Respiratory Polygraphy in children: feasibility in every day practice in an ENT department and value of the automatic detection of respiratory events

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Introduction

Respiratory Polygraphy (RP) in children can be challenging:
• Device acceptance
• Sensors displacement
• Monitoring environment

The automatic analysis of respiratory events is used in adults, but has never been evaluated in a pediatric population.

Objectives

• To determine the feasibility of pediatric RP in an ENT department routine practice
• To evaluate the reliability of the automatic signal analysis in children

Patients

• Retrospective single center study
  - January-August 2016
  - 60 patients (32 boys, 18 girls)
  - Mean age 5.5 ± 2.3 years
  - Overnight RP in an ENT Hospitalization for Obstructive Sleep Apnea Hypopnea Syndrome (OSAHS) suspicion
  - Nox T3 (Novo Medical Inc. Reykjavik, Iceland). French Distribution by Resmed (San Diego, California, USA)

Indications

• Manual interpretation by the same ENT specialist trained to pediatric RP analysis
• Comparison with automatic detection of respiratory events
  - Information collected:
    • Clinical data
    • Acceptance of the device
    • Sensors displacement during recording
    • Signal quality: a quality<50 was considered technically acceptable

Methods

Comparison of manual/automatic analysis

Conclusions

• Pediatric RP is feasible in routine practice in an ENT department, with good acceptance and satisfactory signal quality in children older than 3
• The automatic detection of respiratory events in children is unreliable, except for central apneas. Manual analysis must be performed for obstructive events, and manual correction of the automatic analysis for central events.

Future research

• Contribution of transcutaneous carbon dioxide measurement in addition to RP in the assessment of pediatric OSAHS

References


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Patient Characteristics

- Device acceptance
- Sensors displacement
- Manual analysis
- Automatic analysis
- Acceptance
- Signal quality
- Manual correction

Feasibility

- 99% of the cases
- 70% of technically acceptable RP’s (signal quality>50)
- Average signal quality 70%

Comparison of manual/automatic analysis

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Spearman coefficient=0.43 (p<0.005)

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