

UAMS EM Journal Club  
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## **Pharmacologic and Non-Pharmacologic Treatments of Acute Vertigo**

### Clinical Bottom Line:

In patients with acute vertigo symptoms that have been deemed of benign etiology, first line treatment is repositioning techniques such as the Epley maneuver. If repositioning fails after multiple attempts, it would be appropriate to give antihistamines such as meclizine. Benzodiazepines seem to have minimal to no effect at improvement and should be avoided if possible.

### PICO Question

In patients with acute vertigo, do vestibular suppressants help with vertigo severity and if so, which are most effective?

### Background

Vertigo is a common complaint in the emergency department and can be debilitating. Although we often diagnose BPPV as the cause of vertigo, there is unclear data as to what medications are effective at acute management of presumed BPPV. Repositioning techniques and medications are often what physicians use in the emergency department. However, it is unclear which intervention is superior or if they improve clinical outcomes at all.

### **Trial 1**

Hunter BR, Wang AZ, Bucca AW, et al. Efficacy of Benzodiazepines or Antihistamines for Patients With Acute Vertigo: A Systematic Review and Meta-analysis. *JAMA Neurol.* 2022;79(9):846–855.  
doi:10.1001/jamaneurol.2022.1858

### Risk of Bias:

Low risk of bias due to independent assessment of studies by 2 authors, that then discussed if there was conflict in the inclusion of a study.

### The Basics:

This was a systematic review with a quantitative meta-analysis of randomized control studies across the world that looked at changes in symptoms of vertigo after medication administration.

### Methods:

This study included 27 randomized control studies (1586 participants) that compared antihistamine or benzodiazepines with another medication, placebo, or no intervention, for patients who presented with acute vertigo, defined as symptoms for 2 weeks or less. These studies were obtained from PubMed, CENTRAL, EMBASE, CINAHL, Scopus, and ClinicalTrials.gov databases from inception to January 14, 2019, and were reviewed by 2-3 reviewers independently. Of these studies, 7 were identified (802 participants) as evaluating the primary outcome of improvement of vertigo symptoms by single dose antihistamine compared to benzodiazepine as defined by change in Visual Analog Scale (VAS, 100 point system) at 2 hours after administration. Secondary outcomes also included change in VAS score at 2 hours for nausea symptoms, use of rescue medication at 2 hours, improvement/resolution at 1 week as well as at 1 month.

#### Results:

Single dose antihistamine showed more improvement in vertigo symptoms at 2 hours after administration compared to benzodiazepines ((difference, 16.1 [95% CI, 7.2 to 25.0]), but not compared to other medications ex. droperidol, ondansetron ( difference, 2.7 [95% CI, -6.1 to 11.5]).

#### Limitation/Bias:

Ultimately there were only 3 studies that looked at antihistamines vs. benzodiazepines, and they were combined with the antihistamines vs. other medications group to provide the conclusion of a VAS change of 16.1. Therefore, there was high heterogeneity in this study which may be due to variety in medications used, or due to small number of studies.

#### Trial 2

Sharif S, Khoujah D, Greer A, et al. Vestibular suppressants for benign paroxysmal positional vertigo: A systematic review and meta-analysis of randomized controlled trials. Academic Emergency Medicine. DOI: 10.1111/acem.14608

#### Risk of Bias:

High risk of bias due to difficulty of blinding and small patient populations, however the results were reviewed by two authors.

#### The Basics:

This systematic review and meta-analysis of 5 randomized control trials compared the clinical outcomes of vestibular suppressants in the treatment of benign paroxysmal positional vertigo (BPPV) to canalith repositioning maneuvers (CRMs) and placebo.

#### Methods:

The examiners conducted a search of 4 clinical databases for randomized control trials investigating the use of vestibular suppressants in the management of BPPV in the emergency department or outpatient setting. Two reviewers screened all the studies and disagreements were resolved with a third party. Risk of bias was assessed using the Cochrane RoB tool 2.0 and certainty of evidence was assessed using the Grading Recommendations Assessment, Development, and Evaluation (GRADE) approach. The meta-analysis was conducted using the DerSimonian and Laird random-effects models and heterogeneity was assessed through forest plots.

#### Results:

The use of vestibular suppressants to treat BPPV have an uncertain effect on symptom resolution at 24 hours or point of longest follow up, repeat ED or clinic visits, patient satisfaction, quality of life, or uncertain effects. However, there is evidence to support that the use of CRMs may improve symptom resolution at the point of longest follow up.

#### Limitation/Bias:

This study was limited in that the population study was small resulting in low certainty of evidence and risk of bias was high in all the included RCTs. Furthermore, there may have been heterogeneity of physician ability to perform CRMs correctly and the point of longest follow up varied greatly.