

Overview of Propranolol – Anti hypertensive Drug

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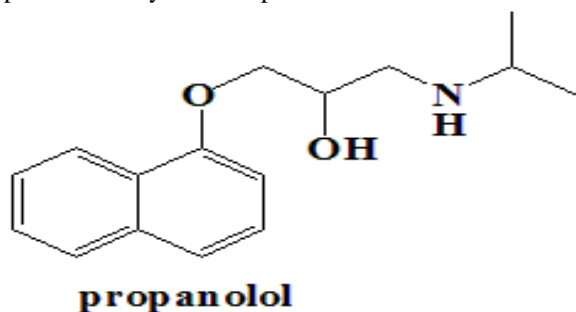
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Abstract—Propranolol a non cardioselective blocker, is most commonly recognised for its application in the therapy of various cardiovascular condition, such as hypertension, coronary artery disease, and tachyarrhythmias. However, due to its ability to cross the blood – brain barrier and affinity towards multiple macromolecules, not only adrenoceptors, it has also found application in other fields. For example, it is one of the treatments of stage fright. This review focuses on the application of propranolol in the treatment of various types of anxiety and stress, with particular reference to stage fright and post-traumatic stress disorder (PTSD). Both mechanisms of action as well as comparison with other therapies are discussed. Propranolol is, in most countries, considered off-label; this review aims to gather information that can guide the choice of propranolol as a drug in the treatment of those mental conditions.

Index Terms—Anxiety, beta blocker, myocardial infarction, portal hypertension, propranolol.

I. INTRODUCTION

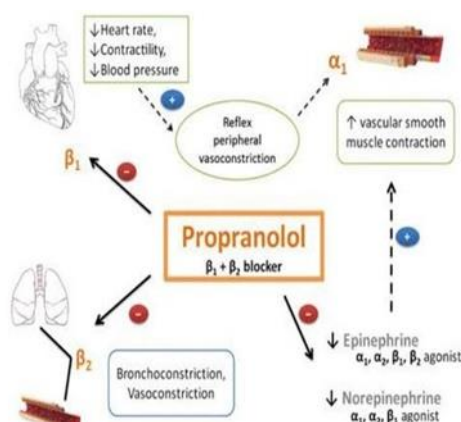
Propranolol is indicated to treat hypertension. Propranolol is also indicated to treat angina pectoris due to atherosclerosis, atrial fibrillation, myocardial infarction, migraine, essential tremor, hypertrophic subaortic stenosis, pheochromocytoma, pheochromocytoma, and proliferative



II. MECHANISM OF ACTION

- Propranolol lowers blood pressure in hypertension by:

- Decreased cardiac output is the primary mechanism,
- Inhibition of renin release from the kidney and decreased sympathetic outflow from the CNS also contribute to propranolol's antihypertensive effect.



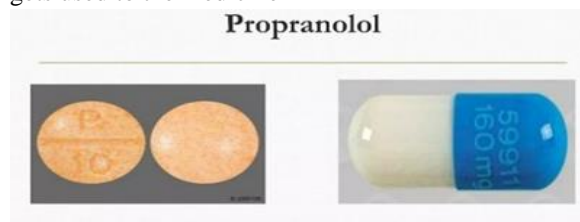
III. PHARMACOLOGICAL ACTION

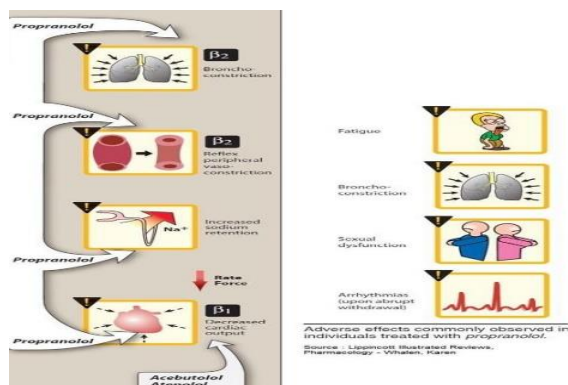
Heart:

Propranolol is a non-selective beta-blocker that exerts its pharmacological effects by blocking the action of epinephrine (adrenalin) and norepinephrine (noradrenaline) on beta-adrenergic receptors. Here is a breakdown of its pharmacological action:

IV. SIDE EFFECTS

Like all medicines, propranolol can cause side effects in some people, but many people have no side effects or minor ones. Side effects often improve as your body gets used to the medicine.





