

Utilization Patterns of Carisoprodol in Ambulatory Clinics and Emergency Departments, 2001-2010



Introduction

- Carisoprodol is a muscle relaxant with significant abuse potential that has been designated as a controlled substance in several states over the past decade.
- Carisoprodol has been implicated in tens of thousands of emergency department (ED) visits annually.
- Adverse outcomes are more common when carisoprodol is combined with other central nervous system depressants.
- *Research Question:* To characterize trends in carisoprodol use in US EDs and ambulatory clinics in the setting of rising rates of prescription drug abuse and scheduling changes.

Methods

- A retrospective review of data from the CDC's National Hospital Ambulatory Medical Care Survey (NHAMCS) and National Ambulatory Medical Care Survey (NAMCS) 2001-2010 was performed.
- All adult (age ≥18 years) ED (NHAMCS) and ambulatory care (NAMCS) visits during which carisoprodol was either administered or prescribed were included.
- Visits during which there was concomitant use of opioid analgesics (OAs) or benzodiazepines were also evaluated.
- The proportion of visits during which the included medications were administered or prescribed was tabulated and trends were analyzed using survey-weighted logistic regression.

Results

- Between 2001 and 2010, there were an estimated 7.6 billion adult ambulatory care visits, of which 28.2 million (0.4%) visits included a carisoprodol prescription.
- Out of an estimated 900 million ED visits between 2001 and 2010, 2.1 million (0.2%) visits received carisoprodol in the ED or prescribed at discharge.
- There was an increase in the absolute number of visits where carisoprodol was prescribed over time in both care settings.
- The proportion of visits during which carisoprodol was used did not change significantly in the ambulatory care setting and decreased in the ED when 2001-2 was compared with 2009-10.
- An OA was concomitantly used frequently with carisoprodol in both ambulatory care and EDs, but there was no proportional increase over time in either setting (Table).
- There was not adequate sample size to make reliable estimates regarding the concomitant use of carisoprodol and benzodiazepines, or a combination of all three medication classes.
- In ambulatory care clinics, the top three reasons for visit during which carisoprodol was prescribed were back pain (11.4%), low back pain (9.3%), and neck pain (7.4%).
- The most common reasons for visit to the ED during which carisoprodol was used over the study period were back pain (24.2%), low back pain (18.3%), and neck pain (8.7%).

Trends in Carisoprodol Utilization Over Time

NAMCS	2001-2 %, # Visits	2009-10 %, # Visits	Percent Change	p-Value
Carisoprodol	0.3% (4,636,134)	0.5% (7,736,352)	66.7%	0.098
Carisoprodol + OA	0.2% (2,232,202)	0.3% (4,255,556)	50.0%	0.135
% Carisoprodol visits with OA	48.2%	55.0%	14.1%	0.49
NHAMCS				
Carisoprodol	0.3% (538,332)	0.2% (376,580)	-33.3%	0.003
Carisoprodol + OA	0.2% (371,573)	0.1% (246,253)	-50.0%	0.015
% Carisoprodol visits with OA	69.0%	65.5%	-5.1%	0.706

Discussion/Limitations

- The implementation of more stringent controlled substance regulations over the past decade may have limited the increase in carisoprodol use.
- Continued high rates of concomitant use of carisoprodol with OAs may contribute to subsequent misuse, abuse, morbidity, and mortality from both agents.
- Providers must exercise caution when prescribing carisoprodol, particularly in combination with other CNS depressants, and carefully monitor patients to prevent adverse outcomes associated with these medications.
- Our study was limited in that individual charts could not be evaluated to determine appropriateness of therapy, subsequent misuse, or adverse outcomes.

Conclusions

- Utilization rates of carisoprodol did not increase significantly over time in ambulatory care and decreased in EDs.
- Future efforts should focus on interventions to promote safe and appropriate use of carisoprodol.

Disclosures

- The authors have no conflicts of interest to disclose.

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