

Differences among the three PDE5 inhibitors used for erectile dysfunction

Sildenafil (Viagra)

Initial dose: 50 mg, titrated up to 100 mg or down to 25 mg based on efficacy and tolerability, no more than once daily

Mean terminal half-life: about 4 hours

Duration of action: up to 4 hours

Selectivity: 10-fold more potent for PDE5 than for PDE6 (present in the retina); more than 700-fold more potent for PDE5 than for PDE11

Nitrates: absolutely contraindicated with all PDE5 inhibitors

Use with alpha-blockers: 50-mg or 100-mg doses should not be taken within 4 hours of alpha-blocker administration; a 25-mg dose may be taken at any time

Use with congenital or acquired QT prolongation or with class Ia or III antiarrhythmic drugs: no special precautions

Use in renal insufficiency: dose decreased to 25 mg not more than once daily in severe renal failure (creatinine clearance < 30 mL/minute); limited experience in patients on hemodialysis

Use in age > 65 years: initial dose decreased to 25 mg

Effect of food: high-fat meals decrease maximum plasma concentration by 29% and delay time to maximum plasma concentration by 60 minutes

Effect of alcohol: sildenafil 50 mg did not potentiate the hypotensive effect of alcohol, with mean maximum blood alcohol level of 0.08%

Vardenafil (Levitra)

Initial dose: 10 mg titrated up to 20 mg or down to 5 mg based on efficacy and tolerability, no more than once daily

Mean terminal half-life: about 4 hours

Duration of action: up to 4 hours

Selectivity: 15-fold more potent for PDE5 than for PDE6; more than 300-fold more potent for PDE5 than for PDE11

Nitrates: absolutely contraindicated with all PDE5 inhibitors

Use with alpha-blockers: **contraindicated**

Use with QT prolongation or with class Ia or III antiarrhythmic drugs: should be avoided

Use in renal insufficiency: no dose adjustment recommended; not yet evaluated in patients on dialysis

Use in age > 65 years: initial dose decreased to 5 mg

Effect of food: high-fat meals decrease maximum plasma concentration by 18% to 50%; can be taken with or without food

Effect of alcohol: vardenafil 20 mg did not potentiate the hypotensive effect of alcohol when given with alcohol 0.5 g/kg (equivalent to about 40 mL of absolute alcohol in a 70-kg person); plasma levels of alcohol and vardenafil were not altered when given simultaneously

Tadalafil (Cialis)

Initial dose: 10 mg titrated up to 20 mg or down to 5 mg based on efficacy and tolerability, no more than once daily

Mean terminal half-life: about 17.5 hours

Duration of action: up to 36 hours

Selectivity: 700-fold more potent for PDE5 than for PDE6; 14-fold more potent for PDE5 than for PDE11A1 (in skeletal muscle)

Nitrates: absolutely contraindicated with all PDE5 inhibitors

Use with alpha-blockers: contraindicated except with tamsulosin 0.4 mg once daily

Use with QT-prolongation or with class Ia or III antiarrhythmic drugs: no special precautions recommended

Use in renal insufficiency: dose decreased to 5 mg not more than once daily in moderate or severe renal insufficiency

(creatinine clearance < 30 mL/minute); no data available in patients on dialysis

Use in age > 65 years: no dose adjustment is warranted on the basis of age alone

Effect of food: rate and extent of absorption are not affected by food; may be taken without regard to food

Effect of alcohol: postural hypotension and dizziness may occur with coadministration of tadalafil 20 mg with alcohol 0.7 g/kg but not with 0.6 g/kg; plasma levels of alcohol and tadalafil were not altered when given simultaneously.

Drug interactions with PDE5 inhibitors

Nitrates: absolutely contraindicated with all PDE5 inhibitors

Alpha-blockers: contraindicated with tadalafil (except tamsulosin) and vardenafil

Drugs that prolong the QT interval (class IA and III antiarrhythmic drugs) should be avoided with vardenafil

Drugs that increase plasma levels of PDE5 inhibitors (cytochrome P450 CYP3A4 inhibitors)

Protease inhibitors (particularly ritonavir)

Ketoconazole, itraconazole

Erythromycin

Cimetidine

Drugs that are expected to decrease plasma levels of PDE5 inhibitors (cytochrome P450 CYP3A4 inducers)

Phenytoin

Rifampin

Phenobarbitol

Carbamazepine