

Sodium Nitroprusside (Nitropress)

Sodium nitroprusside (Nitropress) is used to treat hypertensive emergencies because of its profound effects, leading to venous and arterial dilation. This medication should be used cautiously, as it can lead to cyanide and thiocyanate poisoning, and a severe drop in blood pressure. Thus patients should have continuous blood pressure monitoring when this med is infused via IV. The drug should be placed in light shielding containers, and it should not be administered for more than 3 days at a time due to the toxicity profile.



PLAY PICMONIC

Mechanism

Venous and Arterial Dilation

Vines and Artery-archer Dyed-dilation

Sodium nitroprusside breaks down in the blood to release nitric oxide, leading to smooth muscle relaxation and blood vessel dilation. This causes venous and arterial dilation (arterioles more than venules), lowering blood pressure (along with preload and afterload), while increasing oxygen and blood delivery to tissues.

Indications

Hypertensive Crisis

Hiker-BP Crying

This drug is infused intravenously in cases of acute hypertensive emergencies or in cases of malignant hypertension. Sodium nitroprusside's effects are seen within a few minutes.

Side Effects

Cyanide Toxicity

Sai with Toxic-green-glow

The most serious potential side effect of sodium nitroprusside is cyanide poisoning. The conversion of sodium nitroprusside to nitric oxide produces cyanide as a byproduct. The liver can metabolize cyanide in small amounts, but its metabolic capacity can be overwhelmed by overdosing or prolonged use, leading to cyanide poisoning. This drug should be used cautiously in those with liver disease.

Thiocyanate Toxicity

Thigh-O-sia with Toxic-green-glow

Thiocyanate toxicity can also occur with sodium nitroprusside administration (as it is a byproduct of cyanide metabolism). It has a slower onset than cyanide toxicity, but occurs more frequently. If the drug is given too rapidly or for prolonged periods, it can occur in patients with renal failure. Patients display confusion, psychosis, cramps, seizure, and possibly coma.

Hypotension

Hippo-BP

Due to the potent decrease in total peripheral resistance, this drug can lead to the side effect of severe hypotension. Because of this rapid and profound decrease in blood pressure, patients need continuous blood pressure monitoring for hypotension.

Considerations

Short Term Administration

Nurse-in-Shorts Administering

Due to the possibility for toxicity, sodium nitroprusside should be given as short term administration in infusion intervals of less than 3 days.

Light Sensitive, Use Container

Container

Sodium nitroprusside is sensitive to certain wavelengths of light and should be placed in a container for light sensitive medications. Dark colored solutions should be discarded, as this color means that the medication was damaged by light.

Continuous BP Monitoring

Infinity BP and Montior

Patients may need an arterial line, or a monitoring device to check their blood pressure while sodium nitroprusside is infusing. Because of the hypotensive effects, patients need continuous blood pressure monitoring.