

HALO GROUP:  
MARI MARKKANEN-LEPPÄNEN,  
PETRI KOIVUNEN, TARU HAULA,  
ANNELI AHOVUO-SALORANTA,  
JAANA ISOJÄRVI, ANTTI  
MALMIVAARA, SINIKKA SIHVO

SINIKKA SIHVO  
Ph.D., Adjunct Professor, Research  
Manager  
National Institute for Health and  
Welfare, THL/Finohta  
E-mail: sinikka.sihvo@thl.fi

# Transoral robotic surgery in the treatment of pharyngeal cancer

## Background

The main advantage of transoral robotic surgery (TORS) in pharyngolaryngeal tumour surgery is easier access and the possibility of precise work in areas offering limited visibility. TORS procedures have been performed in Finland at the Helsinki University Hospital and at the Oulu University Hospital since 2014. In this systematic review, the effectiveness, safety and costs of TORS in the treatment of pharyngeal cancer were assessed.

## Methods

On the basis of our inclusion criteria nine comparative studies (seven comparing TORS to other surgery, two to chemoradiation) and two case series were found on effectiveness. Five studies had information on costs. In addition, the costs of different treatment options were assessed based on register data from the Oulu and Helsinki University Hospitals.

## Results

Studies related to oropharyngeal or laryngeal cancer or recurrent oropharyngeal cancer treatment reported that clean margins were achieved more often with TORS. TORS patients had tube feeding or tracheostomy less frequently than patients treated with other surgical procedures.

Surgical or other complications were reported less often or with similar frequency among TORS patients compared with the other groups. Results on survival and recurrence of cancer varied. The studies were mostly observational retrospective comparative studies. No randomized trials assessing the effectiveness of TORS have so far been published. The published observational effectiveness studies were methodologically weak and thus there remains substantial uncertainty in interpretation of results.

Studies that reported costs were found to be heterogeneous concerning data, cost analyses and results. Patient level information on the use and costs of services with TORS and other treatment options was not available in the registers.

## Conclusions

Based on observational controlled studies and clinical experience, TORS seems a promising procedure in selected patient groups. However, currently the evidence on the effectiveness and safety carries a high risk of bias. At the moment, it is not possible to make a reliable cost comparison between TORS and the other treatment options.

