



Evidence Request #P0015

Breath-a-tech Spacers

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Abstract

Background: Southern Health is considering replacing Volumatic spacers which are single use only, with Breath-a-tech spacers, as Breath-a-tech spacers can be reused.

Clinical Question: In children receiving inhaled asthma medications, does use of Breath-a-tech spacers as compared to Volumatic spacers effect clinical outcomes such as length of stay, time to symptom resolution, etc?

Methods: We included trials published in English. Studies in vitro or in animals were excluded. We searched The Cochrane Library, Medline, CINAHL, TOXLINE, TOXNET, Biological Abstracts, International Pharmaceutical Abstracts and several relevant websites, including Google Scholar, in June 2006.

Studies were selected and appraised by one reviewer in consultation with colleagues, using inclusion, exclusion and appraisal criteria established a priori.

Results: No studies were identified which compared the effectiveness of Volumatic spacers with Breath-a-tech spacers in children. One randomised cross-over study was identified which compared the effectiveness of Volumatic spacers with Breath-a-tech spacers in adults.

Conclusions: There are no studies comparing use of Breath-a-tech and Volumatic spacers in children. The one identified randomised cross-over trial in adults found no difference between Breath-a-tech and Volumatic spacers in either acute lung function improvement after histamine challenge, or longer term asthma control. Patient preference favoured the Breath-a-tech spacer (72% vs 4%).

Implications for Practice: Recommendations for choice of spacers for use by children at Southern Health should be made on the consensus opinion of a multidisciplinary group including consumers, in light of the evidence from the one available study in adults.

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Background

Southern Health is considering replacing Volumatic spacers which are single use only, with Breath-a-tech spacers, as Breath-a-tech spacers can be reused. Clinicians wondered whether there was any evidence that compared the effectiveness of Volumatic and Breath-a-tech spacers in treatment of asthma in children.

Clinical Question

In children receiving inhaled asthma medications, does use of Breath-a-tech spacers as compared to Volumatic spacers effect clinical outcomes such as length of stay, time to symptom resolution, etc?

Methods

Study Selection Criteria

Patient	Children receiving inhaled asthma medications
Intervention	Breath-a-tech spacers
Comparison	Volumatic spacers
Outcomes	Any
Study Type	Any
Publication Date	Any
Language	English

Search Strategy

Evidence Source	Date of Search	Evidence Source	Date of Search
The Cochrane Library *	5 th June 2006	TOXLINE	5 th June 2006
Medline (PubMed)	5 th June 2006	TOXNET	5 th June 2006
CINAHL (Ovid)	5 th June 2006	International Pharmaceutical Abstracts	5 th June 2006
Biological Abstracts	5 th June 2006		

*(including The Cochrane Database of Systematic Reviews, DARE, CENTRAL and HTA)

Search Terms in Medline

Patient	-
Intervention	(breath-a-te* or breatha-te* or breath-ate* or breathate* or optichamber or opti-chamber)
Comparison	-
Outcomes	-

* note that Breath-a-tech is distributed under the name "Opti-Chamber" in the United States of America

Data Collection & Analysis

Studies were selected and appraised by one reviewer in consultation with colleagues, using inclusion, exclusion and appraisal criteria established a priori.

Results

Our searches retrieved 104 potentially relevant articles, 93 were excluded on review of title and eleven abstracts were reviewed. Of these eleven, ten reported in vitro studies.¹⁻¹⁰ Full text was retrieved of one study.¹¹

Characteristics of included studies:

Study	Study Type	N (total)	Setting	Patients	Intervention	Comparison	Outcomes
Gibson et al ¹¹	2 sequential cross-over RCTs	27	Outpatient asthma service	Adults with stable asthma	Breath-a-tech spacer	Volumatic spacer	Response to salbutamol after histamine challenge (FEV ₁ decreased 20% from baseline or = 1L) (FEV ₁ , FEF 25-75). Daily PEF, symptom score, patient preference over two, 2-week periods

Quality of included studies:

Study: Gibson et al ¹¹	Comments	
Specified inclusion/ exclusion criteria	Yes	Adults ≥18years old with stable asthma who were currently using inhaled bronchodilator and corticosteroid therapy. Definition of stable asthma provided.
Adequate method of randomisation	Unclear	Method of randomisation not provided
Groups similar at baseline except for exposure	Unclear	Comparison of characteristics of groups at baseline not provided, however cross-over design minimises any effect of uneven distribution of characteristics
Concealment of allocation	Unclear	Not described
Patients/investigators/assessors blind to treatment group	Some	Acute response study was placebo controlled and description implies patients are blind. Four week cross-over trial was not blind. Blinding of investigators and assessors is not described.
Adequate duration of follow-up	Yes	Both acute response (2, 4, 6, 8, 10, 15, 20 minutes) and two, 2-week longer term outcomes assessed
Minimal proportion lost to follow up	Unclear	Not described
Objective & independent assessment of outcomes	Some	Spirometry assessments are objective. Symptom scores, patient-measured PEF and patient preference are subjective and likely interrelated
Intention-to-treat analysis	Yes	Outcomes assessed in randomised group regardless of compliance.

Results of included studies:

Gibson et al ¹¹	Results did not differ between Breath-a-tech or Volumatic spacers either in the acute outcomes in the histamine challenge or in longer term outcomes over two, 2-week periods of use. Improvement in forced expiratory volume 1 second (FEV ₁) and forced expiratory flow between 25 and 75% of vital capacity (FEF 25-75) after histamine challenge were not different between spacers. Daily peak expiratory flow (PEF) and symptom scores were not different between spacers. Patient preference favoured the Breath-a-tech spacer (72% vs 4%).
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Conclusions

There are no studies comparing use of Breath-a-tech and Volumatic spacers in children. The one identified randomised cross-over trial in adults found no difference between Breath-a-tech and Volumatic spacers in either acute lung function improvement after histamine challenge, or longer term asthma control. Patient preference favoured the Breath-a-tech spacer (72% vs 4%).

Implications for Practice

Recommendations for choice of spacers for use by children at Southern Health should be made on the consensus opinion of a multidisciplinary group including consumers, in light of the evidence from the one available study in adults.

References

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