Ganciclovir

Ganciclovir is an antiviral medication used to treat CMV (cytomegalovirus) infections in the immunocompromised. It works as a guanosine analog, that is phosphorylated by a viral kinase to form a competitive inhibitor of nucleotide incorporation into DNA. Thus, it inhibits viral DNA polymerase. Ganciclovir has serious hematological effects, along with renal toxicity.



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Indications

Cytomegalovirus (CMV)
Side-toe-mega-virus
Ganciclovir is used to treat CMV (cytomegalovirus) infections, especially in patients who are immunocompromised.

Immunocompromised
Moon-compromised
Ganciclovir is often used in immunocompromised patients with AIDS or HIV, as they are more susceptible to more rare CMV manifestations, such as CMV pneumonitis, retinitis or colitis.

Mechanism

Guanosine Analog
G-iguana On-a-log
Ganciclovir is a synthetic analog of guanosine, which is phosphorylated by a viral kinase encoded by CMV during infection. This leads to the formation of ganciclovir triphosphate.

Disrupts DNA Synthesis
Disrupted DNA
Ganciclovir triphosphate, which is formed after processing by CMV, is a competitive inhibitor of nucleotide incorporation into DNA. This leads to disrupted DNA synthesis in the virus.

Inhibits Viral DNA Polymerase
Inhibiting-chains on DNA Polly-mirror
Ganciclovir triphosphate, which is formed by viral processing of ganciclovir, preferentially inhibits viral DNA polymerases, disrupting viral DNA synthesis.

Side Effects

Hematologic Effects
He-man-blood
Patients taking this medication can suffer from serious hematological side effects, such as anemia, thrombocytopenia, neutropenia and granulocytopenia.

Nephrotoxicity
Kidney with Toxic-green-glow
This drug is prescribed judiciously, as it can lead to nephrotoxicity in patients, and is renally excreted.

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