

Tonsil Surgery

Register Studies of Complications and Outcomes

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentlig försvaras i föreläsningssal P2240 (Waldemar Sjölander), Medicinarelängan, Medicinaregatan 7A, Göteborg

Fredagen den 6 december klockan 13:00

av
Eirik Østvoll

Fakultetsopponent:
Professor Diana Berggren

Enheten för öron-, näs- och halssjukdomar/ Institutionen för klinisk vetenskap
Umeå Universitet

Avhandlingen baseras på följande delarbeten

- I. Østvoll E, Sunnergren O, Stalfors J. Does tonsillectomy reduce medical care visits for pharyngitis/tonsillitis in children and adults? A retrospective cohort study from Sweden
Accepted for publication in BMJ Open
- II. Østvoll E, Sunnergren O, Stalfors J. Increasing Readmission Rates for Hemorrhage after Tonsil Surgery: A Longitudinal (26 years) National Study
Otolaryngol Head Neck Surg 2018;158(1):167-176
- III. Østvoll E, Sunnergren O, Ericsson E, Hemlin C, Hultcrantz E, Odhagen E, Stalfors J. Mortality after tonsil surgery, a population study, covering eight years and 82,527 operations in Sweden
Eur Arch Otorhinolaryngol 2015;272(3):737-743
- IV. Østvoll, Sunnergren O, Stalfors J. Tonsillar postoperative haemorrhage in Sweden 2009-2017, merging of data and evaluation of inter-rater reliability based on two national registers
Manuscript

SAHLGRENKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER



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Abstract

Tonsillectomy is a commonly performed surgical procedure yet the evidence of the effect in patients with recurrent/chronic throat infections is unsatisfactory. Great variations exist in the reported rates of postoperative haemorrhage and mortality. The aims of this thesis were to investigate the effect of tonsillectomy for recurrent/chronic throat infections and determine the rates and risk factors for secondary haemorrhage as well as the mortality rate in Sweden.

METHODS/RESULTS: *Paper I*, a retrospective cohort study based on data from the Western Swedish Health Care Register (VEGA), compared the number of medical care visits for pharyngitis/tonsillitis in children and adults before (2 years), and after (3 years) tonsillectomy or no surgical treatment. The study showed a small significant reduction in medical care visits after tonsillectomy compared to no surgical treatment, with a difference in the change in mean yearly rate of -0.283 in children and -0.111 in adults. All patients had few visits in the follow-up years regardless of surgical intervention. The effect of surgery was greater in children, in patients with higher number of medical care visits before surgery, and the first year of follow-up. In *paper 2*, a retrospective cohort study based on data from the National Patient Register in Sweden (NPR), the rates of readmission and reoperation for haemorrhage in Sweden (1987-2013) are described, as well as longitudinal changes related to trends in tonsil surgery practice. The overall readmission rate for haemorrhage was 2.61% and the reoperation rate was 0.84%. Readmission rates for haemorrhage increased significantly from 1.12% (1987) to 4.80% in 2013 and the increase was most pronounced for adults who underwent tonsillectomy for infectious disease. Male gender, increasing age, tonsillectomy and infectious indications were identified as independent risk factors for readmission and reoperation for haemorrhage. In *paper III*, the mortality rate (1/41 236) after tonsil surgery in Sweden from 2004-2011 was determined by matching the number of surgeries in the NPR with deaths within 30 days registered in the cause of death register (CDR). In *paper IV*, a retrospective cohort study, registrations of surgical events and admissions for haemorrhage were retrieved from the NPR and the National Tonsil Surgery Register in Sweden (NTSRS) 2009-2017, and subsequently matched and merged to increase the coverage and completeness of registrations. The inter-rater reliability between the registers in reporting admission for haemorrhage was determined (98.9% percent agreement and a Kappa value of 0.88). The admission rate for haemorrhage was 4.2% in the NPR, 5.1% in the NTSRS and 4.5% in the merged cohort.

CONCLUSIONS: Tonsillectomy, in moderately or less affected children and adults, reduced the number of medical care visits for throat infections compared to no surgery but the reduction was small and not clinically relevant. The readmission rate for haemorrhage in Sweden increased from 1.12% (1987) to 4.80% in 2013 and have subsequently decreased (3.2% in 2017). Male gender, increasing age, tonsillectomy and infectious indications were identified as independent risk factors for admission and reoperation for haemorrhage. The mortality rate in Sweden after tonsil surgery (2004-2011) was 1/41 236. The NPR and the NTSRS showed close agreement in reporting of haemorrhage events and merging of data from the registers improved coverage and completeness of surgical events as well as haemorrhage events.

KEYWORDS: Tonsillectomy, tonsillotomy, tonsillitis, pharyngitis, postoperative haemorrhage, mortality