Common side effects:

These common side effects happen in more than 1 in 100 people. They're usually mild and short-lived.

- Headache
- feeling tired, dizzy or weak
- cold fingers or toes
- feeling or being sick (nausea or vomiting), or diarrhoea
- stomach pain

Serious side effects:

It happens rarely, but some people have serious side effects when taking propranolol

Major interactions:

1. Beta-agonists: concurrent use with beta-agonists (e.g., albuterol, salmeterol) may lead to bronchospasm or cardiac effects.
2. Calcium channel blockers: Combining propranolol with calcium channel blockers (e.g., verapamil, diltiazem) may increase the risk of cardiac conduction disturbances.
3. Digoxin: Propranolol may increase digoxin levels, leading to toxicity
4. Warfarin: propranolol may potentiate warfarin's anticoagulant effects.

V. DRUG INTERACTIONS

- propranolol and insulin:
- Delayed recovery of hypoglycaemia by insulin
- Warning signs are suppressed
- Propranolol + alpha agonists: Rise in
- NSAIDs + propranolol:

Attenuation of anti-hypertensive action of beta-blockers

VI. USES

- Propranolol treats high blood pressure
- Control heart rhythm in atrial fibrillation relieve angina (chest pain)
- Prevent migraines
- Reduce shaking or essential tremor
- Help with medical conditions involving your thyroid and adrenal glands
- Support heart function after a heart attack

VII. CONCLUSION

The study validates the use of propranolol hydrochloride as the first-line agent for the treatment of Hirsutism and congenital hemangiomas. It may have an additive role in lymphatic malformations, as a part of a multimodality treatment approach for vascular malformations.

REFERENCE

- [1] Stapleton MP. Sir James Black and propranolol. The role of the basic sciences in the history of cardiovascular pharmacology. *Tex Heart Inst J.* 1997; 24:336–42. [PMC free article] [PubMed] [Google Scholar]
- [2] Rabkin R, Stables DP, Levin NW, Suzman MM. The prophylactic value of propranolol in angina pectoris. *Am J Cardiol.* 1966; 18:370–83. doi: 10.1016/0002-9149(66)90056-7. [DOI] [PubMed] [Google Scholar]
- [3] Black JW. Ahlquist and the development of beta-adrenoceptor antagonists. *Postgrad Med J.* 1976;52(Suppl 4):11–3. [PubMed] [Google Scholar]
- [4] Black O, Gerskowitch SV, Hull RA, Shankley NP. The pharmacological toolmaker's rational approach to drug design: An appreciation of Sir James Black. *Trends Pharmacol Sci.* 1988; 9:435–7. [Google Scholar]
- [5] Quirke V. Black, James Whyte, *Encyclopedia of Life Sciences.* Vol. 20. London: Nature Publications Group; 2002. pp. 300–1. [Google Scholar]
- [6] Besterman EM, Friedlander DH. Clinical experiences with propranolol. *Postgrad Med J.* 1965; 41:526–35. doi: 10.1136/pgmj.41.479.526.

[DOI] [PMC free article] [PubMed] [Google Scholar]

- [7] Prichard BN, Gillam PM. Treatment of hypertension with propranolol. Br Med J. 1969; 1:7–16. doi: 10.1136/bmj.1.5635.7. [DOI] [PMC free article] [PubMed] [Google Scholar]
- [8] Goldstein S. Propranolol therapy in patients with acute myocardial infarction: The beta-blocker heart attack trial. Circulation. 1983;67: 153–7. [PubMed] [