Colistimethate (Colistin) Intravenous for Adult patients

Who can administer

May be administered by registered competent doctor or nurse/midwife

Important information

- **Restricted antibiotic (unless for Cystic Fibrosis)**: The **intravenous route** is reserved for serious infections with limited treatment options, following approval by microbiology/infectious diseases/CF consultant. Should be used only as part of combination therapy.
- The dosing regimen depends on the indication.
  - **Conventional dose** - for cystic fibrosis patients (as per Leeds guideline) [ref 4]
  - **High Dose Regimen** (as per SPC)
  - **The dose in renal impairment differs for the two regimens**
- Commonly used in **cystic fibrosis patients by inhalation** via a nebuliser - see under 'Further information'
- Nephrotoxic and neurotoxic. Risk factors include IV route, high doses, cumulative dose, and other nephrotoxins [ref 1]
- See **monitoring** requirements
- **See under 'Dose' for adjustments required in renal impairment**

Available preparations

Colomycin 1 million units vial

Colomycin 2 million units vial

Reconstitution

Sodium Chloride 0.9% or Water for Injection

Usually: 10ml per vial

Infusion fluids

Sodium chloride 0.9%

Methods of intravenous administration

Intravenous infusion (preferred method)

- Dilute to 100ml with infusion fluid and administer over 30 to 60 minutes [ref 2,3]
- The residual volume in the infusion line must be flushed through at the same rate to avoid significant underdosing [ref 2]
- **For the 9 Million unit dose:** Reconstitute each 1 million unit vial with **5ml.** Remove 50ml infusion fluid from a 100ml bag and add 45ml (9 million units) of drug solution to produce a final volume of 95ml [ref 2,3]

Slow intravenous injection (Patient must have Totally Implantable Venous Access Device)

- This route is only for doses of up to 2 million units (in 10ml)
- Administer required dose over at least 5 minutes

Dose in adults

Conventional dosing regimen (cystic fibrosis) [ref 4]

- Patients greater than 40kg: 2 million units every eight hours
- Patients less than 40kg: give 1 million units every eight hours

NON-Cystic Fibrosis HIGH DOSE REGIMEN

- **Restricted antibiotic**: see Important Information
- Loading dose of 9 million units, followed twelve hours later by 4.5 million units every twelve hours
- The **loading dose** applies to patients with both **normal and impaired renal function, including those on renal replacement therapy**

Renal impairment - two tables below, as the adjustment is different, depending on the indication

Renal impairment: Conventional dosing regimen (CYSTIC FIBROSIS) [ref 5]		
Creatinine clearance (ml/minute) - **calculate using Cockcroft and Gault equation**	Dose **(assumes patient weight 60kg or more)**	Frequency
20 to 50	1 to 2 million units	every 8 hours
10 to 20	1 million units	every 12 hours*
less than 10	1 million units	every 24 hours*
* Where renal function is <20mL/min- there is an option to give the drug every 18 hours (i.e. every 12 to 18 hours [CrCl <10ml/min], or every 18 to 24 hours [CrCl 10 to 20ml/min] - these regimens are not routinely recommended as the timing of 18-hourly doses can be difficult to use in practice)		

Renal impairment - NON-CYSTIC FIBROSIS - High Dose Regimen		
Creatinine clearance (ml/min)- **calculate using Cockcroft and Gault equation**	Dose	Frequency
30 to 50	Give 9 million units loading dose, followed 12 hours later by 2.75 to 3.75 million units	every twelve hours
10 to 30	Give 9 million units loading dose, followed 12 hours later by 2.25 to 2.75 million units	every twelve hours
less than 10	Give 9 million units loading dose, followed 12 hours later by 1.75 million units	every twelve hours
Renal replacement therapy	Consult pharmacy or see specialist texts	

Monitoring

- Monitor carefully for **parasthesias,** which may indicate neurotoxicity as a sign of overdose
- **Monitor renal function** carefully at the start of, and regularly during treatment
- The BNF recommends the monitoring of levels, especially in renal impairment
- Levels are not routinely available- if required consult microbiology

Further information

- Confusion and medication errors have occurred because of the different expression of dose in the EU (units) and the US (mg) markets
- 1 million units of Colistin is approximately equal to 80mg Colistin
- i.e. 1mg of Colistin is approximately equal to 12,500units of Colistin (However Colistin is normally prescribed in units)

If this drug is being given by nebulisation the following products are needed, and are available from stores: (ref 6)

- Pari LC Plus nebuliser (Stores code: FDE052)
- Pari filter/valve set(Stores code: FDE155)
- Pari Filter pads(Stores code: FDE990)
  - Use a mouthpiece rather than a mask
  - Change filter pad after each nebulisation
    - If no filter housing and filter pads- then use Pari LC plus and nurse in a side room (open window and close door during nebulisation)
    - If patient has a tracheostomy use a trace mask and nurse in a side room
- Dose **by inhalation** (adults and children>2 years) : 1 to 2 Million units every 8 to 12 hours
- Reconstitute 1 million unit vial with 4ml of sodium chloride 0.9% (preferred), or Water for Injection and give via nebuliser (ref 6)
- Attach to a suitable nebuliser compressor (flow rate of 3.5 to 8L/min (at a minimum of 20psi) is required for optimal aerosol generation to nebulise antibiotics) (ref 6)

Storage

- Store below 25^{0}C

References

SPC Colomycin March 2021

1: Renal drug database accessed online 27/01/22

2: Injectable drugs guide- Medusa, accessed online 27/01/22

3: Email communication with Teva pharmaceuticals 23rd Oct 2020

4: Leeds Centre for Cystic Fibrosis April 2017 - advised by Dr O Mahony that this is our preferred reference for adult doses of colomycin in cystic fibrosis patients

5: Old SPC Colomycin June 2015 - for renal dose adjustments for low dose regimen

6: Tallaght medicines guide- accessed via eMeg 05/01/2021

Therapeutic classification

Polymixin antibiotic