Alpha1 receptor agonists (i.e. nasal decongestants) are most frequently used as vasoconstrictors. Adverse effects are related to excessive vasoconstriction and include increased blood pressure, abnormal heart rhythm, headaches, and strokes. (Overuse of topical decongestants can lead to local irritation and increased congestion.)

Beta receptor agonists : bronchodilators such as ventolin are useful in the treatment of asthma and chronic obstructive pulmonary disease. Beta receptor agonists adverse effects are due to excessive sympathetic nervous system activity, heart rhythm abnormalities, palpitations, and subsequent exacerbation of angina.

The most common adverse effect associated with beta2 receptor agonists is muscle tremor. Beta2 receptor agonists can cause CNS stimulation and subsequent anxiety and nervousness.

Alpha2 receptor agonists (e.g. clonidine) produce their antihypertensive effects via an inhibition of sympathetic activity. The most common adverse effects associated with alpha2 agonists are sedation, confusion, sexual dysfunction, dry mouth, and bradycardia.

Alpha receptor antagonists: e.g prazosin vasodilators used in the treatment of hypertension; also facilitate urine outflow and are used to treat benign prostatic hyperplasia.

Adverse effects associated with alpha antagonists include hypotension (particularly postural/ orthostatic), reflex tachycardia, nasal congestion, and inhibition of ejaculation or ovulation.

Beta receptor antagonists: e.g. Propranolol are used to treat a variety of conditions including hypertension, angina, myocardial infarction (heart attack), and abnormal heart rhythm (dysrhythmias). Agents such as timolol (Timoptic?) and betaxolol (Betoptic?) are commonly used topically for the treatment of glaucoma.

Adverse effects include bradycardia, bronchoconstriction (tightening of the airways), sedation, depression, and sexual dysfunction (impotence, decreased ejaculation or anovulation).

The bronchoconstriction is of particular concern in asthmatic and chronic obstructive pulmonary disease patients. Beta-blockers adversely affect glucose homeostasis in diabetic patients,therefore, a risk: benefit analysis must be made prior to use of this type of therapy in diabetic patients.

Abrupt discontinuation of beta-blocker therapy may lead to rebound or overshoot hypertension.

(NOTE: AGONISTS effectively increase the neurotransmitter effect, ANTAGONISTS oppose it.)

Anticholinergic Effects of Medications

- Dry mouth, slowed gastric motility, constipation, urinary hesitancy or retention, vaginal dryness, blurred vision, dry eyes, nasal congestion, and confusion or decreased memory Elderly patients are more susceptible
- Anticholinergic intoxication: cardiac emergency