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ENGLISH SUMMARY

Implantable bronchial valves in the treatment of emphysema

Background

Chronic obstructive pulmonary disease (COPD) is a major cause of morbidity and mortality and is expected to be the third most common cause of death in the world in the year 2030. In Finland over 1000 people die from COPD every year. Although the incidence of COPD is no longer rising, the number of hospital days caused by the disease is significant, and the consequent health care expenditure substantive.

The progression of COPD can be delayed by conservative treatment, but existing lung damage, such as emphysema, is irreversible. In severe disease lung volume reduction surgery has been successfully employed to improve the health-related quality of life of the patients, and even to prolong life expectancy. Although lung volume reduction surgery can be performed with minimal invasiveness, it is a risky procedure and less invasive bronchoscopic procedures should, if possible, be preferred.

Aim

To establish whether implantable bronchial one-way valves, placed by flexible bronchoscopy and allowing for passage of distal air and mucus, are an effective and safe alternative for the treatment of hyperinflation of the lungs in severe emphysema caused by COPD.

Methods

A systematic literature review with searches of the databases Medline, Cochrane Central, Cochrane Database of Systematic Reviews and CRD (DARE, HTA and NHS EED).

Effectiveness

The included studies, consisting of one randomized controlled trial and four observational studies, all had relatively short follow-up times. In the only randomized study, the effectiveness of endobronchial valve treatment remained uncertain, and the procedure did not improve the health-related quality of life of the patients. In the observational studies drop-out rates were considerable and there was no convincing evidence regarding the effectiveness of the treatment modality. Adverse events were frequent.

Conclusion

Based on the uncertain clinical effectiveness and frequent adverse events, treatment of severe emphysema by implantable bronchial valves should be considered experimental.