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Calcium Channel Blockers: Dihydropyridine

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Description

Dihydropyridine is a type of calcium channel blocker (CCB) that refers to a group of medicines that block calcium channels in the muscle cells and arterial blood vessels of the heart, thereby reducing the irruption of calcium ions into the cells. By blocking these channels, CCB promotes vasodilation and changes in cardiac function similar as reduced heart rate, contractile strength, and heart conduction rate.

In summary, these effects contribute to lowering blood pressure and reducing the heart's oxygen conditions. Due to these cardiovascular effects, CCB can beget high blood pressure and other heart problems similar as angina (chest pain due to disabled oxygen force to the heart's muscles) and arrhythmia (disturbance of the heart's meter).

Which calcium channel blocker is dihydropyridine?

CCBs can be divided into two major classes' dihydropyridines and non-dihydropyridines with different uses and side effects, depending on the point of action. Dihydropyridine acts primarily on blood vessels, promoting vasodilation without significant direct impact on cardiac function. These include medicines ending in the suffix "dipin", similar as nifedipine, nicardipine, nimodipine, and amlodipine, to name a many. On the other hand, non-dihydropyridines have a large effect on the heart, but they're less effective in promoting vasodilation. Nondihydropyridines are low in medicines similar as verapamil and diltiazem.

Mechanism of action of dihydropyridine

Dihydropyridines function by binding to and blocking Ltypevoltage-gated calcium channels in the smooth muscle cells of arterial blood vessels. Typically, these channels open in response to electrical signals or action capabilities. Thus, it's called as "voltage-gated" L- type calcium channel. These calcium channels play a part in regulating the irruption of extracellular calcium into muscle cells, which in turn stimulates muscle compression of blood vessels. By blocking these channels, dihydropyridine reduces vascular condensation, performing in sustained vasodilation. Second, vasodilation reduces the vascular resistance of arterial vessels, which leads to lower blood pressure.

Use of dihydropyridine

Dihydropyridines can be used for a variety of conditions associated with increased vascular resistance or increased vascular compression. It is most generally used to treat hypertension due to vasodilation or dilation of arterial blood vessels. Although it can be used by utmost people, high systolic blood pressure is generally most effective for Afro Caribbean ancestors and the senior, who are caused by stiffness in large blood vessels. In addition, some dihydropyridines, similar as nifedipine, can be given to treat high blood pressure in pregnant women.

In addition, long- acting dihydropyridines can be used to treat vasospastic angina or Prinzmetal angina caused by narrowing of the blood vessels that supply the heart with blood (coronary highways). In similar cases, dihydropyridine can dilate the coronary highways and increase blood inflow to the heart muscle. It can also be used to help stable angina, an unforeseen chest pain caused by disabled oxygen force to the heart.

Dihydropyridines can also be used to treat Raynaud's pattern, which is caused by the narrowing of the arterioles at the fingertips when exposed to cold and stress. Some dihydropyridines, similar as nifedipine, can also be used to delay uterine condensation in pregnant women at threat of preterm birth, reducing the threat of neonatal complications. Eventually, nimodipine is used to help cerebrovascular spasm (unforeseen narrowing of the cerebrovascular vessels), serious complications that may do after the onset of subarachnoid hemorrhage, or bleeding in the protective membrane that surrounds the brain and spinal cord.

Side effects of dihydropyridines

Dihydropyridines are generally well permitted amongst utmost individualities. Still in some cases, they may amplify their own effects, causing unwanted side effects. For illustration, inordinate vasodilation can affect in low blood pressure, headaches, dizziness, and facial flushing. Also, dihydropyridine can beget an unforeseen drop in blood pressure, which can lead to activation of the sympathetic nervous system, leading to reflex tachycardia (an increased heart rate). In turn, this can lead to pulsations (the uncomfortable sensation of the heart pounding inside the casket). Another common side effect is ankle lump, which can affect from increased leakage of fluid from blood vessels. Eventually, gingival hyperplasia (blowup of

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the epoxies) is a rare side effect that can be seen with certain dihydropyridines, similar as nifedipine.