Diabetic Neuropathy treatment benefits with Nebivolol

NEWS

Pain Management

Patients with primary and secondary diabetes share common etiologic mechanism with diabetic neuropathy. Chronic hyperglycemia in diabetes mellitus causes oxidative stress and proinflammatory changes which in turn results in vascular complications including endothelial dysfunction and peripheral neuropathy. Diabetic neuropathy may further result in several complications and that is probably due to the impairment in the functioning of nitric oxide (NO) generating nerves.

NO is a neurotransmitter in the central and peripheral systems. In many tissues, NO mediates nonadrenergic, noncholinergic relaxant responses. Activation of neuronal synthase causes generation of NO in the nerves, which further get diffused into the smooth muscle and activate the soluble guanylyl cyclase. Soluble guanylyl cyclase produces an increase in intracellular cyclic guanosine 3',5' monophosphate concentration, leading to relaxation. This data indicates that increase in NO levels can be used as a treatment approach for diabetic neuropathy.

Nebivolol is a well-known long acting cardioselective beta blocker used commonly in the treatment of hypertension and offers vasodilating properties possibly due to its interaction with L-arginine/nitric oxide pathway. Recent study has reported that nebivolol had increased NO levels in rabbits with neuronal damage. This provides a scope for future in-vitro and in-vivo research to evaluate the benefit of nebivolol in the treatment and prevention of diabetic neuropathy.

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