

Drug Class Review

Skeletal Muscle Relaxants



Update #3: Preliminary Scan Report #3

June 2009

The purpose of this report is to make available information regarding the comparative effectiveness and safety profiles of different drugs within pharmaceutical classes. Reports are not usage guidelines, nor should they be read as an endorsement of, or recommendation for, any particular drug, use or approach. Oregon Health & Science University does not recommend or endorse any guideline or recommendation developed by users of these reports.

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OBJECTIVE

The purpose of this preliminary updated literature scan process is to provide the Participating Organizations with a preview of the volume and nature of new research that has emerged subsequent to the previous full review process. Provision of the new research presented in this report is meant only to assist with Participating Organizations' consideration of allocating resources toward a full update of this topic. Comprehensive review, quality assessment and synthesis of evidence from the full publications of the new research presented in this report would follow only under the condition that the Participating Organizations ruled in favor of a full update. The literature search for this report focuses only on new randomized controlled trials, and actions taken by the FDA or Health Canada since the last report. Other important studies could exist.

Date of Last Update

May 2005, update #2 (searches through November 2004).

Date of Last Scan

February 2007, preliminary scan #1 (November 2004-January 2007)

March 2008, preliminary scan #2 (January 2007-March 2008)

SCOPE AND KEY QUESTIONS

The scope of the review and key questions were originally developed and refined by the Oregon Evidence-based Practice Center with input from a statewide panel of experts (pharmacists, primary care clinicians, pain care specialists, and representatives of the public). Subsequently, the key questions were reviewed and revised by representatives of organizations participating in the Drug Effectiveness Review Project (DERP). The participating organizations of DERP are responsible for ensuring that the scope of the review reflects the populations, drugs, and outcome measures of interest to both clinicians and patients. The participating organizations approved the following key questions to guide this review:

1. What is the comparative efficacy of different muscle relaxants in reducing symptoms and improving functional outcomes in patients with a chronic neurologic condition associated with spasticity, or a chronic or acute musculoskeletal condition with or without muscle spasms?
2. What are the comparative incidence and nature of adverse effects (including addiction and abuse) of different muscle relaxants in patients with a chronic neurologic condition associated with spasticity, or a chronic or acute musculoskeletal condition with or without muscle spasms?
3. Are there subpopulations of patients for which one muscle relaxant is more effective or associated with fewer adverse effects?

Study eligibility criteria

Population

- Adult or pediatric patients with spasticity or a musculoskeletal condition. We defined spasticity as muscle spasms associated with an upper motor neuron syndrome. Musculoskeletal conditions were defined as peripheral conditions resulting in muscle or soft tissue pain or spasms.
- We included patients with nocturnal leg cramps however, excluded patients with restless legs syndrome or nocturnal myoclonus.
- Obstetric and dialysis patients were also excluded.

Drugs

- Baclofen
- Carisoprodol
- Chlorzoxazone
- Cyclobenzaprine
- Dantrolene
- Metaxalone
- Methocarbamol
- Orphenadrine
- Tizanidine
- Benzodiazepines were not considered primary drugs in this report. However, diazepam, clonazepam, and clorazepate were reviewed when they were compared in head-to-head studies with any of the skeletal muscle relaxants listed above.
- Other medications used for spasticity but considered to be in another drug class, such as gabapentin (a neuroleptic) and clonidine (an antihypertensive), were also only reviewed when they were directly compared to an included skeletal muscle relaxant.
- Quinine was only included if it was compared to a skeletal muscle relaxant.

Outcomes

The main efficacy measures were:

- Relief of muscle spasms or pain, functional status, quality of life, withdrawal rates, and adverse effects (including sedation, addiction, and abuse)
- Non-clinical outcomes such as electromyogram measurements or spring tension measurements were excluded.

The following adverse events were specifically reviewed:

- Somnolence or fatigue, dizziness, dry mouth, weakness, abuse, and addiction
- We also paid special attention to reports of serious hepatic injury.

Study types

- Controlled clinical trials to evaluate efficacy
- For adverse events, clinical trials and large, high-quality observational cohort studies were included.
- Case reports and case series were excluded

METHODS

Literature Search

To identify relevant citations, we searched Ovid MEDLINE and MEDLINE In-Process & Other Non-Indexed Citations from March 2008 through May 26, 2009 using terms for included drugs and indications, and limits for humans, English language, and randomized controlled trials or controlled clinical trials. We also searched FDA (<http://www.fda.gov/medwatch/safety.htm>) and Health Canada (<http://www.hc-sc.gc.ca/dhp-mps/medeff/advisories-avis>) websites for identification of new drugs, indications, and safety alerts. All citations were imported into an electronic database (EndNote X2) and duplicate citations were removed.

Study Selection

One reviewer assessed abstracts of citations identified from literature searches for inclusion, using the criteria described above.

RESULTS

Overview

We identified 9 potentially relevant citations. Of those, there were no new, potentially relevant studies. There were also no potentially relevant studies from the previous update scan #2. Four potentially relevant studies from update scan #1 were found. Upon second review of these citations, none of the studies were eligible.

New Drugs

No new drugs were identified.

New Indications

No new indications were identified.

New Safety Alerts

There was one FDA safety alert issued since our last scan and the information is listed in the table below:

Drug	Date	Alert type	Focus
Metaxalone	10/2008	Precaution	The sedative effects of Skelaxin and other CNS depressants (e.g., alcohol, benzodiazepines, opioids, tricyclic antidepressants) may be additive. Therefore, caution should be exercised with patients who take more than one of these CNS depressants simultaneously