Geriatric Optimization

Muscle Relaxants

Antispasmodics

Carisoprodol (Soma®)

Chlorzoxazone (Parafon Forte DSC®)

Cyclobenzaprine (Flexeril®)

Metaxalone (Skelaxin®)

Methocarbamol (Robaxin®)

Orphenadrine (Norflex®)

Tizanidine (Zanaflex®)

Antispastics

Baclofen (Lioresal®)

Dantrolene (Dantrium®)

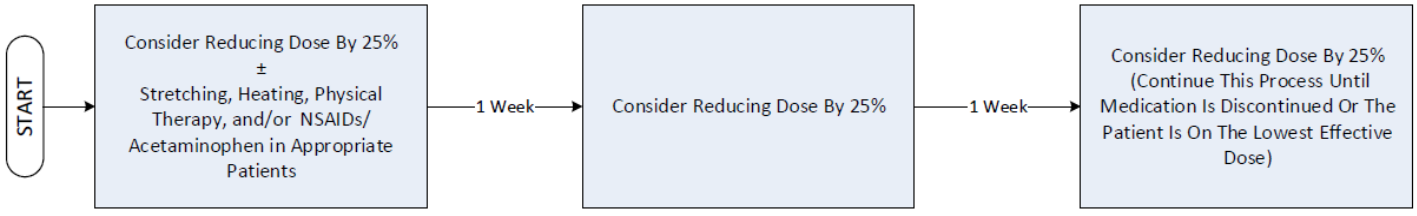
WHY ARE THESE MEDICATIONS INAPPROPRIATE?

- Older adults are more sensitive to the effects of muscle relaxants and are more likely to experience adverse CNS effects at higher doses
- Risk also increases due to unsteady gait, declines in mobility and cognition, and loss of coordination or muscle strength as patients age
- Due to elevated risk, the following medications have neem placed within Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults[1]:

Medication	Adverse Reactions	Reported Outcomes
•**Carisoprodol** •**Chlozoxazone** •**Cyclobenzaprine** •**Metaxalone** •**Methocarbamol** •**Orphenadrine**	•Anticholinergic effects •Sedation •Increased risk of falls or fractures •Effectiveness at dosages tolerated by older adults questionable •Cyclobenzaprine and orpehnadrine of particular concern in patients with dementia, cognitive impiarment, delirium, BPH[1]	• **2.25x** more likely to visit the **ED** for a fall or a fracture[2] • **1.56x** more likely to be **hospitalized** for a fall or frature[2] *Compared to older adults who have not been treated with a muscle relaxant*

APPROACH TO OPTIMIZATION

- Based on patient specific factors, it may be reasonable to consider long-term use of baclofen or tizanidine for **spasticity** conditions such as multiple sclerosis, spinal cord injury, traumatic brain injury, cerebral palsy, and/or post-stroke syndrome3
- However, safety and efficacy data with long-term use is limited4
- Muscle relaxants for musculoskeletal pain should be used temporarily, for a few days or intermittently for a few days when needed4
- If used daily for >3-4 weeks, tapering is recommended



- Taper can be extended to 10% dose reductions if needed
- If intolerable withdrawal symptoms occur within 1-3 days of a dose change, go back to previously tolerated dose and plan for a more gradual taper
- Dose reductions may need to slow down as doses become smaller

GOAL: Full Discontinuation When Appropriate

HIGHMARK
An Independent Licensee of the Blue Cross and Blue Shield Association

ADDITIONAL BEST PRACTICES

1. Ensure alternative therapies are optimized before considering muscle relaxants:

INDICATION	SKELETAL MUSCLE RELAXANTS	POSSIBLE ALTERNATIVES
Acute low back pain	Short-term use of antispasmodics	• Physical therapy • Heat • Stretching • NSAIDs in appropriate patients • Acetaminophen
Chronic low back pain	**NOT** recommended	

2. Emphasize that if muscle relaxants are needed, they are only to be utilized acutely
3. Education should be provided regarding the increased risk of falls at the time of prescribing
4. Counsel patients on the avoidance of alcohol while on muscle relaxants

REFERENCES

1. American Geriatrics Society 2019 Updated AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults. J Am Geriatr Soc. 2019; 67(4): 674-694.
2. Alvarez, C. A., Mortensen, E. M., Makris, U. E., Berlowitz, D. R., Copeland, L. A., Good, C. B., Amuan, M. E., & Pugh, M. J. V. (2015). Association of skeletal muscle relaxers and antihistamines on mortality, hospitalizations, and emergency department visits in elderly patients: a nationwide retrospective cohort study. BMC Geriatrics, 15(1), 1–8. https://doi.org/10.1186/1471-2318-15-2
3. Gelber , D. A., Good, D. C., Dromerick , A., Sergay , S., & Richardson , M. (n.d.). *Open-label dose-titration safety and efficacy study of tizanidine hydrochloride in the treatment of spasticity associated with chronic stroke*. Stroke. Retrieved November 3, 2021, from https://pubmed.ncbi.nlm.nih.gov/114861144.
4. American Pain Society (APS). Principles of Analgesic Use. 7th ed. Chicago, IL: American Pain Society; 2016.