A Summary of:

Predictive Factors for the Need for Additional Humidification During Nasal Continuous Positive Airway Pressure Therapy

D. Rakotonanahary, N. Pelletier-Fleury, F. Gagnadoux and B. Fleury; Chest 2001; 119: 460-465

TAKE HOME POINTS

- Heated humidification significantly increased the average daily use of nCPAP in patients with nasal symptoms. However, cold pass-over humidification was unable to demonstrate any significant increase in average nightly CPAP use in patients reporting nasal symptoms.
- An age greater than 60 years, drying medications, CMD and previous UPPP all significantly predicted the need for heated humidification use during nCPAP therapy.

AIM

1) To define predictive factors for adding heated humidification in obstructive sleep apnea syndrome (OSAS) patients starting nasal continuous positive airway pressure (nCPAP) therapy.

METHOD

82 consecutive patients with OSAS were recruited over a 12-month period.

All patients completed a questionnaire and underwent an otolaryngologic examination in order to identify any symptoms of chronic disease of the nasal mucosa (CMD), previous uvulopalato-pharyngoplasty (UPPP) and/or fixed obstruction of the nasal cavities due to a deformity of the nasal septum.

Age, sex, body mass index (BMI), drying medications, Epworth sleepiness scale (ESS), apnea/hypopnea index (AHI), effective level of nCPAP therapy and the season when nCPAP therapy was begun.

Following an overnight titration, patients were sent home on nCPAP. They were encouraged to report by phone any occurrence of significant nasopharyngeal symptoms. Scheduled visits were also carried out at the end of one month, three months and twelve months.

If patients developed significant nasal discomfort a cold pass-over humidifier was added to the nCPAP circuit. Following this change patients were then followed up at three months and again at twelve months.

If nasal symptoms persisted their equipment was replaced by a new CPAP fitted with a heated humidifier.

RESULTS

From the initial 82 patients, 46 (56%) developed nasal symptoms. Of these, 23 found that their symptoms resolved after introducing cold pass-over humidity to the system. However, for the remaining 23 it was necessary to use heated humidification.

Although adding cold pass-over humidity to the nCPAP system appeared to correct the subjective feeling of nasal symptoms, patients did not significantly increase their use of CPAP (prior to humidification 4.58 + 2.05 h/d and with cold pass-over 4.70 + 2.48 h/d, $p = 0.75$). Comparatively the group that went on to receive heated humidification with their CPAP therapy did in fact significantly increase their use (prior to humidification 3.51 + 2.53 h/d, with cold pass-over 3.84 + 2.08 h/d and with heated humidity 5.38 + 2.26 h/d, $p = 0.0004$).

Using logistic regression the authors were able to identify several risk factors that are associated with the need for heated humidification. These were age > 60yrs, the use of drying medications, CMD and previous UPPP.

CONCLUSIONS

Although only 50% of those requiring humidification received heated humidification, it must be noted that it was only after the introduction of heated and not cold pass-over humidification that the average daily use of CPAP significantly increased.

If a patient is over 60 years of age, is taking medications that may dry the airways, has chronic disease of the nasal mucosa and/or has previously had a UPPP. They are significantly more likely to require heated humidification in order to become a compliant user of nCPAP.

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