection site induration, injection site pain, injection site irritation.

OVERDOSAGE

No specific antidote is known. Support respiratory and cardiac function. In cases of overdose, drug levels of lincomycin are not clinically useful. Monitor full blood count in patients with significant exposure as lincomycin may produce abnormalities of the hematopoietic system.

Because lincomycin may cause hepatotoxicity, monitor liver function tests in patients with significant exposure. Hemodialysis and peritoneal dialysis are not effective in removing lincomycin from the serum.

PHARMACOLOGICAL PROPERTIES

Pharmacodynamic properties

Pharmacotherapeutic Class: Antibacterial agents for systemic use. Lincosamides.

ATC code: J01FF02.

Mechanism of action

Lincomycin is an antibiotic produced by fermentation of *Streptomyces lincolnensis*. Lincomycin inhibits bacterial protein synthesis by binding to the 50S subunit of the bacterial ribosome. Lincomycin is predominantly bacteriostatic in vitro. The antibacterial activity of lincomycin appears to be closely correlate with the length of time the concentration of active ingredient remains above the MIC of the infecting organism.

Mechanism of Resistance

Cross resistance between lincomycin and clindamycin is complete. Resistance in staphylococci and streptococci is most often due to methylation of specific nucleotides in the 23S RNA of the 50S ribosomal subunit, which can determine cross resistance to macrolides and streptogramins B (MLS_B phenotype). Macrolide-resistant isolates of these organisms should be tested for inducible resistance to lincomycin/clindamycin using the D zone test.

Antibacterial Spectrum

Lincomycin is cross-resistant with clindamycin.

Following organisms are usually sensitive to concentrations achieved normally in the serum in following recommended doses.

Aerobic and facultative gram-positive bacteria

Staphylococcus aureus (methicillin-susceptible strains only), *Streptococcus pyogenes*, *Viridans group streptococci*, *Streptococcus pneumoniae*, *Corynebacterium diphtheriae*.

Anaerobic and microaerophilic bacteria

Clostridium tetani, *Clostridium perfringens*, *Propionibacterium acnes*.

Note: The drug is not active against most strains of *Enterococcus faecalis*, nor against *Neisseria gonorrhoeae*, *Neisseria meningitidis*, *Haemophilus influenzae* or other gram-negative organisms or yeasts. Some strains of *Clostridium perfringens* and strains of some less common human pathogens of *Clostridia* may be lincomycin-resistant. Depending on the sensitivity of the organism and concentration of the antibiotic, it may be either bactericidal or bacteriostatic. Cross resistance has not been demonstrated with penicillin, chloramphenicol, ampicillin, cephalosporins or the tetracyclines.

CLSI dilution and disk diffusion susceptibility interpretive criteria for clindamycin

Organisms	Susceptibility Interpretive Criteria					
	Minimal Inhibitory Concentrations (MIC in µg/mL)			Disk Diffusion (Zone Diameters in mm)		
	S	I	R	S	I	R
<i>Staphylococcus</i> spp.	≤0.5	1–2	≥4	≥21	15–20	≤14
<i>Streptococcus pneumoniae</i> , β-hemolytic streptococci and viridans group streptococci	≤0.25	0.5	≥1	≥19	16–18	≤15
Anaerobic Bacteria	≤2	4	≥8	NA	NA	NA
Disk content 2 µg. MIC interpretive criteria for anaerobes are based on agar dilution. NA=not applicable.						

EUCAST dilution and disk diffusion susceptibility interpretive criteria for clindamycin

Organisms	Minimal Inhibitory Concentrations (MIC in µg/mL)		Disk Diffusion (Zone Diameters in mm)	
	S	R	S	R
<i>Staphylococcus</i> spp.	≤0.25	>0.5	≥22	<19
<i>Streptococcus</i> groups A, B, C, G	≤0.5	>0.5	≥17	<17
<i>Streptococcus pneumoniae</i>	≤0.5	>0.5	≥19	<19
Viridans group streptococci	≤0.5	>0.5	≥19	<19
Gram-positive anaerobes (except <i>Clostridium difficile</i>)	≤4	--	NA	NA
Gram-negative anaerobes	≤4	--	NA	NA
Disk content 2 µg. MIC interpretive criteria for anaerobes are based on agar dilution. NA=not applicable.				

Pharmacokinetic properties

Absorption

Lincomycin is absorbed rapidly after a 500mg oral dose in the fasting state, producing an average peak serum level of 5.3µg/mL at 2 hours post dose, doubling the dose increases but does not double the peak serum levels. Food in the stomach reduces total absorption as well as peak serum levels.

