

1. J Clin Hypertens (Greenwich). 2012 Sep;14(9):644-9. doi: 10.1111/j.1751-7176.2012.00669.x. Epub 2012 Jun 7.

The pleiotropic effects of phosphodiesterase 5 inhibitors on function and safety in patients with cardiovascular disease and hypertension.

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J Clin Hypertens (Greenwich). 2012; 14:644-649. © 2012 Wiley Periodicals, Inc. Phosphodiesterase 5 (PDE-5) inhibitors are selective blockers of PDE-5, which catalyzes the hydrolysis of cyclic guanosine monophosphate (cGMP) to its corresponding monophosphates. cGMP is a potent vasodilator and nitric oxide donor. Since PDE-5 is widely distributed in the body, it was hypothesized that inhibition of its actions could lead to significant vasodilation, which could benefit patients with coronary artery disease. This hypothesis led to the development of PDE-5 inhibitors, the first being sildenafil citrate. Studies of sildenafil in patients with coronary artery disease demonstrated a modest cardiovascular effect but a potent action on penile erection in men, resulting in sildenafil becoming first-line treatment of erectile dysfunction. Two more PDE-5 inhibitors are now US Food and Drug Administration-approved (vardenafil and tadalafil) for the treatment of erectile dysfunction. Recent studies have demonstrated several beneficial pleiotropic cardiovascular effects of PDE-5 inhibitors in patients with erectile dysfunction and multiple comorbidities, including coronary artery disease, heart failure, hypertension, and diabetes mellitus. Treatment of these conditions with PDE-5 inhibitors has been very effective, safe, and well tolerated. Drug interactions have been minimal with the exception of nitrates, where coadministration may result in severe vasodilation and hypotension. These beneficial pleiotropic and safe cardiovascular effects of PDE-5 inhibitors will be discussed in this concise review.

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