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QUESTION 1

Name of the drug:

 Nitrofurantoin

QUESTION2

ANTIBACTERIAL ACTIVITY

Nitrofurantoin is rather not used to treat UTIs frequently because of its antimicrobial spectrum, frequent bacteria resistance and toxicity. It interferes with the production of bacteria proteins, DNA, and cell walls. Bacteria cannot survive without a cell wall or multiply without DNA. The activity of this drug is greater in acidic urine.

Nitrofurantoin is bacteriostatic for most susceptible micro-organisms at concentrations of 32ug/ml or less and is bactericidal at concentrations of 100ug/ml and more. The antibacterial activity is higher in an acidic urine.

It is active against many strains of E.Coli and enterococci. However, most species of proteus and pseudomonas and many species of enterobacter and klebsiella are resistant.

QUESTION3

MECHANISM OF ACTION

Nitrofurantoin damages DNA since its reduced form is highly reactive.

It is rapidly reduced in bacterial cells by flavoproteins (nitrofuran reductase) to multiple reactive intermediates that attack ribosomal proteins, DNA, respiration, pyruvate metabolism and other macromolecules within the bacterial cell, thereby inhibiting protein synthesis.

QUESTION4

PHARMACOKINETICS

Nitrofurantoin is absorbed rapidly and completely from the GIT tract.

Antibacterial concentrations are not achieved in plasma following ingestion of recommended doses because the drug is rapidly eliminated.

Nitrofurantoin colors the urine brown.

It is not used for pregnant women, individuals with impaired renal function, children younger than one month of age.

It is not recommended for the treatment of pyelonephritis or prostatis.

QUESTION4

ADVERSE EFFECTS

* Gastrointestinal disturbances: these side effects include nausea, vomiting, and diarrhea.
* Acute pneumonitis
* Neurological problems such as headache, nystagmus, and polyneuropathies with demyelination may occur.
* Hemolytic anemia