Distribution

Significant levels have been demonstrated in the majority of body tissues. Although lincomycin appears to diffuse into cerebrospinal fluid (CSF), levels of lincomycin in the CSF appear inadequate for the treatment of meningitis.

Metabolism

Tissue level studies indicate that bile is an important route of excretion. The excretion of lincomycin in urine and bile does not account for all of the administered dose and a substantial proportion of the drug appears to be inactivated in the body, presumably in the liver.

The biological half-life, after, intramuscular administration is approximately 5 hours.

Excretion

Urinary recovery of drug in a 24-hour period ranges from 1.0% to 31% (mean: 4.0%) after a single oral dose of 500mg. Bile is an important route of excretion.

Intramuscular administration of a single dose of 600mg of lincomycin produces an average peak serum level of 11.6µg/mL at 60 minutes and maintains therapeutic levels for 17 to 20 hours for most susceptible gram-positive organisms. Urinary excretion after this dose ranges from 1.8% to 24.8% (mean: 10.3%).

The intravenous infusion over a 2-hour interval of 600mg of lincomycin achieves average peak serum levels of 15.9µg/mL and yields therapeutic levels for 14 hours for most susceptible gram-positive organisms. Urinary excretion ranges from 4.9% to 23.3% (mean: 15.1%).

Hemodialysis and peritoneal dialysis do not effectively remove lincomycin from the blood.

Special Populations

Patients with Renal Impairment: The serum half-life of lincomycin may be prolonged in patients with severe impairment of renal function compared to patients with normal renal function.

Patients with Hepatic Impairment: In patients with abnormal hepatic function, serum half-life may be two-fold longer than in patients with normal hepatic function.

PHARMACEUTICAL PROPERTIES

Incompatibilities

Lincomycin is physically incompatible with novobiocin and kanamycin.

Shelf life

03 years.

Special precautions for storage and instructions

Protect from heat, sunlight & moisture, store below 30°C.

The expiration date refers to the product correctly stored at the required condition.

Keep out of the reach of children.

Precautions: Do not use if injection is leaking, solution is cloudy or contains un-dissolved particles.

To be sold on the prescription of a registered medical practitioner only.

Nature and contents of container/Presentation

Olinc 150mg/mL Injection: Pack of 5 ampoules.

Olinc 300mg/mL Injection: Pack of 5 & 50 ampoules.

Olinc 600mg/2mL Injection: Pack of 5 & 20 ampoules.

Olinc 500mg Capsules: Alu Alu blister pack of 10 capsules.

REGISTRATION HOLDER / MARKETING AUTHORIZATION HOLDER

Head Office:

Bosch Pharmaceuticals (Pvt.) Ltd.,

8, Modern Society, Tipu Sultan Road, Karachi-Pakistan.

Manufacturer:

Bosch Pharmaceuticals (Pvt.) Ltd.,

221-223, Sector 23, Korangi Industrial area, Karachi-Pakistan.

REGISTRATION / MARKETING AUTHORIZATION NUMBER

Olinc 150mg/mL Injection: 044016

Olinc 300mg/mL Injection: 027158

Olinc 600mg/2mL Injection: 025416

Olinc 500mg Capsules: 025418

DATE FROM WHICH MARKETING IS AUTHORIZED/RENEWAL OF THE AUTHORIZATION

Olinc 150mg/mL Injection: 16-08-2008/15-08-2021

Olinc 300mg/mL Injection: 24-07-2001/23-07-2021

Olinc 600mg/2mL Injection: 17-11-1999/16-11-2019

Olinc 500mg Capsules: 17-11-1999/16-11-2019

DATE OF REVISION OF THE TEXT

23-04-2024

ہدایات:

دھوپ اور گرمی سے محفوظ ۳۰ ڈگری سینٹی گریڈ سے کم درجہ حرارت پر رکھیں۔

احتیاط: انکیشن لیک ہونے، ڈھنڈلا ہونے یا اس میں کوئی غیر حل

پذیرے نظر آنے کی صورت میں ہرگز استعمال نہ کریں۔

بچوں کی پہنچ سے دور رکھیں۔

صرف مستعد ڈاکٹر کے نسخے پر فروخت کریں۔



Manufactured by:

Bosch PHARMACEUTICALS (Pvt.) Ltd.

221-223, Sector 23, Korangi Industrial Area,
Karachi - Pakistan



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