TITLE: Bronchial Thermoplasty for Severe Asthma: Clinical and Cost-Effectiveness, and Guidelines

DATE: 27 March 2014

RESEARCH QUESTIONS

1. What is the clinical effectiveness of bronchial thermoplasty for patients with severe asthma?

2. What is the cost-effectiveness of bronchial thermoplasty for patients with severe asthma?

3. What are the evidence-based guidelines regarding the use of bronchial thermoplasty for patients with severe asthma?

KEY MESSAGE

One systematic review, one meta-analysis, one randomized controlled trial, four non-randomized studies, and four evidence-based guidelines were identified regarding bronchial thermoplasty for patients with severe asthma. No relevant economic studies were identified.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2014, Issue 3), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2009 and March 18, 2014.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, economic evaluations, and evidence-based guidelines. One systematic review, one meta-analysis, one randomized controlled trial, four non-randomized studies, and four evidence-based guidelines were identified regarding bronchial thermoplasty for patients with severe asthma. No relevant economic studies were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The results of the systematic review\(^1\) and meta-analysis\(^2\) suggest that bronchial thermoplasty (BT) provided some benefit in regards to quality of life when compared with medical management or sham intervention. There was an increase in adverse events reported in the BT group but most resolved within a week.\(^1,2\) No significant improvement in pulmonary function parameters was reported.\(^1\)

One randomized controlled trial\(^3\) compared BT with sham procedure for patients with severe asthma who did not respond to medical treatment. The improvement in quality of life scores was greater in the BT group. Fewer exacerbations, emergency department visits, and work/school days missed were reported in the BT group. Two non-randomized studies\(^5,6\) assessed the long-term effectiveness of BT following patients' participation in one randomized study. The proportion of patients experiencing severe exacerbation was reduced after BT, and this benefit was maintained at two years\(^6\) and five years.\(^5\)

Three non-randomized studies\(^4,5,7\) assessed the long-term safety of BT. Patients who had participated in randomized studies were assessed at five years after BT. The rate of respiratory adverse events remained low\(^4,5,7\) and there was a decrease in hospitalizations and emergency department visits for respiratory symptoms.\(^4,5,7\) The authors concluded that BT was safe and that results were maintained at five years.\(^4,5,7\)

Four evidence-based guidelines\(^8-11\) were identified. The guideline summary from the European Respiratory Society and American Thoracic Society\(^8\) mentions BT, but no detail or recommendations are provided. The remaining three guidelines\(^9-10\) suggest that BT is an option for some adult asthma patients whose symptoms remain uncontrolled with other treatments; however, care should be taken when choosing candidates for the procedure until more long-term effectiveness and safety results are available.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies


Economic Evaluations
No literature identified.

Guidelines and Recommendations

PubMed: PM24337046


PREPARED BY:
Canadian Agency for Drugs and Technologies in Health
Tel: 1-866-898-8439
www.cadth.ca
APPENDIX – FURTHER INFORMATION:

Review Articles


Additional References


PubMed: PM24008956

PubMed: PM22105704

PubMed: PM21189463