Two New Non-invasive Treatment Methods for Otitis Media with Effusion in Children and Obstructive Sleep Apnoea in Adults

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av

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1. A New Device for Treatment of Persistent Otitis Media with Effusion. Bidarian-Moniri, A; Ramos, M-J; Gonçalves, I; Ejnell, H. International Journal of Pediatric Otorhinolaryngology, 2013; 77: 2063-70
2. Autoinflation for Treatment of Persistent Otitis Media with Effusion in Children: a cross-over study with a 12-month follow-up. Bidarian-Moniri, A.; Ramos, M-J; Ejnell, H. (submitted 2013)
3. The Effect of the Prone Sleeping Position on Obstructive Sleep Apnoea. Bidarian-Moniri, A.; Nilsson, M.; Rasmusson, L.; Attia, J.; Ejnell, H. (submitted 2014)
4. Positional Treatment for Obstructive Sleep Apnoea with a Mattress and Pillow for Prone Positioning. Bidarian-Moniri, A; Nilsson, M; L.; Attia, J; Ejnell, H. (submitted 2014)

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ABSTRACT

Otitis media with effusion (OME) in children and obstructive sleep apnoea (OSA) in adults are common conditions in medicine. Several surgical and non-surgical methods have been suggested for treatment of these diseases. However, to find an appropriate treatment option is a challenging task for the clinician and many patients do not have an optimal treatment for their disease. In this thesis two new non-invasive treatment options were developed and evaluated. Papers 1 and 2 deal with OME in children and papers 3 and 4 concern OSA in adults.

Paper 1 deals with the development of a new device for autoinflation and evaluation of the effect on OME. In a pilot study, the effect of the new device on middle ear pressure was studied in 21 children with persistent OME. In the treatment group 83% of the ears were considered to be responders compared to 30% improvement in the control group during the follow up period.

Paper 2 was a randomised controlled cross-over study evaluating the effect of the new method for autoinflation, with respect to middle ear pressure and hearing thresholds in 45 children with persistent OME awaiting grommet surgery. After four weeks of treatment the mean middle ear pressure and the mean hearing thresholds were improved by 166 daPa and 6 dB hearing level respectively compared to non-significant alterations in the control group. After the cross-over of the control group to treatment, equivalent improvements were achieved. After four weeks of treatment in both groups only four of the 45 included children were operated with grommet due to persistent disease. Both groups were followed up during additional 10 months whereby another five children were submitted to grommet surgery due to disease recurrence. Compliance was satisfactory with all the children performing the manoeuvre.

Paper 3 concerns evaluation of the effect of the prone sleeping position on severity of disease in OSA with polysomnograpic (PSG) and polygraphic (PG) sleep studies. During the two-night study, first on a normal mattress with optional positioning and then on a mattress and pillow facilitating prone positioning, the median apnoea-hypopnoea index (AHI) was reduced from 23 to 7 and the oxygen desaturation index (ODI) from 21 to 6. This improvement was achieved by a reduction in the supine and an increase in the prone sleep time.

Paper 4 was an evaluation of the four-week compliance and the effect of the mattress and pillow for prone positioning (MPP) on severity of disease in OSA patients evaluated by PSG. The mean AHI and ODI were reduced from 26 and 21 to 8 and 7 respectively with the MPP. This was achieved with no significant disruption of the sleep architecture and satisfactory compliance in the four-week study.

Keywords: Otitis Media with Effusion; Secretory Otitis Media; Autoinflation; Obstructive Sleep Apnoea; Positional Therapy; Conservative, Non-invasive, Non-surgical Treatment Methods

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