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**MATRIC NUMBER: 15/MHS06/022 (C.O)**

**COURSE CODE: PHA 302**

**ASSIGNMENT: BACTERIAL PROTEIN SYNTHESIS INHIBITORS**

A protein synthesis inhibitor is a substance that stops or slows the growth of cells by disrupting the processes that lead directly to the generation of new proteins.

**ERYTHROMYCIN**

Erythromycin is a bacteriostatic antibiotic drug produced by a strain of saccharopolyspora erythraea and belongs to the macrolide group of antibiotics which consists of spiramycin, Azithromycin and others. It’s widely used for treating variety of infections including gram positive and gram negative caused bacteria.

**MECHANISM OF ACTION:** It acts by inhibition of protein synthesis by binding to the 23S ribosomal RNA molecule in the 50S subunit of ribosomes in susceptible bacterial organisms. It stops bacterial protein synthesis by inhibiting the translocation step of protein synthesis and by inhibiting the assembly of the 50S ribosomal subunit.

**INDICATION FOR USE :** It’s indicated in the treatment of infections caused by susceptible strains of various bacteria. The indications for erythromycin have been summarised by body system below:

**RESPIRATORY INFECTIONS:** mild to moderate upper respiratory tract infections caused by streptococcus pyogenes, streptococcus pneumonia or haemophilia influenza ( if used concomitantly with the right dose of sulfanomides) can be treated with erythromycin . It also indicated to treat whooping cough (pertussis) caused by bordetella pertussis .

**SKIN INFECTIONS :** mild to moderate skin infections caused by streptococcus pyogenes or staphylococcus aureus May be treated with erythromycin although resistant staphylococcal organisms may emerge .

**GASTROINTESTINAL INFECTIONS:** intestinal amebiasis caused by entamoeba histolytica can be treated with oral erythromycin.

**GENITAL INFECTIONS/STIs:**  erythromycin can be used as an alternative drug in treating acute pelvic inflammatory disease caused by N. Gonorrhoea in female patients who demonstrated hypersensitivity or intolerance to penicillin. Syphilis caused by Treponema palidum can be treated with erythromycin.

**TOXICITY:** In water bath exposures, erythromycin phosphate was considerably less toxic. Injections of erythromycin produced no deleterious effects, even at concentrations four times the standard dose rate. In feeding studies, the palatability of erythromycin-treated feed was poor, Weight gains (as percent of original weight) for fish offered the erythromycin-treated diet ranged from 144.7% at the recommended therapeutic concentration to 111.6% at five times the recommended concentration, compared with nearly 300% for untreated fish.

The oral LD50 of erythromycin in rats is 9272 mg/kg.

**ADVERSE EFFECTS**: Common side effects of erythromycin include:

* nausea
* vomiting
* abdominal pain
* stomach cramping
* loss of appetite
* diarrhoea
* dizziness
* headache
* feeling tired
* vaginal itching or discharge
* mild itching or skin rash

Erythromycin should be immediately discontinued in cases of overdose. Rapid elimination of unabsorbed drug should be initiated.