



Antihypertensive Agents

Updated: July 20, 2017.

OVERVIEW

Antihypertensive medications are some of the most important and commonly used drugs in medical practice. Hypertension affects at least 50% of persons over the age of 60 and is an important cause of morbidity and mortality from cardiovascular and cerebrovascular disease.

More than 50 medications are used in the therapy of hypertension. The drugs can be categorized into seven major classes: (1) diuretics, (2) sympatholytic drugs, (3) calcium channel blockers, (4) angiotensin converting enzyme [ACE] inhibitors, (5) angiotensin II receptor antagonists/blockers [ARBs], (6) direct renin antagonists, and (7) various vasodilators.

Overall, the antihypertensive agents are rare causes of drug induced liver injury, the exceptions being two agents that have been in use for more than 50 years and are now not commonly used: methyldopa and hydralazine. The other antihypertensive drugs have been linked to drug induced liver injury only in isolated case reports and are rarely listed in large case series of acute liver failure or clinically apparent liver injury with jaundice due to medications.

The diuretics can be categorized into four groups: thiazides, loop diuretics, potassium-sparing diuretics, and carbonic anhydrase inhibitors. Some of these agents have been implicated in causing liver injury in rare single case reports.

- [Thiazide Diuretics](#)
- [Loop Diuretics](#)
- [Potassium-Sparing Diuretics](#)
- [Carbonic Anhydrase Inhibitors](#)

Sympatholytic drugs include alpha- and beta-adrenergic receptor antagonists (alpha blockers and beta blockers) as well as centrally acting agents such as clonidine, guanabenz, methyldopa, minoxidil, and reserpine. These agents rarely cause liver injury, the exception being methyldopa which can cause acute or chronic hepatitis, that can be severe, resulting in acute liver failure or cirrhosis.

- [Alpha Adrenergic Receptor Antagonists](#)
- [Beta Adrenergic Receptor Antagonists](#)
- [Clonidine](#)
- [Methyldopa](#)
- [Reserpine](#)

Calcium channel blockers (CCBs), angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), and direct renin inhibitors are some of the most potent and well tolerated antihypertensive

agents and are widely used. Many of these agents have been implicated in causing clinically apparent liver injury, but only in isolated case reports.

- Aliskiren
- Angiotensin-Converting Enzyme Inhibitors
- Angiotensin II Receptor Antagonists
- Calcium Channel Blockers

Finally, various arterial and venous vasodilators are useful for managing hypertension in special situations. Guanfacine, minoxidil and nitroprusside have not been implicated in causing liver injury. In contrast, hydralazine is a well known cause of clinically apparent liver injury, often presenting with autoimmune features.

- Guanfacine
- Hydralazine
- Minoxidil
- Sodium Nitroprusside

ANNOTATED BIBLIOGRAPHY

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