Bleomycin

Bleomycin is an antitumor antibiotic which is used to treat testicular cancer and Hodgkin lymphoma, as well as squamous cell carcinoma. This medication works by inducing free superoxide and hydroxyl radicals, which cleave DNA, leading to breaks in cancerous DNA strands. Complications of this medication include pulmonary fibrosis, as well as skin changes and mucositis.



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Indications

Testicular Cancer
Testicular Tumor-guys
Bleomycin is used in treating testicular cancers, and is typically used in germ-cell tumors. It is typically combined with Etoposide and Cisplatin, as they have complimentary effects on inhibiting cancerous DNA.

Hodgkin's Lymphoma
Hog-king with Lime-foam
Bleomycin is often used as a first-line chemotherapy drug for treating Hodgkin's lymphoma. It is typically used in the ABVD or BEACOPP drug regimens.

Mechanism of Action

Induces Free Radical Formation
Free Radicals
Though the exact mechanism of action isn't fully understood, it is hypothesized that this drug chelates metal ions, leading to a pseudoenzyme which converts oxygen to superoxide and hydroxyl free radicals. These then go on to cleave DNA.

Breaks in DNA Strands
Broken DNA Strands
The free radicals caused by Bleomycin induce DNA strand breaks. It is also hypothesized that another mechanism of Bleomycin action is that it binds at specific sites on DNA strands and causes incision.

Side Effects

Pulmonary Fibrosis
Fiber-ball hitting Lungs
The most severe side effect of this medication is pulmonary fibrosis, which can lead to impared lung function in patients. Furthermore, due to its mechanism of action, it can possibly lead to oxygen toxicity, which may play a role in lung injury.

Skin Changes
Changing into Skin-suit
There are various skin changes that can occur with Bleomycin treatment. These include rash, alopecia, hyperpigmentation and Raynaud's phenomenon. Dermatographism can also be seen, and is described by raised urticaria that occurs when the skin is stroked.

Mucositis
Mucous-on-fire
Patients taking Bleomycin can experience uncomfortable mucositis, or inflammation of the mucous membranes, typically in the mouth.

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