

ALPHA-ADRENOCEPTOR ANTAGONISTS (ALPHA-BLOCKERS)

Alpha-blockers are usually used as add-on drugs in difficult to treat hypertension or where other drugs are poorly tolerated.

Examples

- Doxazosin
- Indoramin
- Prazosin
- Terazosin

Mechanism of action

Commonly used alpha-blockers act selectively at post-ganglionic α_1 -receptors. Selective blockade of peripheral α_1 -receptors leads to vasodilatation and hence reduction in blood pressure.

Pharmacokinetics

Alpha-blockers are well absorbed after oral administration and undergo extensive hepatic metabolism. The main difference between agents is in elimination half-life: short with indoramin and prazosin and much longer with doxazosin and terazosin.

Adverse effects

- First-dose postural hypotension associated with reflex cardioacceleration and palpitation. **Less common with doxazosin.** However, profound hypotension can occur when higher doses of the standard formulation (e.g. doxazosin 4 mg) are initiated instead of the XL formulation.
- Vaso-vagal syncope after first dose if unable to mount a rapid heart rate response to hypotension. **Caution particularly with terazosin.**
- Headache
- Oedema
- Stress incontinence in women
- Drowsiness with indoramin

Practical issues

All alpha-blockers reduce blood pressure. However, doxazosin is the preferred option because longer duration of action allows once daily administration. With the sustained release formulation, the onset of action of doxazosin is gradual making first-dose hypotension less common. Alpha-blockers are usually used with other agents in the treatment of resistant hypertension.

In addition to a role in hypertension, alpha-blockers are used to treat benign prostatic hypertrophy. Prazosin is also licensed for the treatment of Raynaud's syndrome.

Alpha-blockers have a favourable effect on atherogenic lipid profiles suggesting particular benefits in cardiovascular protection. This was not confirmed in the one outcome trial in which doxazosin was used as a first-line option. Monotherapy with alpha-blockers may be associated with an increased risk of heart failure.

The only **compelling indication** for alpha-blockers is benign prostatic hypertrophy. These drugs should be used with **caution** in patients with a history of postural hypotension or heart failure. A **compelling contraindication** is urinary incontinence.

In the absence of a compelling indication or contraindication for an alpha-blocker, these drugs should be used as recommended in the NICE/BHS ACD algorithm i.e. as a **step 4** therapy option in individuals with blood pressure above target despite treatment with an ACE inhibitor or angiotensin receptor blocker (A), a calcium channel blocker (C) and thiazide or thiazide-like diuretic (D) each at full dose, in combination.

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