

# Direct vasodilation

Vasodilators are **drugs causing blood vessels dilatation**.

## Classification of vasodilators

### 1. Myotropic

- **coronary** – nitrates, nitrites, molsidomine;
- **others** –  $\text{Ca}^{2+}$  Channel blockers, hydralazines, nitroprusside, minoxidil, diazoxide, purines, nicotine derivatives, others.

### 2. Neurotropic – $\alpha_1$ -lytic

- **non-selective** – phentolamine, phenoxybenzamine;
- **selective** – prazosin, doxazosin, metazosin.

### 3. ACEI

**It is advisable to divide the individual drugs according to the site of action**

- mainly for **arterioles** – hydralazines,  $\text{Ca}^{2+}$  antagonists, phentolamine, purines, nicotinic acid derivatives, others;
- mainly for **veins** – nitrates, molsidomine (at higher doses also arterioles);
- for **arterioles and veins** – selective  $\alpha_1$ -lytic, ACEI, nitroprusside.

## Direct vasodilation

They **reduce** blood pressure by dilating the effect on vascular smooth muscle - thereby **reducing peripheral vascular resistance** while maintaining compensatory mechanisms mediated by baroreceptors, sympathetic nerves and the renin-angiotensin-aldosterone system ( RAAS ). This fact has its advantages and disadvantages.

- **The advantage** is that the vasodilators are not hypotensive, they dilate the renal arterioles, so they do not restrict renal flow. They do not affect sexual function. They can be given during pregnancy.
- **The disadvantages** are fluid retention by RAAS activation and the subsequent possible expansion of extracellular volume, undesired reflex tachycardia, and a decrease in the antihypertensive effect due to compensatory effects. The mentioned disadvantages can be balanced by combination with  $\beta$ -lytics (in case of contraindication  $\beta$ -lytics they can be combined with methyldopa, clonidine). The risk of fluid retention can be avoided by concomitant administration of diuretics.

### Representatives

- **Dihydralazine**
- **Endralazine**
- **Minoxidil**
- **Sodium nitroprusside**

## Links

### Related articles

- Treatment of ischemic heart disease
- Antihypertensives
- Renin-Angiotensin-Aldosterone system
- Angiotensin II receptor blockers
- Hypertension
- Hypertensive crisis

### Source

- MARTÍNKOVÁ, Jiřina – MIČUDA, Stanislav – CERMANOVÁ, Jolana. *Vybrané kapitoly z klinické farmakologie pro bakalářské studium : Kardiovaskulární systém* [online]. ©2000. [cit. 2010-07-01]. <<https://www.lfhk.cuni.cz/farmakol/predn/bak/kapitoly/prednasky/kardio-bak.ppt/>>.

