

## **Anticholinergics**

*Lead as a 12-15 minute group discussion with active participation from the trainees. Used a white board to write to add visual learning component.*

### **Objectives**

1. Identify anticholinergic medications.
2. Discuss common side effects of anticholinergic medications.
3. Understand the prescribing cascade as it relates to anticholinergics.

### **Neurotransmitter:**

Acetylcholine working at the muscarinic receptors (M1-M5) of autonomic motor system, usually attributed to memory and learning. There are muscarinic sites all over body as evidenced by numerous side effects.

### **Side Effects and Consequences:**

Young patients can tolerate vs on the edge of the cliff/point tip person.

- Brain: impairs memory, agitation, delirium, hallucinations
- Eye: dilates pupil, blurred vision, increases intraocular pressure (precipitate narrow angle glaucoma) → accidents and falls
- Mouth: decreases saliva production, dry mucous membranes → malnutrition, muscular damage misfit dentures, dental caries
- Heart: tachycardia → worsen angina
- GI: decreases motility and gastric acid production → fecal impaction
- Renal: decreases bladder activity → promotes urinary retention
- Skin: fever, decreases sweat production, cutaneous vasodilation → hyperthermia

### **Common Offenders:**

- Antidepressants: TCAs and Paroxetine
- Antihistamines: Diphenhydramine
- Antipsychotics: Clozapine, Olanzapine and Quetiapine
- Skeletal Muscle Relaxants: Cyclobenzaprine
- GI: Hyoscyamine, Dicyclomine, Atropine, Scopolamine
- Urinary Incontinence: Oxybutynin, Tolterodine, Trospium

### Prescribing Cascade:

In one study, 80% of those 60 yo and older that took anticholinergics had MCI compared to 35% of non-users, but were not at risk of developing dementia.

- MCI → Acetylcholinesterase Inhibitor → incr urination and diarrhea  
→ Antispasmodic/anticholinergic agent added
- Incontinence → Anticholinergic agent added → MCI → Acetylcholinesterase Inhibitor
- Raise suspicion when you see a combination of these drugs on board

### References

1. Chew, M. L., et al. (2008). "Anticholinergic activity of 107 medications commonly used by older adults." J Am Geriatr Soc **56**(7): 1333-1341.
2. Gill, S. S., et al. (2005). "A prescribing cascade involving cholinesterase inhibitors and anticholinergic drugs." Arch Intern Med **165**(7): 808-813.
3. Tune, L. E. (2001). "Anticholinergic effects of medication in elderly patients." J Clin Psychiatry **62 Suppl 21**: 11-14.