

Paediatric sleep-disordered breathing - diagnostics and treatment

Akademisk avhandling

Som för avläggande av medicine doktorexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i Hjärtats aula, Vita stråket 12, Sahlgrenska Universitetssjukhuset, Göteborg

Fredagen den 9 februari 2018, klockan 09:00

av

Gunnhildur Gudnadottir

Fakultetsopponent:

Professor Diana Berggren

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

Avhandlingen baseras på följande delarbeten

- I. Gudnadottir G, Ehnhage A, Bende M, Andersson M, Cervin , Cardell LO, Hellgren.J.
Healthcare provider contact for children with symptoms of sleep-disordered breathing: a population survey.
The Journal of Laryngology & Otology, 2016 Mar; 130(3):296-301
- II. Gudnadottir G, Ragnarson Tennvall G, Stalfors J, Hellgren J.
Indirect costs related to caregivers' absence from work after paediatric tonsil surgery.
European Archives of Otorhinolaryngology, 2017, Jun; 274(6): 2629-2636
- III. Gudnadottir G, Ellegård E, Hellgren J. Intranasal budesonide and quality of life in pediatric sleep-disordered breathing – a randomized, controlled trial.
Otolaryngology – Head and Neck Surgery, 2017 Nov. Epub ahead of print
- IV. Gudnadottir G, Hafsten L, Redfors S, Ellegård E, Hellgren J.
Respiratory polygraphy in children with sleep-disordered breathing.
Manuscript

**SAHLGRENKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER**



Paediatric sleep-disordered breathing - diagnostics and treatment

Gunnhildur Guðnadóttir

Department of otorhinolaryngology, Institute of Clinical Sciences at the Sahlgrenska Academy,
University of Gothenburg, Sweden, 2018.

Abstract

Sleep-disordered breathing (SDB) in children causes multiple health problems and diminished quality of life. It is usually caused by tonsil and adenoid hypertrophy and is traditionally treated with adenotonsillar surgery. The aims of the first paper were to examine the prevalence of SDB in Swedish children and the extent to which these children attract the attention of the health-care system. Further aims of the thesis were to examine different aspects of diagnostics and treatment, such as the quality and usefulness of at-home respiratory polygraphy, the health-economic aspects of tonsil surgery and the effect of nasal steroid treatment on symptoms and health-related quality of life in children with SDB.

Methods/Results: **Paper I** is a population-based, cross-sectional study in which 1,320 randomly selected Swedish children, aged 0-11, received questionnaires regarding symptoms of SDB in the previous month, health-care contacts and general health; 4.8% of the children had frequent SDB symptoms. Of these children, only 31% had been in contact with the health-care system due to their SDB symptoms. **Paper II:** A retrospective register study was conducted on all children aged 1-11 years that had tonsil surgery due to upper airway obstruction in 2011 and were included in the National Tonsil Surgery Register in Sweden (NTSRS), n=4,534. The mean duration of analgesic treatment was 4.6 days and the mean number of days with temporary parental benefits from the Social Insurance Agency was 2.9 days. The indirect costs were 61% higher after tonsillectomy than after tonsillotomy, due to a shorter recovery time after tonsillotomy. **Paper III** is a randomised, placebo-controlled study that comprised 60 children with SDB, aged 4-10 years. They were treated with budesonide or placebo nasal spray for six weeks. The improvement in health-related quality of life, measured by the OSA-18 total score, was significantly greater in the budesonide group than in the placebo group. The VAS scores for quality of life, as well as snoring, apneas and nasal obstruction, improved after budesonide treatment. In **Paper IV**, the quality of the at-home respiratory polygraphies performed on the children in Paper III was analysed and found to be poor, most often due to a missing nasal airflow signal. In an analysis of 17 polygraphies of good quality, the interrater correlation between two independent scorers was moderately good, but, when the nasal airflow signal was excluded and the scores for respiratory events were based on RIP flow, the correlation was negatively affected.

Conclusions: Many children with SDB do not get an appropriate evaluation and treatment. The costs for parental absenteeism after tonsillotomy are lower than after tonsillectomy. Nasal steroid treatment is effective in children with mild to moderate SDB. The quality and reliability of at-home respiratory polygraphy in children with SDB is questionable and needs further evaluation.