# 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